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INDEX TO VOLUME I FOR 1943

READERS in search of a particular subject will find it useful to bear in mind that the references are in several cases distributed under two or more separate headings—for example, Brain and Cerebral ; Heart and Cardiac ; Liver and Hepatic ; Renal and Kidney ; Cancer and Carcinoma ; Child and Infant ; Goitre and Thyroid. Subjects dealt with under various main headings in the JOURNAL have been set out in alphabetical order under their respective headings—for example, " Annotations," " Correspondence," " Leading Articles," " Obituary," " Reviews," etc. Original Articles are indicated by the letter (O).

A

ABBOTT, W. N : Pulmonary disease in miners, 581
—— W. O : *Decompression of the Intestinal Tract*, 73
Abdomen : Abdominal wounds in war : treatment of individual lesions (Sir James Walton), 61 (O)
—— severe gunshot wound of (W. P. Griffin), 352
—— blast injury to, by depth charge (D. D. Pinnock and P Wood), 537 (O) ; correspondence, 648
—— regional analgesia for operations on (book review), 666
Abel, Rudolf, death of, 367
Abortion, habitual, 807
Abortus fever (D. G Leys), 187 (O) ; correspondence, 299, 394, 425, 677—Bovine brucellosis (leading article), 387
RAHAMS, Sir Adolphe : Vitamins and physical efficiency, 394, 580—The M'Naghten rules, 707
Absence, sick, among munition workers, 110
Absenteeism in industry, 303, 429
T, Isaac A. and Arthur F : *The 1942 Year Book of Pediatrics*, 789
Abyssinia : Memorial hospital to Princess Tsahai, 37—Medical services for, 239

ACADEMY, ROYAL, OF MEDICINE IN IRELAND :
  Section of Medicine : Giardia lamblia infestation, report on, 456—Miliary tuberculosis, 517
  Section of Obstetrics. Pseudo-hermaphroditism, 486—Action of drugs on the uterus, 643
  Section of Pathology : Adrenal neuroblastoma, 51
  Section of Anatomy and Physiology : Functions of the pyloric canal, 142
  Section of Obstetrics : Placental polypus, 229

Accident service, future civil : report on, to British Orthopaedic Association, 484
Accidents, analysis of statistics, 29
—— industrial, statistics, 744
—— need for national policy, 360
Acetarsol vaginal compound, 478
Acid, alkali, and meals, effect of, on blood level and excretion of sulphapyridine in children (H. Ellis C Wilson), 507 (O)
—— phosphatase and prostatic cancer (leading article), 571
Adam, Thomas Blane, obituary notice of, 431
Adams, Alfred, obituary notice of, 237
—— D. : Jamaica Medical Service, 148
Adder bite, 55, 769
Addison's disease, desoxycorticosterone in : a comparison of different methods of administration (D M Dunlop), 557 (O)
Adenocarcinoma *See* Cancer
Adoption of children, 115, 235

ADRENALS :
  Adrenal cortical therapy, 433
  —— neuroblastoma, 51
  —— pituitary disorders (S. L. Simpson), 247
  Adrenalectomy and loss of hair in rats (L. Stein and E. Wertheimer), 217
  Desoxycorticosterone acetate and natural extracts of suprarenal cortex, 701
  Fulminating purpura and adrenal haemorrhage, 22, 120
  Haemorrhagic suprarenal infarction, 22

Africa, visits to, by medical advisers to Colonial Office, 79
Agglutination reactions, abnormal, of a strain of *Leptospira icterohaemorrhagiae* (J. C Broom and H. C. Brown), 783 (O)
Agriculture : Cottages for farm workers, 240
Aiton, Temp. Surg Lieut. Archibald Barr, " missing, believed killed," 117
Akwei, Eustace, disclaimer by, 622
ALBERT, S. (and Hans SELYE) : Gonad-protecting power of steroids, 679
COCK, Helen Bower : Future of women in medicine, 393
ocke, Nicholas, surgeon to Henry VIII and Edward VI, 20
Alcohol, venereal disease and, 528
XANDER, Harry L. : *Synopsis of Allergy*, 353
Alimentary tract dysfunction, psychological factors in, 516
Alimentation, intravenous (leading article), 416
Alkali, acid, and meals, effect of, on blood level and excretion of sulphapyridine in children (H. Ellis C Wilson), 507 (O)
Alkaptonuria, diagnosis of (J. Noël Gould and Tudur Glyn Thomas), 788
ALLAN, Malcolm : Contaminated injection, 776
Allen, Edgar, death of, 650
—— Frank James, obituary notice of, 86 ; corrigendum, 148
—— Frederick M : Calorie control diabetic diet, 676
—— F. R. W K . Hand and finger lesions, 654
Allergy : Social aspects of (E. M Fraenkel), 216 (O)—Synopsis of (book review), 353—To liver extract, 370, 528, 613—Irritant spectacle frames, 493, 552, 648
—— nasal (R.S.M.), 674
ALLOTT, E. N : Blood serum in Raynaud's disease, 455
AMBERSON, J. Burns (and others) : *Modern Aspects of the Anti-tuberculosis Program*, 255
America : Association for the Advancement of Psychoanalysis, New York, 208—Tuberculosis studies from (book review), 255—American Library in London, 651
—— South, cancer research in, 14
Amino-acridine compounds. *See* Flavines
Amnioplastin as absorbable tissue isolator (Lambert Rogers), 423
AMOR, Arthur J. : *X-ray Atlas of Silicosis*, 2nd ed , 192—The nature of industrial medicine, 514
Amphetamine sulphas, use of, in facilitating electrically induced convulsions (K. C. Bailey), 250 (O)
Amputation stumps, cineplastic, review of book on, 696
Anaemia : Iron for, 242—Is is prevalent? (leading article), 449 , correspondence, 612—Hypopituitarism, hypogonadism, 776
—— haemolytic, of the newborn, Rh factor in (T. W Lloyd), 132
—— macrocytic, of pregnancy and puerperium (H. W Fullerton), 158 (O)—Following partial gastrectomy (A. J. Rhodes and A. Grunberg), 726
—— pernicious : Of pregnancy (leading article), 105 ; correspondence, 233—Intolerance to liver extract in (E. Delikat), 539 (O) ; correspondence, 613—Treated with pyloro-duodenal extract and liver in tablet form (binaemon) (J. Stewart Lawrence), 567—Treatment with an experimental proteolysed liver preparation ; preliminary observations (L. J. Davis and others), 655 (O)
Anaesthesia : For laryngofissure (C. W. Lewis), 162 ; correspondence, 230, 302, 334, 395, 458—Case of anaphylaxis after (novutox), (R Armattoe), 191—Oxford ether vaporizer, 232, 556—With special reference to dentistry (book review), 353—Brain volume during (annotation), 357—Recent advances (book review), 415—And analgesia in obstetrical practice (R S.M), 577
—— endotracheal, review of book on, 478
—— peroral intratracheal, universal apparatus for (G Hornby and M. Hawksley), 317 (O)
—— refrigeration (leading article), 573
—— regional (annotation), 700
—— trichlorethylene, 398—In plastic surgery (R A. Gordon and R. P W. Shackleton), 380 (O)—A note on (J. Haworth and A. Duff), 381 (O) ; correspondence, 489, 582
Anaesthetic deaths, epiglottis in, 590
Anaesthetics afloat, review of book on, 221
Analgesia, ethyl chloride (J. D. Rochford and B. T. Broadbent), 664
—— regional, for abdominal operations (book review), 666
Anaphylaxis after novutox anaesthesia (R. Armattoe), 191
Anatomical nomenclature, 492
Anatomy of central nervous system, review of book on, 478
—— principles of, and the peripheral nerves (Section of Physical Medicine, R.S.M.), 197
ANDERSON, A. B. : Lactation tetany, 517
—— A. F : Scientific freedom and social medicine, 393
—— B. G. (and J. F. SADUSK) : Chancre of the gum, 56
—— C Woodroffe (and W. Powell PHILLIPS) : *Preventive Inoculation*, 353
ANDERSON, Thomas. Chemotherapy in pneumonia, 485—Some aspects of the chemotherapy of pneumonia, 717 (O)
—— W. L. (and D. B. BRADSHAW) : A case of malignant tertian malaria, 508 ; correspondence, 613, 622, 678, 714
ANDRATSCHKE, B. (and C. H. ROGERSON) : Mild depressive psychosis, 780
ANDREWES, C. H : Influenza vaccination, periodicity, and virus, 643
Androstenediol, action of, with testosterone (Hans Selye and S. Albert), 679
Aneurysm of the hepatic artery, a note on, with reference to a rare cause of severe gastro-intestinal haemorrhage (G Gordon-Taylor), 504 (O)

Annotations :
  Anaesthesia, brain volume during, 357
  —— refrigeration, 573
  —— regional, 700
  Anti-social behaviour disorders, 195
  Any Questions? 226
  Appendicitis, appendical mechanics and, 511
  Arthritis, rheumatoid, peripheral nerves in, 640
  Asthma, theophylline for, 731
  Blindness, causes of, 387
  Blood groups, determination of, 764
  Boyd, Dr. Robert : Gift to Manchester, 138
  Brain, hypoglycaemia and the, 672
  Bronchiectasis and collapse, 77
  Brucellosis, bovine, 387
  Buzzard, Sir Farquhar, 226
  Cancer, oesophageal, surgery of, 48
  —— prostatic, castration for, 545
  Children : Four-year plan for nurseries, 639
  Collapse and bronchiectasis, 77
  Contracture, ischaemic, treatment of, 108
  Czechoslovak medical degrees conferred at Oxford, 325
  Desoxycorticosterone and fluid metabolism, 513
  —— and natural extracts of suprarenal cortex, 701
  Diabetes : Oestrogen treatment of, 107—Treatment of diabetic coma, 166—Retinal venous changes in, 546
  Diet, influence of, on renal volume, 226
  —— and trinitrotoluene poisoning, 671
  Drugs of addiction, control of, 512
  Epidemiology of streptococcal infections, 195
  Europe, starvation in, 46
  Feeding, communal, standardization in, 293
  Food yeast, 294
  France, Southern, starvation in, 166
  Front line, a county borough in the (review of *War over West Ham*), 764
  Harben gold medal, 482
  Health Education Journal, 388
  —— —— for girls, 672
  —— and hygiene, industrial, 356
  —— units for West Indies, 639
  Hospital, British, for Stalingrad, 701
  Housing, an inquiry, 700
  Hydrocephalus, communicating, surgery of, 357
  Hygiene, tropical, 638
  Indexes, half-yearly, 260
  Infantile mortality, causes of, 19
  Influenza prevention, 17
  Injection, the contaminated, 608
  Jaundice and yellow fever vaccine, 77
  —— inquiry into growing incidence of, 609
  Keratoconjunctivitis, epidemic, 418
  Ketosis and gonadotrophin secretion, 419
  Liver function, hippuric acid synthesis and, 546
  —— puncture, 78
  —— side-tracking the, 482
  Lung-dusting experiments, 18
  Lungs : Pulmonary congestion and oedema, 451
  Lymphopathia venereum, 17
  Medical folklore, 452
  —— journalism. 75th birthday of the *Practitioner*, 731
  —— practitioner as teacher, 701
  —— training, breadth or depth in? 640
  Medicine, industrial, research in, 672
  Milk, compulsory pasteurization, 512
  Mosquitoes, control of, in Britain, 482
  Mouth, occupation and the, 356
  Nerve injuries, peripheral, aids to the investigation of (M.R.C. War Memorandum), 78

Annotations (*continued*):
Nerve injuries, peripheral, diagnosis of, 138
Neutrons, slower, 481
Newborn, care of the, 259
Orchitis of mumps, operation for, 138
Pasteurization, doctors agree about, 258
Pathological laboratories, supplies for, 18
Penicillin, 481
Periarteritis nodosa, new light on, 608
Phenobarbital, skin reaction to, 763
Plague abroad, 699
Pleuritis, aseptic obliterative, silver nitrate for, 419
Pneumonia, primary atypical, aetiology unknown, 225
Poliomyelitis virus in water, 545
Polyneuritis, infectious; 292
Pregnancy, tetany in, treatment of, 418
Progesterone and vitamin E, 259
Propamidine, 324
Protein reservoir, 572
Quinine substitutes, 452
Riboflavin and corneal vascularization, 545
Russia, surgical mission to, 701
Scabies on the screen, 451
Shipwrecked, help for the, 167
Silicosis in Sweden, 260
Sprue syndrome, pathogeny of, 639
Starvation in Europe, 46
—— in Southern France, 166
Surgery of tendons, 325
Tract for the times (hours of work), 609
Tuberculin and radiological survey, combined, 47
Tuberculosis, endobronchial, 294
—— experimental, 196
—— incubation period in, 260
—— pulmonary, diet in, 574
Tuberculous cavities, treatment of, 763
Ulcer, duodenal, physiological gastrectomy for, 388
—— peptic, pathogenesis of, 165
—— —— of the oesophagus, 573
Vaccination, B C G, 167
Vaccine, yellow fever, and jaundice, 77
Venereal disease, cerebral reactions to anti-syphilitic therapy, 671
—— —— statistics of, 137
—— —— in Sweden, 574
Vitamin C and carbohydrate metabolism, 608
—— E, progesterone and, 259
Vitamins and physical fitness, 417
Wasting disease and lesions of the nervous system, 195
Wilson, Sir Charles, the Prime Minister's physician, 78
Woman, the heaviest, 108
Wounds, antiseptic treatment of, 106
Youth registration and hours of work, 730

Anoxia, crush injury and, 708
Anstey-Chave, Thomas, obituary notice of, 399
Antaki, Capt. Albert Joseph, death of, 117
Antiseptics, surface: present status of amino-acridine compounds (flavines) (C. H. Browning), 341 (O); leading article on, 355; correspondence, 486
Anti-social behaviour disorders (annotation), 195
Aorta, pregnancy and labour in a case of congenital coarctation of the (C. M. Walker), 90 (O); correspondence, 302, 426, 528, 738
Appeal tribunals, medical staffing of, 240
Appendicitis: Incidence in Sweden, 150—Probable influence of health education on improving mortality rate in (D. B. Armstrong), 277 (O)—Appendical mechanics and (annotation), 511—Three cases of prolonged faecal fistula following operation for (P. T. Crymble), 532 (O)
A.P.T.: keeping it cool and upright, 775
APTHORP, J. O. E.: Placental polypus, 230
ARCHER, N. (and E. SINGER): Successful treatment of influenzal meningitis with sulphonamides, 286 (O)
—— Col. Samuel Arthur, death of, 367
Ariboflavinosis, 645
Armour, Theodore Robert William, obituary notice of, 430
ARMSTRONG, D. B. Probable influence of health education on the improving appendicitis mortality rate, 277 (O)
Armstrong-Jones, Sir Robert, obituary notice of, 175
Army: Disciplinary cases, form of report by psychiatrists in, 5—Rehabilitation in, 337—Proportion of men rejected, 368—Vaccination in, 400—Medical regrading and employment in, 400—Proportion of men invalided for neurosis, 432—Education on venereal diseases, 553—Blood transfusion service, 610 *See also* Services, War
Arteriosclerosis, cramp in, 340
Artery, hepatic, a note on aneurysm of, with special reference to a rare cause of severe gastro-intestinal haemorrhage (G. Gordon-Taylor), 504 (O)
—— innominate, ligature of, 172, 301
Arthritis and intestinal streptococci, 654
—— rheumatoid: Soluseptasine for, 30—Peripheral nerves in (annotation), 640
Asbestosis and silicosis, medical board for, 368
Ascorbic acid, use of, in treatment of two cases of familial idiopathic methaemoglobinaemia (James Deeny and others), 721 (O)
ASHFORD, W. A. *Air Raid First Aid*, 541
Aspirin and gastric haemorrhage, 714, 768
Association for the Advancement of Psychoanalysis, New York, 208
Association, British Medical: Jubilee membership of husband and wife, 60—A member resigns (leading article), 135; correspondence, 200, 230, 267, 300, 332—And the Beveridge Report (leading article), 193; correspondence, 266, 299, 330, 362, 428—A safe milk supply; deputation to the Minister of Food, 265—A united front (leading article), 354—Consultation with Government on Beveridge Report, 359; Representative Committee, 359—Interdepartmental Committee on Medical Schools: memorandum of evidence, 702
—— —— Orthopaedic: Surgical treatment of osteomyelitis due to a penetrating wound (G. Perkins), 441 (O)—Military orthopaedics (special meeting), 483—And Empire Rheumatism Council: statement on prevention of crippling, 50; correspondence, 54, 111
—— —— of Physical Medicine, 621
—— —— Records: Memorandum on what records can be safely destroyed, 589
—— Capetown Postgraduate Medical, 621
—— Central Provident, 705
—— of Clinical Pathologists: Report of meeting and papers, 455
—— County Councils: Meeting with Minister of Health, 368
—— European, of Clinical Pathologists: Proposals for, 364—Inauguration of, 515
—— Family Planning, 644
—— of Industrial Medical Officers, 79
—— Mental After-Care: 63rd annual meeting, 298
—— of Municipal Corporations: Meeting with Minister of Health, 368
—— National, for Prevention of Tuberculosis: Closing of colony for boys, Burrow Hill, 589—26th annual conference, 641
—— Royal Medico-Psychological: Symposium on prefrontal leucotomy (leading article on), 510
—— Scottish National Blood Transfusion. Plasma drying unit opened, 464
—— Socialist Medical: Report of meeting, 339—Representatives' meeting with Minister of Health, 464
Asthma and other conditions in occupations and military service (E. M. Fraenkel), 216—*Physical Exercises for*, 4th ed., 287—In childhood (Sir A. Hurst), 403 (O); R.S.M. meeting on, 422; correspondence, 520, 550, 584—Psychological factors in (C. H. Rogerson), 406 (O)—Psychogenic factors in bronchial (leading article), 416—Sulphonamides in, 551—Treatment by nicotinic acid (G. Melton), 600 (O)—Theophylline for (annotation), 731
Atebrin, dose of, in malaria, 770
ATHOLL, Duchess of (and others): British Hospital for Stalingrad, 711
ATKINS, W. R. G. Vitamin C saturation test, 254
Atropine glaucoma (J. E. Martin), 631 (O); correspondence, 708
AUBERT, E. F. (and others): Withdrawal of blood for transfusion, 708
Austen, H. W. C., obituary notice of, 304
Australia: "Flying Doctor Service," 11
Avitaminoses in Middle East Forces, 375

B

Bacilli, saprophytic acid-fast, 455
—— typhoid, experiences of typing of, by means of Vi bacteriophage (A. Felix), 435 (O)
BACKWELL, M.: Teaching first aid, 82
Bact. typhosum type D4, an endemiological study (W. H. Bradley), 438 (O)
Bacteria, sulphonamide-resistant, 201
Bacteriophage treatment of bacillary dysentery (Arthur Compton), 424
Bagassosis and byssinosis (leading article), 46; correspondence, 110, 397
BAILEY, J. Shackleton: B.M.A. and Beveridge Report, 266
—— K. C. Amphetamine sulphas, use of, in facilitating electrically induced convulsions, 250 (O)
—— K. Vernon: A wheeled stretcher or equipment carrier, 542
Bailhache, Major Eric, death of, on service, 176
BAIRD, Dugald: Stillbirths and premature labour in hospital and specialist practice, 51
BAKER, Richard S. W. Lederle's pertussis antigen in treatment of whooping-cough, report of an investigation, 562 (O); correspondence, 678
Balantidiosis, a case of, 145
BALFOUR, Margaret: Nutrition in pregnancy, 297
BALLANCE, G. A.: Irritation of the urinary tract by "doped" beer, 540
Bandage, barrel, 589
BANKS, H. Stanley: Chemotherapy for meningococcal infections, 485
BANNISTER, Freda B. (and R. R. MACINTOSH): *Essentials of General Anaesthesia*, 353
Banting, Sir Frederick, notes on a book on, 448
BARBER, H. W.: Lupus erythematosis, 580
BARCROFT, Sir Joseph Nutritional functions of the placenta, 297
—— (and others): Minimum human requirements, 460
BARENDT, Geoffrey H. Paying for V.D. treatment in mental hospital, 21
BARFORD, J. L.: An adapted cork, 90
—— L. J.: Gastro-enteritis in infants, 581
BARLING, B.: Sulphonamide therapy, 484
BARLOW, Hilda: Cancer research, 611
—— K. E.: Chemist's shop in Denmark, 178—Undisclosed Government plans, 518
BARLOW, Sir Thomas: R.M.B.F. Christmas gifts, 84
Barkworth, Mrs. Emily Wilson: Bequest for education of doctors' sons, 115—Opposition of R.C.S. to extension of scope of trust, 273
BARNARD, H. F.: Periodic medical examination, 56
Barnes, Lieut. G. F., killed in action, 683
—— J. M. The treatment of burns, 408 (O)
Barnett, Burgess, appointed M.B.E. (citation), 632
BARRETT, Sir James W. Phlyctenular ophthalmia, 231—Incidence of V.D., 645
BARRITT, Maxwell M.: Improved Pappenheim stain for detection of gonococci in smears of pus, 254
BARRON, John N.: Hand and finger lesions, 55
BATES, J. Vincent: Post-scarlatinal thrombophlebitis migrans, 665
BATTEN, Lindsey W.: Freedom to practise, 328
Battye, Lieut.-Col. Walter Rothney, obituary notice of, 617
BAUER, Julius: *Constitution and Disease*, leading article on, 510; correspondence, 612; publication in U.K., 667
BAUWENS, P.: Appreciation of W. J. Turrell, 271
B C G vaccination (annotation), 167
BEADNELL, C. M.: German explosive bullets, 171
BEATTIE, W. M.: Age and perforation of peptic ulcer, 434
BEDSON, S. P. Recent work on virus diseases, 642
Beer, "doped," irritation of the urinary tract by (G. A. Ballance), 540
Bee-stings, mosquitoes, and chloroform, 462
Bees: Diet and queening, 30
BEESON, Paul B. (and Ethel WESTERMAN): Cerebrospinal fever. Analysis of 3,575 case reports with special reference to sulphonamide therapy, 497 (O)
BEGGS, S. T.: Training in preventive medicine, 556
Bégouin, Prof. Paul, obituary notice of, 586
Behaviour, anti-social, disorders (annotation), 195
Behr, Michael: obituary notice of, 272
Belgium Birth weight in, 298—Famine in, 641—Nutrition and child mortality in, 773
BELL, Arthur S. J.: Teaching first aid, 173
—— Doyne: Dietetics of pregnancy, 301
—— G. H.: Factors influencing lactation, 517
Bell's palsy, bilateral, a case of (A. A. McIntosh Nicol), 221
BENNETT, T. Izod: Vitamin deficiency, 199
BENNIANS, T. H. C. Investigations during an outbreak of bullous impetigo neonatorum, 623
BENSTED-SMITH, W. F.: Houses to live in, 584
BENTLEY, J. H. (and others): Doctors and the future, 649
Benzyl benzoate: Supplies available for treatment of scabies, 119—Scabies treated with one application of (John R. Graham), 413 (O)
BERGMANN, Ernst (and Rudolf NISSEN): *Cineplastic Operations on Stumps of the Upper Extremity*, 696
BERKELEY, Comyns (and others): *Midwifery*, by Ten Teachers, 7th ed., 13
—— (and Victor BONNEY). *Textbook of Gynaecological Surgery*, 4th ed., 568
BERTWISTLE, A. P.: Pain and cancer, 737
Beveridge Report B.M.A. and (leading article), 193; correspondence, 266, 299, 330, 362, 428—Freedom and, 235—In House of Lords, 305, 338—Parliamentary debate on, 273—Parliament and (leading article), 291—From Beveridge to Brown (leading article), 449; correspondence, 518—Government consultation with medical profession, 359, 428, 464
BEVINGTON, Sheila M.: *Nursing Life and Discipline*, 447
BICKNELL, Franklin (and F. PRESCOTT): *The Vitamins in Medicine*, 320
BIDGOOD, Charles Y. *Urology in War Wounds and Other Emergencies of the Genito-urinary Organs, Surgical and Medical*, 789
BIGWOOD, E. J.: Birth weight in Belgium, 298
—— (and others): A European Association of Clinical Pathologists, 365
Bilharziasis in the Middle East Forces, 375
Biliary pain, some observations on (Alastair A. Douglas), 10 (O)
BILLINGHURST, W. B. Coarctation of the aorta as an obstetrical complication, 302
"Binaemon," 567
Biochemistry and morphogenesis: Review of book on, 286—For medical students, 520
BIRCH, C. Allan. Pfeiffer's bacillus meningitis, recovery after sulphapyridine, 72
BIRD, H. Marcus (and others): Post-operative respiratory complications in Service cases, 754 (O)
BIRKS, P. H.: Symptomatology of malaria, 784 (O)
BISHOP, P. M. F. Appointments system at fracture clinic, 488
BLACKER, C. P.: War industry and neurotics, 422
BLACKLOCK, D. B.: Obituary notice of Prof. Warrington Yorke, 585
Blackmore, F. J. C., obituary notice of, 365
BLACKWOOD, W.: Experimental findings in immersion foot, 798
BLAIR, R. Bertram: Case notes for salvage, 462
—— R. G.: B.M.A. and Beveridge Report, 266
BLAND, H. W.: B.M.A. and Beveridge Report, 299
Blankets and pads, electric, and electromedical apparatus, control of, 49
BLAXLAND, A. J.: Phosphorus poisoning from German bullets, 170
Blindness: Prevention of, 55—Civilians blinded through enemy action, 150—Causes of (annotation), 387
BLINOFF, N.: Surgeons and surgery in Leningrad, 134

Blood: Effect of *p*H of, on haemolysis, with special reference, to blackwater fever (F. Smith and R. W. Evans), 279 (O); correspondence, 360, 458, 521, 551, 684—Methaemoglobin in normal human, 340—Sedimentation rate, 370—Increase of histamine in, after severe burns (B. Rose and J. S. L. Browne), 446—Chemical luminescence test for, 583, 709
—— blisters, oral, 745
—— diseases. clinical pathology of, 455
—— donors in Scotland, 589
—— groups, determination of (annotation), 764
—— grouping, forensic (book review), 758
—— level: Acid, alkali, and meals, effect of, on blood level and excretion of sulphapyridine in children (H. Ellis C. Wilson), 507 (O)
—— pressure: Methedrine, a new blood-pressure-raising drug: use of, in surgical operations (H. Dodd and F. Prescott), 345 (O)
—— products, human, jaundice following administration of (H. V. Morgan and D. A. J. Williamson), 750 (O)
—— transfusion: Problems of (book review), 221—Safety device for suction pump used for obtaining blood for transfusion (E. M. Watson), 321; correspondence, 707—Investigation of haemolytic reactions (P. L. Mollison) (Report to M.R.C.), 529 (O), 559 (O)—Accidents and deaths, 576—Army service, 610—In nocturnal haemoglobinuria (J. V. Dacie and Douglas Firth), 626 (O)
Blood, W.: Sick records and industrial medicine, 514
Blum, K.: Weil's disease, 231
Blusger, Isak Nahum, obituary notice of, 367, 431
Blyth, William: Pitressin diagnosis of idiopathic epilepsy, 100 (O); correspondence, 364
B.M.J. lost through enemy action, 398
Board, Central Midwives: President elected, 526
—— Conjoint, in Scotland: Licentiates admitted, 553—Pass lists, 205
—— Medical, for Silicosis and Asbestosis, 368
Bodian, David (and Howard A. Howe): *Neural Mechanisms in Poliomyelitis*, 44
Bodley, Alfred Lang, obituary notice of, 366
Boland, S. J.: *Giardia lambia* infestation, 456
Bolus, P. R.: War stress and incidence of neurosis, 422
Bond, Col. James Henry Robinson, death of, 239
Bonney, Victor (and Sir Comyns Berkeley): *Textbook of Gynaecological Surgery*, 568
Books and diversions, 120
Boon, T. H. (and others): Withdrawal of blood for transfusion, 707
Booth, G. H. H.: A persistent brow-presentation, 320—State subsidy for medical education, 767
Boring, Edwin G.: *Sensation and Perception in the History of Experimental Psychology*, 447
Bothman, Louis (and others): *1942 Year Book of the Eye, Ear, Nose, and Throat*, 133
Bourgeois, Surg. Lieut. J. de L., "missing, presumed killed," 431
Bourne, Aleck: Prematurity and nutritional deficiency, 199—Foetal development, 297—"Negligence" in obstetrics, 328
—— Geoffrey: *Return to Reason: An Essay in Political Diagnosis*, 104—Scientific freedom and social medicine, 227, 490; correspondence, 298, 331, 361, 392, 427, 490; leading article on, 323—Medicine and politics, 673, 7[illegible]8
—— L. B. (and J. V. O'Sullivan): Ante-natal and gynaecological clinic within a factory, 51
Bousfield, Guy: Medical reorganization: the constitutional position, 675
Bowman, M. (and C. R. Donovan): Encephalitis in Manitoba, 118
Boyd, J. S. K.: Enteric group of fevers in prisoners of war from the Western Desert, with special reference to prophylactic inoculation, Jan., 1941, to Feb., 1943, 719 (O); leading article, 728
Boyd, Robert: Obituary notice of, 117—Gift to Manchester (annotation), 138
Boyle's apparatus, field-pattern, modification for CO_2 absorption with (J. Montgomerie), 129 (O); correspondence, 232
Brackett, E. G., obituary notice of, 367
Bradbeer, W. H.: Thread for sutures in tonsillectomy, 233
Bradford, R. I. C.: Two cases of rubella meningo-encephalitis, 312 (O)
Bradley, W. H.: Tests for vaccines, 229—Epidemic nausea and vomiting, 309 (O)—An epidemiological study of *Bact. typhosum* type D4, 438 (O)
Bradshaw, D. B. (and W. L. Anderson): A case of malignant tertian malaria, 508; correspondence, 613, 678, 714
Braham, Capt. G. N., obituary notice of, 650
Brailsford, James F.: *X*-ray department at health centre, 83—Radiographic postero-medial border of the lung (linear thoracic paraspinal shadow), 219 (O)—Appreciation of Godfrey Brookes Dixon, 337—Incidence of pulmonary tuberculosis (mass radiography), 646

Brain:
  Cerebral activity in psychotic disorders (K. C. Bailey), 250
  —— contusion, treatment of (Lambert Rogers), 151; correspondence, 331
  —— reactions to antisyphilitic therapy (leading article), 671
  Damage, electric convulsion therapy and, 23
  Frontal white fibres, cutting the (leading article), 510

Brain (*continued*):
  Gas infection of the brain as one form of the serious complications of cerebro-cranial injuries (Report by Committee of Soviet scientists), 785
  Hypoglycaemia and the brain (annotation), 672
  Volume during anaesthesia (annotation), 357

Brain, R. T.: Skin diseases in war, 145—Treatment of scabies, 556
—— W. Russell: Coma and malnutrition, 80—Encephalitis and allied conditions, 296
Braithwaite, J. Vernon: *Infant Feeding in General Practice*, 2nd ed., 697
—— Leonard Ralph, obituary notice of, 24, 57
Bray, George: Nasal allergy, excluding hay-fever, 674
—— G. W.: Management of asthmatic child, 422
—— P. T. (and J. C. Cruickshank): Meningitis due to *Diplococcus mucosus*, a report to M.R.C., 601 (O)
Brazil: Medical Society of Pernambucó, 87
Bread factor in a wartime human dietary (M. R. Richards), 161 (O)—The national loaf, 176, 240—Bread and milk, 681—Composition of national bread, 808
Breast, dressing for cancer of, 29—Mammary cancer in mice (leading article), 385
—— feeding: factors influencing lactation, 517, 590
Brewer, Angus E.: Use of sulphaguanidine in bacillary dysentery, 36 (O); correspondence, 82, 303
Bridge, John Crosthwaite: retirement as Senior Medical Inspector of Factories, 29
Brim, C. J.: Job's illness, pellagra, 74
Brincker, J. A. H.: Post-vaccinal encephalitis, 199
Bringan, Surg. Capt. James Campbell, obituary notice of, 585
Briscoe, Lady: Neurosis in the Land Army, 422
Bristol, population of, review of book on, 508
—— Hospitals Fund, 87
British Journal Photographic Almanac, 84th issue, note on, 287
—— *Pharmaceutical Codex*, 1934, *Fifth Supplement*, 13
—— *Pharmacopoeia*: Amendments, 178—Reprinted, 589—6th Addendum, 797
—— *Rebels and Reformers* (H. Roberts), 542
—— Standards: Information on, 86—Specification for haemoglobinometers (Haldane type), 14, 150
—— —— Institution: Universal decimal classification, 90
Broadbent, B. T. (and J. D. Rochford): Ethyl chloride analgesia, 664 (O)
—— Walter: Mitral systolic murmurs, 145
Brock, A. J.: Doctors and the future, 739
Bronchiectasis, collapse and (annotation), 77
Brookes, Major W. L., death of, 400
Brooks, W. D. W.: Tuberculosis in wartime, 423; correspondence, 519, 648
Broom, J. C.: Weil's disease, 300
—— (and H. C. Brown): Abnormal agglutination reactions of a strain of *Leptospira icterohaemorrhagiae*, 783 (O)
Brown, D. Kathleen: Service cases of venereal disease on demobilization, 84
—— G. Malcolm (and others): The action of radiant heat cradles, 66 (O)
—— H. C. (and J. C. Broom): Abnormal agglutination reactions of a strain of *Leptospira icterohaemorrhagiae*, 783 (O)
—— John W.: Atypical pneumonia in American Army, 515
—— K. Temple: A new syndrome? 654
—— Lieut. Sheila Dorothy Markham, death of, 651
—— Stanley Mewburn, obituary notice of, 430
Browne, F. J.: On the value of vitamin B_1 in prevention of toxaemia of pregnancy, 445 (O)
—— J. C. H.: V.D. in the Merchant Navy, 645
—— J. C. McC.: A simple method of serum transfusion in the field, 384
—— J. S. L. (and B. Rose): Increase in blood histamine after severe burns, 446
—— O'Donnel: A case of pseudohermaphroditism, 486
Browning, C. H.: The present status of amino-acridine compounds (flavines) as surface antiseptics, 341 (O); leading article, 355; correspondence, 486
Brownlee, James, obituary notice of, 366
Bruce, Col. William, death of, 89
Brucellosis, bovine (annotation), 387
Bruise, colour of a, 745
Bubo, tropical. *See* Lymphogranuloma inguinale
Buchanan, Donald, obituary notice of, 339
—— George Burnside, obituary notice of, 366
—— James, obituary notice of, 85
—— Peter S., obituary notice of, 365
Buckley, C. W.: Pasteurization of milk, 113
Buerger's exercises in comfort, 120
Buist, Henry, obituary notice of, 586
Bulawayo, new hospital opened, 240
Bullets, German explosive, 111, 170
—— —— phosphorus poisoning from, 160
Bulmer, Ernest: Military medicine in the Middle East, an experience of 13,542 cases, 374 (O); correspondence, 462
Bulstrode, J. C.: Wheeled stretcher for resuscitation, 746
Burckhardt, Jean Louis, death of, 650
Burges, F. A. L.: A member resigns, 200
—— R. C. L.: Value of study groups, 518
Burkitt, R. W.: Treatment of blackwater fever, 737
Burnett, C. W. F.: Interstitial emphysema during labour, 678
Burns, A. Delisle: B.M.A. and Beveridge Report, 330
Burns, caustic soda, their prevention and treatment (H. Terry), 756 (O)
—— perforated oesophagus following (L. C. Robson), 414
—— phosphorus (revised Ministry of Health instructions), 229
—— radium and radon, 29
—— severe, increase of blood histamine in (B. Rose and J. S. L. Browne), 446
—— treatment of (J. M. Barnes), 408 (O)
Burton, Air Commodore: War strain and neurosis in R.A.F., 422
—— A. H. G.: Cardiac invalidism in children, 303
—— Col. Charles Frank, death presumed, 117
—— Isobel W.: Cotton-wool sandwich, 528
Bury, Judson S.: War neuroses, 426
Busvine, J. R.: Control of the head louse, 734
Butcher, Lieut.-Col. Trevor Aveling, killed in action, 27
Butler, Col. William: Vaccination for small-pox in London in 1905, 199
Buttar, Edward: Appreciation of H. W. C. Austen, 304
Button, Martin: Scientific freedom and social medicine, 427
Buxton, Lieut.-Col. St. J. D.: Orthopaedic service in Middle East, 483
Buzzard, Sir Farquhar, annotation on proposed memorial to, 226
Byrd, John D.: The word "rehabilitation," 487
Byssinosis and bagassosis (leading article), 46; correspondence, 110

C

Caesarean section: Curiosities of (L. A. Parry), 20—In dystocia (L. G. Higgins), 212 (O); correspondence, 361
Cairns, D. R.: Intra-uterine rupture of umbilical cord, 521
—— Hugh: Planning for treatment of head injuries, 313 (O); correspondence, 457, 550, 579
—— (and H. Holbourn): Head injuries in motorcyclists, with special reference to crash helmets, 591 (O)
Calandre, Luis: *Tratamiento de las Enfermedades del Corazón*, 447
Calcium in pregnancy, 370, 550, 613, 678
Calder, Capt. George Macbeth, death from wounds, 493, 552
—— Jane Scott: Future of women in medicine, 329
Calorie control, a new dietetic treatment of diabetes mellitus (A. C. Crooke and Ella Scott), 64 (O); correspondence, 143, 200, 234, 302, 333, 361, 457, 676
Cambray, F.: Red Cross and prisoners, 517
Cameron, J. Inglis: Scientific freedom and social medicine, 362
—— S. J. (and J. and E. D. Hewitt): *A Glasgow Manual of Obstetrics*, 4th ed., 163
Camm, G. L. (and others): Vitamins and physical fitness, 243 (O); annotation, 417; correspondence, 394, 486
Campbell, J. Argyll: Lung tumours in mice and man, 179 (O); leading article on, 194; correspondence, 269
—— William: Buerger's exercises in comfort, 120
Canada: Aid to Russia Fund, 733—Winnipeg Medical Society, 273
Cancer: Adenocarcinoma of jejunum, case of (A. H. Sangster), 12—Research in South America, 14—Stilboestrol in, 55—Nutrition in relation to incidence of, 79—Charles L. Mayer awards (New York), 87, 779—Maintenance of patients, 240—Endocrines and (S. L. Simpson), 250—Oestrogens and, 434—Planning in treatment of (Frank Ellis), 570 (O); correspondence, 706—Imperial Cancer Research Fund, report of research, 661—Adenomata, multiple foetal, of thyroid, case of (Charles Maclay), 695—Pain and, 737
—— breast: Dressing for, 29—In mice (leading article), 383
—— bronchial: Primary carcinoma at age of 4½ years (C. Elaine Field and J. P. Quilliam), 691 (O)
—— Campaign, British Empire, research continuing, 79
—— of larynx, treatment of (leading article), 45
—— lung: Lung tumours in mice and man (J. Argyll Campbell), 179 (O); leading article on, 194; correspondence, 269
—— oesophageal: Surgery of (annotation); 48, correspondence, 169—Analysis of 473 hospital cases registered in London, 79
—— prostatic: Castration for (annotation), 545—Acid phosphatase and (leading article), 571
Canfield, Colonel: American experience of allergic rhinitis, 674
Cannon, D. J.: Placental polypus, 230
Cant, W. (and others): Withdrawal of blood for transfusion, 707
Canterbury, Archbishop of: Health education and venereal diseases, 290
—— (and others): British hospital for Stalingrad, 711
"Capacity to pay": a false premise, 578
Capener, Norman: Joint Committee on Rheumatism and Orthopaedics, 111

CAPPS, F. C. W. (and R. M. VICK): Preserving medical freedom, 493
Carbon dioxide: Modification for absorption of, with field-pattern Boyle's apparatus (J. Montgomerie), 129 (O); correspondence, 232, 334—A new circle-type absorber (W. A. Mushin), 130 (O)—Absorber, improvised at sea from respirator parts (Surg. Cmdr. H. Parry Price), 569
CARDWELL, Mary: Future of women in medicine, 393
CARLING, Esther: Pasteurization of milk, 112—Rushcliffe Committee's report, 300
CARMICHAEL, C. H ROSS: Mitral systolic murmurs, 172
Cartilages, semilunar, observations on injuries to, in Service patients (S. Alan S Malkin), 6 (O)
CARY, Falkland L.: Doctors and the future, 739
Case notes for salvage, 462
Cassidy, J. G, killed on service, 712
CASSON, Elizabeth: Supply of occupational therapists, 622
CASTLEDEN, L. I. M (and I L HAMILTON-PATERSON): Three cases of intracardiac tumour, 398
Castration for prostatic carcinoma (annotation), 545
Casualties in rough country, 654
Cattle, Charles Henry, obituary notice of, 335
CAVE, Paul: Mass radiography units, 172
CAWADIAS, A. P.: Starvation in Europe, 364—Red Cross principles and organizations in the light of history, 516
Cerebral. *See* Brain
Certificate of disablement under Workmen's Compensation Act, 755
CHALKLEY, Arthur F.: Treatment of impetigo, 90
Chambers, Major John Ferguson, death of, on service, 176
Chancre of the gum (J. F. Saduak and B. J. Anderson), 56
Charities Register and Digest, 1943, note on, 192
CHAPLIN, C.: Myasthenia gravis, 21
CHAPMAN, P. F: Marching and standing, 584
CHARLES, J. R: Pasteurization of milk, 171
CHARTRES, E. A: Filaria worm in the eye, 269—Venereal diseases, 331, 522
Cheatle, Lady, obituary notice of, 85
Cheese, infected, typhoid fever due to (annotation), 730
Cheiropompholyx, 276
Chemist's shop in Denmark, 178
Chemotherapy and serotherapy in cerebrospinal (meningococcal) meningitis, an analysis of 3,206 case reports (A. A. Jubb), 501 (O)
—— in pneumonia (T. Anderson), 485—Some aspects of, in pneumonia (T. Anderson), 717 (O)
Chest, pathology of closed injuries of (J V. Wilson), 470 (O)
Chiang Kai-shek, Mme, awarded Hon Fellowship of Royal College of Surgeons of England, 574
Chicken-pox, recurrent, 30
Chilblains, treatment of, 370
Children: Unwarranted cardiac invalidism in, 114—Adoption of, 115, 235, 240—Nature of the rheumatic child (D. Hubble), 121 (O), 154 (O)—Investigation into the standard of milk supplied to (A. G. Watkins), 140—*X*-ray investigation of stridor in a child (Ruth M Stevenson), 221—Investigation of growth rates, 306—Asthma in childhood (Sir A. Hurst), 403 (O); R S.M. meeting on, 422; correspondence, 520, 550—Blood level and excretion of sulphapyridine in, effect on of acid, alkali, and meals (H. Ellis C. Wilson), 507 (O)—The town child: a critical study (leading article), 571—Chairs of child health, 584, 649—Four-year plan for nurseries (annotation), 639—Bridgeheads of child health in the five ages of childhood (Charles McNeil), 715 (O)—Nutrition and mortality in Belgium, 773
China, Free, experiences in a military hospital in (H. T. Laycock), 262
—— medical supplies for, 464
Chisholm, William, awarded (posthumously) the Albert Medal, 586
CHITTENDEN, F. J.: Plants causing irritation, 799
Chloroform, bee-stings, mosquitoes, and, 462
Chorea: nature of and relation to rheumatism (D. Hubble), 124
CHRISTIAN, H. A.: *The Principles and Practice of Medicine* (originally written by Sir William Osler), 14th ed, 163
CHRISTIE, A. B.: A case of acute aseptic meningitis, 41
—— Ronald V. (and M. WRIGHT): A substitute for the flowmeter in oxygen therapy, 287
CHRISTOPHERS, Sir Rickard: Malaria control in India, 326
Chromosomes in nerve cells, 684
Church cellar murder discussed at Medico-Legal Society, 619
CHURCH, D. M. C.: Enterospasm and spastic colitis, 496
Cirrhosis of the liver (leading article), 165
CLAPHAM, B. (and others): Effects of vitamins on experimental hyperthyroidism, 245 (O)
CLARK, F. Le Gros: Public health aspects of infant nutrition, 765
CLARKE, Richard: Bee-stings, mosquitoes, and chloroform, 462
CLARKSON, A. Kerr: Disclaimer, 208
Claudication, intermittent, treatment of, 308
CLAYE, Andrew M.: Caesarean section in dystocia, 361—Analgesia and anaesthesia in obstetrical practice, 377
CLAYTON, T. M.: Treatment of scabies by T.E.T.M.S., 443 (O), 519
CLAYTON, William: *Theory of Emulsions and their Technical Treatment*, 4th ed, 104
CLEARKIN, P. A.: Bagassosis, 397
CLEGG, Hugh: *How to Keep Well in Wartime*, 478
CLENDON, Douglas: Trichlorethylene anaesthesia, 398—Nasal intubation, 803
Climacteric depression, convulsive treatment of (Elizabeth P. Dodds), 603
Climate, human control of, review of book on, 163
CLOSE, H. G.: Saprophytic acid-fast bacilli, 455
Clostridia of gas gangrene, specific identification of chief pathogenic (G. F. Petrie and D. Steabben), 377 (O)
Clothing, physiology of (leading article), 224
Clow, Surg. Lieut. M. J., awarded Albert Medal in gold, 586
COBB, W. A.: A suction endotracheal union, 667
COCKSHUT, R. W.: B.M.A. and Beveridge Report, 330—The Government's proposals, 739
Colbeck, Edmund Henry, obituary notice of, 25
Cold, common: Disclaimer, M O.H, Weston-super-Mare, 90—Virus of (S. P. Bedson), 642
COLDREY, Eric: Pasteurization of milk, 52
COLE, Warren H. (and C. B. PUESTOW): *First Aid: Surgical and Medical*, 568
COLEMAN, E Hayling: Histamine for psoriasis, 556
Colitis, chronic ulcerative, treatment of, by pneumoperitoneum (H. Neumann), 9 (O); correspondence, 113
—— spastic, enterospasm and, 402, 496
Collapse and bronchiectasis (annotation), 77
—— therapy, extending the use of, 519, 581
COLLEDGE, Lionel: Appreciation of Sir StClair Thomson, 174—Anaesthesia for laryngofissure, 230—Carriers of nose and throat infections, 391
College, Epsom: St. Anne's Scholarships, 119, 400—Sherman Bigg Fund, 400—France Pension, 400
—— International, of Surgeons, 513
—— Royal Australasian, of Surgeons, 273
—— —— of Obstetricians and Gynaecologists: Council meeting, 618—Councillors elected, 618—Diplomas awarded, 463—Fellows admitted, 618—Fellowships conferred, 618—Members admitted, 205, 618—Quarterly meeting, 205
—— —— of Physicians of Edinburgh: Bathgate Memorial Prize, 683—Fellows admitted, 683—Fellows elected, 238—Fellows introduced, 238—Henry Arthur Dalziel Ferns Bursary, 683—Quarterly meeting, 238—Research in 1941, 87

COLLEGE, ROYAL, OF PHYSICIANS OF LONDON:
  Comitia held, 238, 526
  Diplomas granted, 238, 618
  Examiners elected, 618
  Fellows admitted, 772
  —— elected, 618
  Licences to practise conferred, 618
  —— —— granted, 238
  Members admitted, 238, 618, 772
  Memorandum on "Design of Dwelling Houses" (leading article), 136; correspondence, 201
  President (Lord Moran) elected, 526
  Prophit bequest, 47
  Radiological and Tuberculin Survey, 47

College, Royal, of Surgeons of Edinburgh: Fellows admitted, 27

COLLEGE, ROYAL, OF SURGEONS OF ENGLAND:
  Abraham Thomas Vicary Lecturer, 1943, 272
  Appointments, 651
  Board, Central Midwives, representative on, 524
  —— of Examiners, 651
  Bradshaw Lecturer, 1943, 272
  By-laws, new, 272
  Centenary celebrations, 772
  Council. Quarterly meeting, 147—Meetings, 272, 368—Constitution of, 368
  Diplomas granted, 147, 272, 368, 524, 651, 772
  Elections, 147, 272, 368
  Examiners, Court of, 272, 524, 651
  —— external, 651
  Fellows, diplomas granted, 772
  —— elected, 524
  Fellowship (Honorary) awarded to Madame Chiang Kai-shek, 574
  Hunterian Lectures, 432
  —— Professors, 1943, 272, 524, 712
  Jacksonian Prize: Winner, 1942, 524; subject, 1943, 524
  John Hunter Medal and Prize, 524
  Leverhulme Scholars, 651
  Members, diplomas granted, 772
  Moynihan Lecturer, 772
  Pass lists, 804
  Professorship conferred, 651
  Regulations revised, 273
  Scientific Report, 1941-2, 264

COLLIER, Howard E.: *X*-ray apparatus at health centres, 234
Collins, Henry Warner, called to the Bar, 178
COLLIS, W. R. F. (and M. A. MAJEKODUNMI): The premature infant: management and prognosis, 31 (O); correspondence, 234
Colonies, health units in, 709
—— Secretary of State for: On Jamaica Medical Service, 148—On recruitment to Colonial Medical Service, 148
Commission, Miners' Welfare, 148
Committee, Blood Transfusion Research: Transfusion accidents and deaths, 576
—— Clinical Cancer Research, 79
Committee, Famine Relief: Food conditions in Europe, 14
—— Food Rationing Advisory, 682
—— Industrial Health Advisory. Establishment and membership of, 368—And Industrial Health Research Board, 464
—— Interdepartmental, on Dentistry, 525, 788
—— Joint Standing, of Empire Rheumatism Council and British Orthopaedic Association: Statement on prevention of crippling and list of members of committee, 50—Correspondence, 54, 111
—— Medical Advisory, 464
—— M.R C., on Tuberculosis in Wartime, 110
—— on Nutrition Surveys, 484
—— Parliamentary Medical, 240
—— —— Social Services, 206
—— on Penicillin, 553
—— Representative, report on discussions with Minister of Health, 640
—— Rushcliffe, on Nurses' Salaries: First report, 264; correspondence, 300, 365
—— Scottish, of British Social Hygiene Council: Venereal disease, 381
—— Select, on National Expenditure: Report on Health and Welfare of Women in War Factories, 164
—— Traumatic Shock, of M R C, 209
—— University Grants: Funds, 774
COMPTON, Arthur: Bacteriophage treatment of bacillary dysentery, 424
CONEL, J. LeRoy *Postnatal Development of the Human Cerebral Cortex* (Vol II: *The Cortex of the One-month Infant*), 44
Conference, National, of Social Work, Proceedings of, Selected Papers, 68th Annual Conference, 696
Constipation and sterility (E Schleyer), 71
Constitution and Disease, by Julius Bauer, leading article on the constitutional factor, 510; correspondence, 612
Contraception: Unreliable vaginal pessaries, 30—And sterility, 776
Contraceptives, manufacture of, 525
Contracture, ischaemic, treatment of (annotation), 108; correspondence, 172
Convulsion therapy, electric: And brain damage, 23, 146—Use of amphetaminae sulphas in facilitating (K. C. Bailey), 250 (O)—And climacteric depression (Elizabeth P. Dodds), 603
COOKE, R. G.: Scientific freedom and social medicine, 614
Cooper, Lt.-Col. Eric Leonard, death on service of, 176
—— T. Astley: Any questions? 335
COORAY, Gerald H: Surgical emphysema complicating pregnancy, 120
Cord, spinal, surgical diseases of, review of book on, 509
—— umbilical, intra-uterine rupture of (Kathleen McClintock), 446; correspondence, 521
Cork, adapted, 90
CORNER, William: Allergy to liver extract, 528
Coroner, reporting deaths to, 23
Coroners' districts in London, 506

Correspondence:
  Abortus fever, 299, 394, 425, 677
  Absence, sick, among munition workers, 110
  Absenteeism in industry, 303, 429
  Accident policy, need for a national, 360
  Adder bite, 55[illegible] 769
  Adoption of children, 115, 235
  Adrenals: Fulminating purpura and adrenal haemorrhage, 22—Haemorrhagic suprarenal infarction, 22
  Alimentary tract dysfunction, psychological factors in, 518
  Allergy: Irritant spectacle frames, 493, 552, 648
  Amino-acridines. *See* Flavines
  Amnioplastin as absorbable tissue isolator, 423
  Anaemia, is it prevalent? 612
  Anesthesia, trichlorethylene, 398, 489, 582
  Anatomical nomenclature, 492
  Any questions? 335
  Aorta, coarctation of, as obstetrical complication, 302, 426, 738
  Appointments system at fracture clinic, 488
  Ariboflavinosis, 645
  Artery, innominate, ligature of, 173, 301
  Aspirin and gastric haemorrhage, 768
  Association, British Medical. A member resigns, 200, 230, 267, 300, 332
  —— —— —— and Beveridge Report, 266, 299, 330, 362, 428
  —— European, of Clinical Pathologists, 364
  Asthma in childhood, 520, 550
  —— Dr. Johnson's, 584
  —— sulphonamides in, 551
  Bagassosis, 397
  Balantidiosis, a case of, 145
  Bee-stings, mosquitoes, and chloroform, 462
  Beveridge Report, freedom and, 235
  Biochemistry for medical students, 520
  Birth weights on a sliding scale, 706
  Blackwater fever, treatment of, 737
  —— —— haemolysis in, 551, 802
  Blast injuries, abdominal rigidity in, 648
  Blindness, prevention of, 55
  Blood: Chemical luminescence test for, 583, 709—pH and haemolysis, 360, 458—In blackwater fever, 551—Changing the pH, 521—Withdrawal of, for transfusion, 707
  Brain: Cerebral contusion, treatment of, 331
  —— damage, electric convulsion therapy and, 23, 146
  Bullets, German explosive, 111, 170

Correspondence (*continued*):
Byssinosis, 110
Canada: A case of Waterhouse-Friderichsen syndrome, 22
Cancer: Stilboestrol for, 55—Planning in the treatment of, 706—Pain and, 737
—— lung, aetiology of, 269
—— oesophageal, surgery of, 169
"Capacity to pay": A false premise, 578
Carbon dioxide absorption technique, 232, 334
Case notes for salvage, 462
Children: Chairs of child health, 584, 649,
Cleft palate, tube grafts in, 581
Colitis, chronic ulcerative, treatment of, 113
Committee, Joint, on Rheumatism and Orthopaedics, 54
—— Rushcliffe: Report of, 300
Constitutional factor, 612
Contracture, ischaemic, treatment of, 172
Convulsion therapy, electric, and brain damage, 23, 146
Coroner, reporting deaths to, 23
Crush injury and anoxia, 708
Desert sores, 334
Diabetes: "Calorie control" diabetic diet, 143, 200, 234, 302, 333, 361, 457, 676
—— diet in, 676
—— —— and insulin in, 737
—— oestrogen treatment of, 202
Diaphragm, eventration of, 201, 397
Diet-drink, a nutritious, 584
Diphtheria during immunization, 171, 202, 232
—— and diphtheria carriers, 332
Diseases, skin, in war, 145
Dislocation of acromio-clavicular joint, treatment for, 22
Disproportion, radiological diagnosis of, 233
Doctor, free choice of, 392
Doctors: Rationed distribution of, 23—Education grant for sons of, 115—And the future, 649, 801
Drowned, resuscitation of the, 645
Drugs for myasthenia gravis, 21
Dysentery at sea, treatment of, 82, 614
—— bacillary, treatment of, 303
—— —— bacteriophage treatment of, 424
—— carrier, 54
—— phage for, 769
Eczema, erythematous, histamine and insulin in, 426
Emphysema, surgical, 552
Encephalopathy, arsenical, 771
Epilepsy, idiopathic, pitressin diagnosis of, 364
Erythroblastosis foetalis, 53
Ether: The Oxford vaporizer, 232
Ethyl chloride spray in pleuritic pain, 202
Fees, private, of salaried medical officers, 234, 430
Filaria worm in eye, 169, 269
First aid for fractured spine, 82, 614
First aid, teaching, 82, 173
Flavines as surface antiseptics: influence on healing, 486
Food: Feeding the world's population, 771
Foot-and-mouth disease in man, 300, 365, 520, 582, 614
Fractures, slow union of, 735, 769
Freedom to practise, 328, 427
—— scientific, and social medicine, 331, 361, 392, 427, 490, 614
Fund, Royal Medical Benevolent, 84
Gastro-enteritis in infants, 458, 486, 581, 613
Glaucoma, atropine, 708
Government and profession Consultation between, 428—Partnership or bondage? 518
—— proposals, 679
—— undisclosed plans, 518
Haemoglobinometry and use of the haematocrit, 331
Haemolysis, blood *p*H and, 360, 458
—— in blackwater fever, 551, 802
Haemorrhage, adrenal, and fulminating purpura, 22
Hand and finger lesions, 55
Hands, preparation of, for operation, 53, 114, 303
Head injuries, planning for treatment of, 457, 550, 579, 647
—— lice, control of, 647
Health centre, *x*-ray department at, 23, 83, 146
—— negative, cult of, 766
—— search for, 146
—— units in the Colonies, 709
Heart: Unwarranted cardiac invalidism in children, 114, 202, 303—Mitral systolic murmurs, 145, 172, 332, 459, 582
Hernia, direct inguinal, 612, 678
—— multiple muscle, 738
Hospital, British, for Stalingrad, 711
—— mental, paying for V.D treatment in, 21
Hospitals: Mental wards, admissions to, in wartime, 614—Ward sisters' salaries, 365
Houses to live in, 201, 268, 489, 584
Human requirements, minimum, 460
"In the discard," 802
Indian Army Medical Corps, 677
Injection, the contaminated, 678, 804
Insurance, social, and medical practice and research, 803
Intestinal obstruction, 81
Iron, absorption of, 83
Kala-azar, diagnostic test for, 552
Laryngofissure, anaesthesia for, 230, 302, 334, 395, 458
Lenses, prescription of, 424
Little Audrey and the doc, 398

Correspondence (*continued*):
Liver extract, intolerance to, in pernicious anaemia, 613
London Emergency Bed Service, 709
Louse, head, control of, 734
Lupus erythematosus, acute disseminated, sulphanilamide in, 460, 580
M'Naghten Rules, the, 707
Malaria: Treatment of, 770—Dose of atebrin in, 770
—— malignant tertian, treatment of, 613, 678
Marching and standing, 583
Measles associated with unusual nervous signs, 203
—— haemorrhagic, 22
Medical education: Planning of, 676, 800—State subsidy for, 767
—— examination, periodic, 56
—— freedom, preserving, 493
—— profession, unity in, 579, 679—Problematical future, 675, 739—Achieving reform, 709—Government's proposals, 710, 739—State control of, 739—Proposals and discussions, 801
—— records in wartime, 23
—— reorganization: the constitutional position, 675
—— service, a national, 615
—— —— State, 710—Specialists and, 710
—— Services, future of, 801
—— students, selection of, 767, 800
—— superintendent, the, 522
Medicine. Independence for, 709—And politics, 738, 766—What of the patient? 490
—— aviation, 677
—— military, in Middle East, 462
—— preventive, 579
—— social, scientific freedom and, 298
—— specialist in, 145
Milk, pasteurization of, 22, 52, 80, 112, 147, 171
—— raw, danger of, 767
Miners, pulmonary disease in, 581
Myasthenia gravis, 21
Nasal intubation, 803
Neuroses, war, 299, 333, 426, 459
—— —— their nature and significance, 396
—— —— morale, and social psychology, 549
Newsholme, Sir Arthur, and Russian medicine, 771
Obstetrics: Brow presentation, 460—Caesarean section in dystocia, 361—Emphysema, interstitial, during labour, 552, 582, 678—Puerperium, case for a shortened, 644, 706, 768—Umbilical cord, intra-uterine rupture of, 521
Oedema of extremities at sea, 708, 803
Ophthalmology: Ophthalmia, phlyctenular, 231—Retrocorneal phenomenon, an unusual, 736
Orbicularis oris in facial paralysis, 170
Pancreatitis as complication of mumps, 114
*p*H *See* Blood
Phosphorus poisoning and blood urea, 56
—— —— from German bullets, 170
Pleurisy and peritonitis, diagnostic "tricks" for, 737
—— and pleural effusion, 301, 397
Poliomyelitis, Kenny treatment of, 615
Postgraduate study, organization of, 643
Practice, private, 578
Pregnancy, calcium intake in, 550, 613, 678
—— dietetics of, 144, 204, 231, 268, 301, 363, 460
—— pernicious anaemia of, 233
Promin (=promanide), local application of, in tuberculous lesions, 81, 111
Psychiatry, three years of military, 111, 202, 233
—— treatment in general hospitals, 735, 800
Puerperium, shortened, 644, 706
Pulse, charting the, 84
Purpura, fulminating, and adrenal haemorrhage, 22
Pylorus: Pituitary extract for congenital pyloric stenosis, 145
Radiography: Staffing mass miniature units, 81, 146, 172, 398, 487, 616
—— mass, and incidence of pulmonary tuberculosis, 770
Radiologists and the future, 802
Rehabilitation for skin cases, 392
—— the word, 487
Research: Strategy and tactics in, 550—In Continental clinic, 583
Resolution and endurance, 648
Respiration, artificial, 83, 173, 270, 490, 584
Scabies, 647—Treatment of, 519
Septicaemia, fulminating meningococcal, treatment of, 363, 521
Shipwrecked, help for the, 269
Skin-carrier rate, pyogenic skin infections and, 269
Skin lesion, tanning for, 519
Small-pox, treatment of, 113, 234
—— in Glasgow, 1942, 334
—— in Scotland in 1942, 270
—— in Swindon, 425
Spina bifida, 232
Spine, fractured, first aid for, 82
Starvation in Europe, 270, 364
Sterility: Prevention of, 203—Advice on, 644, 707, 769, 802
Sterilization of dry powders, 426
Stilboestrol for immature infants, 234
Stretcher, wheeled, or equipment carrier, 648
Study groups, value of, 518
Sulphapyridine, treatment of vomiting after, 459, 551
Sulphonamide-resistant bacteria, 201

Correspondence (*continued*):
Suprarenal. *See* Adrenals
Tendons, surgery of, 426
Tetanus, 55
Thrombophlebitis of the cavernous sinus, 203
Tonsillectomy, thread for sutures in, 233
Tuberculin, treatment with, 736
Tuberculosis: Local application of promin (promanide) in tuberculous lesions, 81, 112—Periodicity of relapses in, 332—In wartime, 423—Extending use of collapse therapy, 519, 581, 648, 679—Maintenance of dependants of tuberculous patients, 617—And exposure to infection, 802
—— bovine, in South Africa, 708
—— pulmonary, incidence of, 646, 770
Typhus group, nomenclature of, 201
—— vaccine, reaction to, 734
Ulcer, peptic, a deficiency disease, 302, 489
Vaccination in India, 770
Vaccinia, generalized, and vaccination, 425
Venereal disease: Notification of, 21—Paying for treatment in mental hospital, 21; corrigendum, 120—Control of, 53—Service cases on demobilization, 84—Prophylactic centres to combat, 113—Incidence of, 645—In the Merchant Navy, 645, 803
Venereal diseases, 331, 430, 460, 492, 522
Vision, night, testing for, 146, 270, 736
Vitamin A deficiency, subclinical, 425
Vitamins and physical efficiency, 394, 487, 580
War: Medical records in wartime, 23
Waterhouse-Friderichsen syndrome, 22
Weil's disease, 231, 300, 395, 424
Whooping-cough: High flying for whoopers, 54—Pertussis antigen in treatment of, 678
Women in medicine, future of, 329, 393, 428, 461
X-ray apparatus at health centres, 234
—— department at health centre, 23, 83

CORRIGENDA:
Banerjee, Capt. P. C., correction of obituary notice, 27
B.M.A. deputation to Ministry of Food, date of, 308
Harvey, Major-Gen. Alexander William Montgomery (name corrected), 27
Howard, Russell, date of death of, 25
Lawrence, identity of E. O. and J. H., 622
Medical Corps in U.S.S.R., 60
Milk, investigation into standard of, 276
Pridmore, Coll. W. G., obituary notice of, 524
Scabies, treatment of, 496
Surgery of communicating hydrocephalus, 434
—— of tendons, 466
Venereal disease, notification of, 120

Corry, Capt. Samuel David, obituary notice of, 742
Cortex, cerebral, development of, review of book on, 44
CORY, J. W. E.: B.M.A. and Beveridge Report, 266
—— Richard A. S.: Sterilization of dry powders, 426
Cotton-wool sandwich (R. Fawcitt), 352; correspondence, 528
Council of British Ophthalmologists: Prescription of lenses, 424
—— Central, for Health Education: Appeal for lecturers, 87—Issue of leaflets, 119—Conference on health education and venereal diseases, 290
—— Colonial products research, 150
—— Empire Rheumatism And British Orthopaedic Association: statement on prevention of crippling, 50—Correspondence, 54, 111—Sixth annual report of, 358
—— Federal, of Australian Aerial Medical Services: name changed, 11
—— General Medical: *British Pharmacopoeia* amendments, 178
—— Medical Research: *Aids to Investigation of Peripheral Nerve Injuries* (War Memorandum No. 7), 197—National Institute for Medical Research and, 337—Present members of, 337—Report to, by A. Felix, on experiences with typing of typhoid bacilli by means of Vi bacteriophage, 435 (O)
—— Medical Research of Ireland: Award of grants, 683
—— National Baby Welfare, 555
COUPER, E. C. R.: Gastro-enteritis in infants, 458
COURTNEY, A. D.: Unusual case of obstruction by worms, 725
COX, Alfred: Tribute to Sir StClair Thomson, 204
CRABTREE, H. G. Work on carcinogenesis, 611
Cradles, radiant-heat, action of (G. Malcolm Brown and others), 66 (O)
CRAGO, Mary: Mantoux test versus patch test, 603
CRAIG, D. B.: Disclaimer, 276
Craighead, Lieut-Col. Alexander Clifton, obituary notice of, 618
CRAIK, K. J. W.: Specifications for dark-adaptation tests, 632 (O)
—— Robert, death of, 175
CRAILE, R.: Treatment of intestinal carriers of enteric group of organisms, 604
Cramps: In arteriosclerosis, 340, 622—In an elderly woman, 402—Nocturnal, 402
Crash helmets, with special reference to head injuries in motor-cyclists (Hugh Cairns and H. Holbourn), 591 (O)
CRICHTON-MILLER, H.: Psychotherapy in general hospitals, 800

Crile, George Washington, obituary notice of, 116, 271
Criminal negligence, a conviction quashed; 619
Crippling, Prevention of: Statement of Joint Standing Committee of Empire Rheumatism Council and British Orthopaedic Association, 50—Correspondence, 54, 111
Critchley, Macdonald: *Shipwreck-Survivors: A Medical Story*, 726
Croft, Lord: Medical attention of Home Guard, 26
Crooke, A. C. (and Ella Scott): Calorie control: a new dietetic treatment of diabetes mellitus, 64 (O); correspondence, 143, 200, 234, 302, 333, 361, 457
Crooks, James: Nasopharyngeal infection and asthma, 423
Cropper, C. F. J.: The pre-clinical years, with special reference to the teaching of physiology, 389; correspondence, 520
Crowe, H. Neville: Appreciation of John Lionel Stretton, 336
—— Samuel J. (and others): *The 1942 Year Book of the Eye, Ear, Nose, and Throat*, 133
Cruickshank, Alistair G.: Asthma in childhood, 550
—— J. C. (and P. T. Bray): Meningitis due to *Diplococcus mucosus*, a report to M R C, 601 (O)
Crush injury and anoxia, 708
Crymble, P. T.: Three cases of prolonged faecal fistula following operation for appendicitis, 532 (O)
Culbert, T. D.: Trichlorethylene anaesthesia, 582
Culbertson, Carey, death of, 367
Culpin, Ernest: The epiglottis in anaesthetic deaths, 590
Cummings, A. J. (and others): British Hospital for Stalingrad, 711
Cunningham, J. F.: Placental polypus, 230
Curphey, E.: Pituitary extract for congenital pyloric stenosis, 145
Curran, Surg. Capt. Desmond: War stress and incidence of neurosis, 422
Cutler, Col. E. C.: Military orthopaedics, 483
Cutner, Morris: Post-herpetic pain and paresis, 120
Cutter, William Dick, death of, 367
Cyclotron, medical applications of the (leading article), 543; corrigendum, 622
Cyrlas-Williams, Capt. William Richard, killed in action, 683
Czechoslovak Government: Allocation of beds at Hammersmith Hospital, 87
—— Medical Association in Great Britain, Bulletin of, 14
—— —— degrees at Oxford (annotation), 325

D

Dacie, J V (and F. Murgatroyd): Effect of *p*H of blood on haemolysis, 458
—— (and Douglas Firth): Blood transfusion in noctural haemoglobinuria, 626 (O)
Daglish, G H. (and others): Scientific freedom and social medicine, 428
Dale, Sir Henry, awarded Harben Gold Medal, 482
—— R. H: Appreciation of Mr. I. N. Blusger, 431
Daley, Doreen: Brow presentation, 460
Dalling, T.: Abortus fever, 677
Dalrymple-Champneys, Sir W.: Abortus fever, 394
Darby, Capt. W., death of, 524
Darbyshire, F. G.: Filaria worm in the eye, 654
Dark-adaptation tests, specifications for (K. J. W. Craik), 632 (O)
Darley-Usmar, G. R.: Prevention of sterility, 203
Davidson, Andrew: Rehabilitation in Scotland, 86
—— Antony: Small-pox in Scotland in 1942, 199
—— L. S. P. (and others): Treatment of pernicious anaemia with an experimental proteolysed liver preparation, 655 (O)
—— S. (and others). Minimum human requirements, 460
Davie, T. B. (and others): Withdrawal of blood for transfusion, 707
—— T. M: Adder bite, 769
Davies, Wing-Cmdr. Ainsworth: Non-specific epididymitis, 296
—— F: Planning of medical education, 800
—— Francis: Some observations relating to the planning of medical education, 547; correspondence, 676
—— G. L: Scabies, 647
—— G Llewellyn: B M.A. and Beveridge Report, 266
—— H. Morriston: Collapse therapy, 679
—— J N. P.: What of the patient? 490
—— Justin: Reinstatement as surgeon to Leicester County Police refused after war service, 49
Davis, Fl. Lieut.: R.A.F. Official Medical History of the War, 456
—— E. D. D.: Clinical aspects of acute pyogenic infections of nose and throat, 391
—— Eli: Atypical pneumonia, 516
—— L. J. (and others): Treatment of pernicious anaemia with an experimental proteolysed liver preparation, 655 (O)
—— Loyal: *Principles of Neurological Surgery*, 192
Davison, Charles, death of, 367
—— George: Weil's disease, 424
—— Sir Ronald: Insurance for all and everything, 569
Dawson, G A.: Treatment of vomiting after sulphapyridine, 551
Day, Ewing Wilber, death of, 650
—— J C. L.: Selection of medical students, 767
Deafness: Prostigmine for, 308—Exemption from purchase tax of batteries for deaf-aid appliances, 652
Deaner, S. (and others): Haemothorax due to strangulated diaphragmatic hernia, 72
Death. Reporting to coroner, 23—From notifiable infection, disposal of body, 242
Deatker, Asst Surg. F. G. F., death of, 524
Deeny, James (and others): Familial idiopathic methaemoglobinaemia, with a note on the treatment of two cases with ascorbic acid, 721 (O)
"De Fabrica," fourth centenary of, leading article on, 791
Delikat, Elizabeth: Intolerance to liver extract in pernicious anaemia, 539 (O)
Delikatova, A. (and others): A European Association of Clinical Pathologists, 365
Della Vida, B L. (and others): A European Association of Clinical Pathologists, 365
Denmark: Infectious diseases increasing, 150—Chemist's shop in, 178
Dennis, C: Appendical mechanics and appendicitis (annotation), 511
Denny, Surg. Rear-Admiral Herbert Reginald Harry, obituary notice of, 617
Dentistry *Dentists, Register*, 1943, 759—Maxillo-facial injuries, review of book on, 758
de Pourtales, H.: Red Cross and politics, 517
Dermatitis: After local sulphanilamide treatment of a wound (I. M Macgregor), 414—Prevention of, 525
—— respirator, notes on treatment of (E. Colin Jones), 757
de Sanctis, Adolph G.: *Advances in Pediatrics*, 789
Desert sores, 334—Relation of sunlight to (J. M. Henderson), 657 (O)
Desoxycorticosterone acetate (doca): Gynaecomastia produced by (R. D. Lawrence), 12—Need for economy in use of, 433—And fluid metabolism (annotation), 513—In Addison's disease: a comparison of different methods of administration (D. M Dunlop), 557 (O)—And natural extracts of suprarenal cortex (annotation), 701
de Swiet, G.: Domestic and industrial medicine, 514
Diabetes mellitus: A new dietetic treatment of, by calorie control (A C. Crooke and Ella Scott), 64 (O); correspondence, 143, 200, 234, 302, 333, 361, 457, 676—Oestrogen treatment of (annotation), 107; correspondence, 202—And endocrine disorders (S. L. Simpson), 248—Review of book on, 383—Retinal venous changes in (annotation), 547—Diet in (R. H. Micks), 598 (O); correspondence, 676, 737
Diabetic coma, treatment of (annotation), 166
Diagnosis, first aid to, review of book on, 666
Diaphragm, case of eventration of (A. J. E Mills), 97 (O); correspondence, 201, 397
Diarrhoea, bacteriology of, 276
Dick, G. F: *The 1942 Year Book of General Medicine*, 353
—— (and E W. Eisele): Peptic ulcers under oral treatment with milk and cream, 350
—— J. Staveley: Scientific freedom and social medicine, 298
Dickie, W S: Preparation of the hands for operation, 114
Dickin, E. P. Military psychiatry, 233
Dickinson, Surg. Lieut. W. R. B., reported missing, presumed killed on active service, 463
Dictionary, medical, review of, 605
Dieckmann, William J.: The toxaemias of pregnancy, 636
Diet: For worker and queen bees, 30—Influence of, during pregnancy (Nutrition Society, Scottish Group), 51—Influence of, on renal volume (annotation), 226—A nutritious diet-drink, 584—In diabetes (R H Micks), 598 (O); correspondence, 676, 737—And trinitrotoluene poisoning (annotation), 671
—— calorie control: a new dietetic treatment of diabetes mellitus (A. C. Crooke and Ella Scott), 64 (O); correspondence, 143, 200, 234, 302, 333, 361, 457, 676
Dietary, human, bread factor in wartime (M. R. Richards), 161 (O)
Dietetics of pregnancy (leading article), 16; correspondence, 144, 204, 231, 268, 301, 363, 460
Dieuaide, Francis R.: *Civilian Health in Wartime*, 383
Digestive complaints, review of book on, 758
Digitalis, maintenance treatment with (Alfred S. Rogen), 694 (O)
Dillon, Frederick: Psychiatric treatment in general hospitals, 735
Dingley, A. R.: Nasal intubation: dangers and difficulties from the rhinological aspect, 691 (O); correspondence, 803
Diphtheria. Control of (leading article), 15—Statistics, 58—With perforation of larynx, 60, 120—During immunization (G. A. Garrett), 102; correspondence, 171, 202, 232—Immunization, Ministry of Health circular on, 141; answer in Parliament, 206; in Northants, 423—And tuberculosis, combined infection of the throat with (J. J. Lineham), 162—And diphtheria carriers, 332—Outbreak in E. Yorks traced to milk supply, 400—Treatment of carriers, 434—Among immunized children, statistics 1940-2, 464—In the immunized, 496—And immunization in Germany, 553—Duration of prophylaxis, 589—Immunization and incidence, 712—Keeping A.P.T. cool and upright, 775
Diplococcus mucosus, meningitis due to, report to M.R C. (P. T. Bray and J C. Cruickshank), 601 (O)
Disclaimers, 208, 276, 622, 746
Disease, foot-and-mouth. *See* Foot-and-mouth
—— occupational, and the mouth (annotation), 356
—— Weil's. *See* Weil's
Diseases, infectious. *See* Infectious
—— respiratory. *See* Respiratory
—— skin. *See* Skin
—— tropical. *See* Tropical
—— venereal. *See* Venereal
—— wasting. *See* Wasting
Dislocations, acromio-clavicular joint, treatment of, 22
Disproportion *See* Obstetrics
Diuretic, a mercurial, "mersalyl," 478
Divine, T. A., prisoner of war in Singapore, 683
Dixon, Godfrey Brookes, obituary notice of, 336
Dlugosz, Henryk: Foot-and-mouth disease in man, 189 (O); correspondence, 300, 365, 520, 582
"Doca" (desoxycorticosterone acetate): gynaecomastia produced by (R. D. Lawrence), 12—Need for economy in use of, 433
Doctors: Rationed distribution of, 23, 30—Call-up and protection of practices (parliamentary questions), 58—Education grants for sons of, 115—Alien, private practice of, 145; after the war, 773—Free choice of, 392, 525—Little Audrey and the doc, 398—Relieving the G.P, 587—And the future, 649, 739, 801—Names of prisoners and internees in Japanese hands, 775, 807
Dodd, Harold (and F. Prescott): Use of methedrine, a new blood-pressure-raising drug, in surgical operations, 345 (O)
Dodds, Elizabeth P.: Convulsive treatment of climacteric depression, 603
Donald, H. G.: Diphtheria and diphtheria carriers, 332
Donegan, J. F.: Subdivisions of the stomach, especially the pyloric canal, 142
Donovan, C R. (and M. Bowman): Encephalitis in Manitoba, 118
Doorly, A. R. C.: Thrombophlebitis of the cavernous sinus: recovery, 42; correspondence, 203
Doran, F. S. A.: Out-patient organization: a successful appointments system in a fracture clinic, 420 (O); correspondence, 488
Douglas, Alastair A.: Some observations on biliary pain, 10 (O)
Downie, A W.: Prophylaxis of pertussis, 229
Drapes, Thomas Lambert, obituary notice of, 272
Dressing of open wounds and ulcers, transparent wrapping material for (M. Ellis), 697
Drew, Capt. W. R. M.: Atypical pneumonia, 516
Drowned: Complacency in resuscitation of (F. C Eve), 535 (O); correspondence, 645—Resuscitation by rocking (N. Howard Mummery), 759
Drug-resistant organisms, 808
Drugs: And cerebral activity (K. C. Bailey), 251—Action of, on the uterus, 643
—— of addiction, control of (annotation), 512
Drummond, R. (and others): Withdrawal of blood for transfusion, 707
Dublin, Louis J. (and others): *Modern Aspects of the Anti-tuberculosis Program*, 255
Duff, Alexander (and J. Haworth): A note on trichlorethylene anaesthesia, 381 (O); correspondence, 398, 489
—— D G.: Casualties in rough country, 654
Duke-Elder, Sir Stewart: *The Practice of Refraction*, 4th ed, 447—Review of *The Art of Seeing*, by Aldous Huxley, 635
Dunlop, B.: Feeding the world's population, 771
—— D M: Desoxycorticosterone in Addison's disease, a comparison of different methods of administration, 557
Duran-Jorda, F. (and others): A European Association of Clinical Pathologists, 365
Dyke, S. C.: Blood examinations and diagnosis, 455
—— (and others): A European Association of Clinical Pathologists, 365
Dysentery: Treatment of at sea, 82; correspondence, 614—In military medicine in Middle East (E Bulmer), 374 (O)
—— bacillary: Use of sulphaguanidine in (Augus E. Brewer), 36 (O); correspondence, 82, 303—Control of (leading article), 106—Bacteriophage treatment for (A. Compton), 424—Phage for, 769
—— carrier, 54
Dysmenorrhoea, treatment of, 340
Dystocia, Caesarean section in (L. G. Higgins), 212 (O); correspondence, 361

E

Eager, Richard: Three years of military psychiatry, 111
Eardley-Holland: Special medico-legal problems in obstetrics, 327
Earengey, Judge W. G: Negligence in the operating theatre, 327
Eason, H. L: Appreciation of Sir William Arbuthnot Lane, 146
East, W. Norwood: Chadwick Trust lecture (annotation), 195
Eastwood, C. G.: A disclaimer, 90
—— W. J., obituary notice of, 649
Ebaugh, Franklin G. (and Charles A. Rymer): *Psychiatry in Medical Education*, 103
Eccles, W. McAdam: Appreciation of Sir StClair Thomson, 175
Eczema, erythematous, histamine and insulin in, 426

Edmison, A. G.: Absenteeism in industry, 303
Edgar, Bowman: First-aid for fractured spine (Kirkconnel method), 82
Edgeworth, F. H., obituary notice of, 235
Edinburgh Catechism Series: Part V, *Anatomy* (revised and enlarged by C. R. Whittaker), 255
—— national drying plant for preparation of plasma, 589
—— Royal Infirmary: Travel vouchers for sufferers from malignant disease, 651
Edwards, Brigadier: Non-specific epididymitis, 296
—— E. C.: Tetanus in the puerperium, 382—Age and perforated gastric ulcer, 556
—— F. E.: B.M.A. and Beveridge Report, 331
—— Harold (and W. Stewart): Hernia through the foramen of Winslow, emerging through the gastro-hepatic omentum, 343 (O)
—— L. R. L.: An outbreak of epidemic catarrhal jaundice, 474 (O)
—— W: Little Audrey and the doc., 398
Effort syndrome in Iceland (D. E. Rodger), 351 (O)
Effusion, pleural, and pleurisy, significance of in differential diagnosis (R. R. Trail), 98 (O)
Eire: Registrar-General's quarterly return, 495
Eisele, C. W. (and C. P. Dick): Peptic ulcers under oral treatment with milk and cream, 350
Ejaculation, premature (ejaculatio praecox), 653
Elam, John: Oxford ether vaporizer, 232—Analgesia and anaesthesia in obstetrical practice, 577—Preventive medicine, 579
Electromedical apparatus and electric pads and blankets, control of, 49
Ellis, Frank: Planning in the treatment of cancer, 570 (O); correspondence, 706
—— M: Transparent wrapping material for dressing open wounds and ulcers, 697
Ellison, J. B: Gastro-enteritis in infants, 486
Ellman, Philip: Staffing mass miniature radiography units, 146—Atypical pneumonia, 316
Elsberg, Charles A.. *Surgical Diseases of the Spinal Cord, Membranes, and Nerve Roots: Symptoms, Diagnosis, and Treatment*, 509
E.M.S.: Rehabilitation in an E.M.S. orthopaedic unit (S. A. S. Malkin and G. Parker), 315 (O)—Special neurosis centres, 4—Revised salaries of whole-time officers, 339
Emerson, Kendall (and others): *Modern Aspects of the Anti-tuberculosis Program*, 255
Emphysema, interstitial, during labour (Roger Stanley), 477; correspondence, 552, 582, 678
—— —— of the hand, 746
—— surgical, 552—Complicating pulmonary tuberculosis, 120
Emulsions, notes on a book on, 104
Encephalitis in Manitoba, 1938-41 (C. R. Donovan and M. Bowman), 117—After vaccination, 198—After measles with severe Parkinsonian rigidity: recovery (B. Meyer), 508—Review of book on, 636
Encephalomyelitis and allied conditions, recent experience of (Section of Neurology, R.S.M.), 296
Encephalopathy, arsenical, a complication occurring during the treatment of syphilis (R. B. Nelson and others), 661 (O); correspondence, 771
—— haemorrhagic, a case following arsenical therapy (James P. A. Halcrow), 663 (O)
Endemiology: An endemiological study of *Bact. typhosum* type D4 (W. H. Bradley), 438 (O)
Endocrinology, increasing importance of, in general medicine (S. L. Simpson), 247 (O)
Endotracheal union, a suction (W. A. Cobb), 667
England and Wales: Stillbirths and neonatal deaths, 51—Registrar-General's quarterly returns, 59, 465
Enteric group of fevers in prisoners of war from the Western Desert, with special reference to prophylactic inoculation, January, 1941, to February, 1943 (J. S. K. Boyd), 719 (O); leading article, 728. And *see* Typhoid
—— —— of organisms, treatment of intestinal carriers of (R. Craile), 604
Enterospasm and spastic colitis, 402, 496
Ephedrine, reactions to (R. A. Murray Scott), 414

Epidemiology:
  Annual summary, 118
  Cerebrospinal fever, 495, 554
  Diphtheria, 554, 774
  Dysentery, 554
  Impetigo neonatorum, bullous, investigations during outbreak of (T. H. C. Benians), 623 (O)
  Infectious diseases and vital statistics, 28, 59, 88, 118, 149, 177, 207, 241, 275, 307, 339, 369, 401, 433, 465, 526, 554, 588, 620, 652, 682, 713, 744, 774, 806
  Influenza, 207, 554
  Jaundice, catarrhal (L. R. L. Edwards), 474 (O)
  Measles, 307, 465, 554
  Quarterly returns: England and Wales, 59, 465—Northern Ireland, 59, 495, 806—Scotland, 369, 774—Eire, 495
  Paratyphoid, 554
  Pemphigus epidemics, 455
  Pneumonia, acute, 554
  Scabies, compulsorily notifiable, 775
  Scarlet fever, 554
  Small-pox, 88
  —— in Scotland in 1942, 198
  Streptococcal infections (annotation), 195
  Tuberculosis, 620
  Typhoid, 554
  Typhus in Germany, 177
  Vomiting and nausea (W. H. Bradley), 309 (O)
  Whooping-cough, 554
  Winter epidemics, 554

Epiglottis in anaesthetic deaths, 590
Epilepsy, idiopathic, pitressin diagnosis in (William Blyth, 100 (O); correspondence, 364—Review of book on, 568
Erickson, Theodore C. (and W. Penfield): *Epilepsy and Cerebral Localization. A Study of the Mechanism, Treatment and Prevention of Epileptic Seizures*, 568
Eruption, toxic, 496
Erysipelas, liq. ferri perchlor. for, 466
Erythroblastosis foetalis, 53
Ether, Oxford vaporizer, 232, 556
Ethiopia. *See* Abyssinia
Ethyl chloride: Spray in pleuritic pain, 202—Analgesia (J. D. Rochford and B. T. Broadbent), 664 (O).
Eunson, L. H.: Hypnosis, 90
Eurich, F. W.: Non-fatal effects of exhaust-fume poisoning, 326
Europe: Food conditions in, 14—Starvation in (annotation), 46—Correspondence, 270, 364
Evans, A. G: Incidence of pulmonary tuberculosis of adult type in the R.A.F., results of mass radiography of 75,000 cases, 565 (O); correspondence, 647
—— David S. (and others): The action of radiant-heat cradles, 66 (O)
—— Griffith: Trophic necrosis, skin-grafting, and vitamin C, 788
—— Horace: Hypertension and renal disease, 799
—— Surg.-Lieut. Philip Raymond, heroism of, 515
—— R. Winston (and F. Smith): Effect of the pH of the blood on haemolysis, with special reference to blackwater fever, 279 (O); correspondence, 360, 458, 528, 551, 684
—— William: Mitral systolic murmurs, 8 (O); correspondence, 114, 145, 172, 202, 332, 459, 582
Eve, F. C; Complacency in resuscitation of the drowned, 535 (O); correspondence, 645—Artificial respiration, 584
Ewing, M. R: Direct inguinal hernia, 612
Exanthemata, acute, folk-lore of, 109
Exercise therapy, principles of (Ernest A. Nicoll), 747 (O)
Experiments, design of, note on book on, 192
Exposure and thirst at sea (leading article), 729
Eye: Removal of filaria worm from (M. C. T. Reilly), 103; correspondence, 169, 269, 402—Ear, nose, throat, and, review of 1942 *Year Book*, 133
—— injury: Guests at St Dunstan's, 109
Eyesight, review of book on, 447

F

Factories: Senior medical inspector of, 29
Fairbairn, W. R. D.: The war neuroses: their nature and significance, 183 (O); correspondence, 299, 333, 396, 426, 459, 549
Fairfield, Letitia: Legal position of sterilization, 328—Analgesia and anaesthesia in obstetrical practice, 578—Birth weights on a sliding scale, 706—Future of medical services, 733
Falkiner, Ninian: Placental polypus, 230
Farquharson, Eric L.: *Illustrations of Surgical Treatment: Instruments and Appliances*, 2nd ed., 321
Farris, Edmond J. (and John Q. Griffith), editors of *The Rat in Laboratory Investigations*. By a staff of 30 contributors, 73
Fawcitt, Richard: Cotton-wool sandwich, 352—Malignant tertian malaria, 622
Feeding, communal, standardization in (annotation), 293
Fees, private, of salaried medical officers, 234, 430
Feet: Pain in the fore-foot, 555—Treatment of the fractured great toe (G. N. Taylor), 724 (O)
Felix, A: Experiences with typing of typhoid bacilli by means of Vi bacteriophage, 435 (O)
Fell, Lieut. David Walton, death of from wounds, 58
Fellowship, Henry George Plimmer, 589
Fergus, John Freeland, obituary notice of, 399
Ferguson, Andrew (and John Yudkin): A critique of the Bishop Harman test for night vision, 633 (O)
—— Arnold Samuel, obituary notice of, 553
Ferguson-Davie (*née* Hull), Charlotte Elizabeth, obituary notice of, 462
Fernandez, Z. P: Mass radiography and incidence of pulmonary tuberculosis, 770
Ferrier, H. J.: Staffing of miniature mass radiography units, 616
Fever, abortus (D. G. Leys), 187 (O); correspondence, 299
—— blackwater, effect of pH of the blood on haemolysis, with special reference to (F. Smith and R. W. Evans), 279 (O); correspondence, 360, 458, 528, 551—Treatment of, 737
—— cerebrospinal, analysis of 3,575 case reports, with special reference to sulphonamide therapy (Paul B. Besson and Ethel Westerman), 497 (O) *See also* Meningitis
—— glandular, meningeal reaction in case of (J. Shafar and J. C. R. Weir), 218 (O)—Two case reports (R. J. Lumsden), 567
—— typhoid: Case of *Bact. typhosum* resistant to sulphathiazole and sulphanilamide but defeated by sulphaguanidine (E. E. Katwinkel), 477—Case of due to infected cheese (annotation), 730—Endemiological study of *Bact. typhosum* type D4 (W. H. Bradley), 438 (O)—Experiences with typing of typhoid bacilli by means of Vi bacteriophage (A. Felix), 435 (O)
—— yellow: Vaccine, jaundice and (annotation), 77—Control of mosquitoes in Kenya, 500
Fevers, acute specific, prophylaxis of (Section of Disease in Children, R.S.M.), 229
—— and fever nursing, review of book on, 667
Field, C. Elaine (and others): A standardized plan of treatment for gastro-enteritis in infants, 371 (O); correspondence, 458, 456, 581
—— (and J. P. Quilliam): Primary bronchial carcinoma at the age of 4 years 4 months, 691 (O)
Fieller, E. C. (and others): Dietetics of pregnancy, 231
Filaria worm, removal from eye (M. C. T. Reilly), 103; correspondence, 169, 269, 402, 654
Findlay, G. M: "Calorie control" diabetic diet, 201
Finland: Medical faculty established at Abo, 150
Finland, M: Staphylococcal pneumonia in patients with clinical influenza, 505
Finzi, N. S. (and F. Freund): Treatment of wounds and inflammation by x rays and radium rays, 34 (O)
First aid in Royal Navy, 759
—— —— review of books on, 541, 568
—— —— teaching, 82, 173
—— —— training in, for Civil Defence purposes (A.R.P. Handbook), 383
—— —— treatment of fractured spine, 60, 82, 614
—— —— —— for Home Guard casualties (book review), 697
—— —— universal splint (F. O'Sullivan), 448
Firth, Douglas (and J. V. Dacie) Blood transfusion in nocturnal haemoglobinuria, 626 (O)
Fischer, Isidor, obituary notice of, 238
Fischer-Wasels, Prof. Bernhard, death of, 493
Fish-liver oil capsules available, 494
Fisher, E: Tetanus, 776
—— Lettice: Adoption of children, 115
—— O. E., prisoner in Singapore, 683
—— R. B.: *Design of Experiments*, 2nd ed., 192—Dietetics of pregnancy, 144, 460
Fistula, prolonged faecal, three cases of, following operations for appendicitis (P. T. Crymble), 532
Fitch, W. K.: *Gas Warfare*, 104
Fitness, physical, vitamins and (A. A. Harper and others), 243 (O); correspondence, 394, 486, 580, 648
FitzGerald, O: *Giardia lamblia* infestation, 456
Flavines (amino-acridine compounds), their present status as surface antiseptics (C. H. Browning), 341 (O); rehabilitation of (leading article), 355; correspondence, 486
Fleming, A: Methods of spread of acute pyogenic infections of nose and throat, 391
—— Prof. G. P.: Factors influencing lactation, 516
Flemming, Charles E. S.: Future of medical services, 801
Fletcher, C. M: B.M.A. and Beveridge Report, 330
—— N. Corbet: Liq. ferri perchlor. for sore throat, 466
Flew, J. D.: Shortened puerperium, 707
Flowers, C. E.: Official medical history of the war, 456
Food: Feeding, minimum standards of (leading article), 479—Feeding the world's population, 771—*Food, Health, Vitamins* (R. H. A. and V. G. Plimmer), 384—Inspection, 587—*Index to the Literature of Food Investigation* (H.M. Stationery Office), 183—In industrial canteens, 295—Investigation, director appointed, 589
—— Ministry of: B.M.A. deputation to, on pasteurization of milk, 265
Food yeast (annotation), 294
Foot-and-mouth disease in man (Henryk Dlugosz), 189 (O). correspondence, 300, 365, 520, 582, 614
Footner, George Rammell, obituary notice of, 741
Foramen of Winslow, hernia through, emerging through gastro-hepatic omentum (H. Edwards and W. Stewart), 343 (O)
Forbes, Gilbert: Tetrachlorethane poisoning, 348 (O)
—— Robert: Preservation of professional confidence in obstetrics and gynaecology, 328
Foreign bodies, sharp-pointed, swallowed, treated with cotton-wool sandwich (R. Fawcitt), 352
Formby, Lieut.-Col. Myles: Allergic rhinitis, 674
Forrest, Devereux: Nit-wits, 590
Foundation, Ella Sachs Plotz, for Advancement of Scientific Investigation: Grants to workers, 240
—— Wellcome: Medical supplies for Russia and China, 240
Fowler, Major: American experience of allergic rhinitis, 674
Fractures: Bilateral fracture of the patella (J. J. Murphy), 725—Slow union of (leading article), 669; correspondence, 735, 769—Treatment of the fractured great toe (G. N. Taylor), 724 (O)
Fraenkel, E. M: The dysentery carrier, 54—Social aspects of allergy, 216 (O)—Research in the Continental clinic, 583
Fraenkel-Conrat, H. L: Effect of oestrogens on insulin content of rat pancreas brought about through pituitary, 43
France: Weight of Paris school children, 1941-2, 29—Starvation in Southern (annotation), 166
Francis, Alexander: Nasal defence, 402
—— Dr: Allergic rhinitis, 675
Frandsen, Dr: Infectious diseases in Denmark, 150
Frankel, E. Diet and insulin in diabetes, 737
Franklyn, Charles A. H: Doctors and the future, 801
Fransman, S. (and others): A European Association of Clinical Pathologists, 365
Freedom and the Beveridge Report, 235

Freedom, medical, preserving, 493
—— scientific, and social medicine (Geoffrey Bourne), 227; correspondence, 298, 331, 361, 392, 427, 490, 614
—— —— or unlimited, 622
—— to choose doctor, 392
—— to practise, 326, 427
FREMANTLE, Sir Francis: Venereal disease, Regulation 33B, 25—Appreciation of Sir Arthur Newsholme, 804
FREUND, F. (and N. S. FINZI): Treatment of wounds and inflammation by *x* rays and radium rays, 34 (O)
FROST, A. C.: Analgesia and anaesthesia in obstetrical practice, 577
Frostbite after shipwreck, 169
FRY, A: Spina bifida in binovular twins, 131; correspondence, 232
—— W. Kelsey (and others): *The Dental Treatment of Maxillo-facial Injuries*, 758
Fuel and Power, Minister of: On mines medical services, 148
FULLERTON, H. W.: Macrocytic anaemia of pregnancy and the puerperium, 158 (O)
"Functional" disorder, definition of (D. Hubble), 121
Fund, Bristol Hospitals, 87
—— Canadian Aid to Russia, 733
—— King Edward's Hospital for London: Grants to preliminary training schools for nurses, 600
—— Lady Tata Memorial: Grants for research expenses, 807
—— National Science (New York): Charles L. Mayer awards, 87
—— Royal Medical Benevolent: Christmas gifts, 84—Annual general meeting, 794
FURLONG, Major Ronald: Minor orthopaedic injuries, 483

G

GABARRO, P.: A new method of grafting, 723 (O)
GABRIEL, W. B.: A new St. Mark's Hospital dilator, 636
Gag for dysfunction of temporo-mandibular joint following mandibular injury (John W. Hallam), 569
—— mouth, for laryngoscopy (Surg Cmdr. H. Parry-Price), 605
GAINSBOROUGH, Hugh: Medicine and politics, 738
Gallie, Major-Gen. James Stuart, obituary notice of, 712
GAMLIN, R., Control of head lice, 647
GARBER, S. T: *Stedman's Practical Medical Dictionary*, 15th ed., 605
GARDINER, R H.: Intestinal obstruction, 81
GARDNER, Isabel M: Shortened puerperium, 706
GARLAND, T. O.: Health education and venereal disease, 290
—— Tom: Medicine and politics, 738
GARRETT, G. A: Diphtheria during immunization, 102; correspondence, 171, 202, 232
GARROD, L P: Pasteurization of milk, 80—Statement to Minister of Food (B.M A. deputation), 265
GARROW, R. P.: Unwarranted cardiac invalidism in children, 114
GARRY, Prof. R. C.: Strain of pregnancy, 51
Gas gangrene: Specific identification of the chief pathogenic Clostridia (G. F. Petrie and D. Steabben), 377 (O)
—— infection of the brain as one form of the serious complications of cerebro-cranial injuries (report by Committee of Soviet Scientists), 785
—— warfare, book review, 104
GASKELL, H. S.: Mitral systolic murmurs, 332, 582—Coarctation, 426
Gastrectomy, partial, macrocytic anaemia following (A. G. Rhodes and A Grunberg), 726
—— physiological, for duodenal ulcer (annotation), 388
Gastro-duodenal surgery in the aged (Norman C. Tanner), 563 (O); correspondence, 714
Gastro-enteritis in infants, standardized plan of treatment for (C. E. Field and others), 371 (O); correspondence, 458, 486, 581—Neonatal epidemic, sulphaguanidine in (J. L. Henderson), 410 (O); correspondence, 613
Gastro-intestinal disorders, acute, chemotherapy in (W Gunn), 485
—— haemorrhage. *See* Haemorrhage
GAUTIER, Dr. (League of Nations): Post-vaccinial encephalitis, 199
GAVIN, Alex: Liq. ferri perchlor. for sore throat, 528
GAVRONSKY, J. O. (and others): A European Association of Clinical Pathologists, 365
GAYLOR, J B: Persistently cold limbs following shipwreck, 798
Gentian violet for threadworms, 714
Germany: Typhus in, 177—Fine for summoning a doctor, 178—Diphtheria and immunization in, 553
Giardia lamblia infestation: Report to Royal Academy of Medicine in Ireland, 456
GIBBENS, Surg. Lieut. G. H.: Artificial respiration, 270
GIBBERD, G F: *Short Textbook of Midwifery*, 3rd ed, 222
Gibbes, Lewes Nicholas, obituary notice of, 86
Gill, Amar Singh, award for bravery in Burma (citation), 295
—— A. Wilson (and A. J. MCCALL): Lymphadenoma and leukaemia, 284 (O)
GILL, Dorothy Nephritis following varicella, 44
GILLESPIE, E. H: Staphylococcal typing, 455
—— John R: Pleurisy and pleural effusion, 397
—— Noel A: *Endotracheal Anaesthesia*, 478
—— R. D.: *Psychological Effects of War on Citizen and Soldier*, 133—Training and the neurotic, 422
GILLHESPY, R. O.: Treatment of vomiting after sulphapyridine, 459
GILLIATT, William (and others): *Midwifery*, by Ten Teachers, 7th ed., 13
GILMORE, H. Carson Pasteurization of milk, 22
GIRDLESTONE, G. R.: Appreciation of W. Bremner Highet, 649
Girling, Charles John, obituary notice of, 237
Glasgow: Cancer research, 79—Royal Infirmary School for Nurses jubilee, 87—Small-pox outbreak in 35 cases, 1942 (J. Glen), 198—Comments, criticism, and comparison (C. K Millard), 288; correspondence, 334
Glaucoma, atropine (J. E. Martin), 631 (O); correspondence, 708
GLEN, J.: 35 cases of small-pox, Glasgow, 1942, 198
Gloves, rubber, supplies of, 433
Glycine for myasthenia gravis, 21
GLYN-HUGHES, F. (and A. M. SPENCE): Sulphanilamide in acute disseminated lupus erythematosus, 460—(And others): Arsenical encephalopathy. A complication occurring during treatment of syphilis, 561 (O); correspondence, 771
GODDEN, W: Stillbirths and neonatal deaths in farm practice, 51
GOHAR, M. A.: Centrifuge tube for collection of leucocytes, 542
GOLDBLATT, M. W (and S H. OAKESHOTT): Inactivation of phosphorus on the skin, 128 (O)
GOLDMAN, L.: Artificial respiration, 83
GOLDSTONE, B W.: A new and simple method for subcutaneous ligature of varicose veins, 753 (O)
Gonadotrophin secretion, ketosis and (annotation), 419
Gonads, the (S. L. Simpson), 249
Gonococci, improved Pappenheim stain for detection of, in smears of pus (M. M. Barritt), 254
Gonorrhoea and sterility (S. Schleyer), 71 *See also* Venereal Diseases
GONSALVES, Percy. Partnership or bondage, 518
—— V. P: Indian Army Medical Corps, 677
GORDON, I. (and others): *Medical Jurisprudence: A South African Handbook*, 287
—— Roderick A. (and R. P. W SHACKLETON). Trichlorethylene anaesthesia in plastic surgery, 380 (O); correspondence, 398, 489
Gordon-Taylor, Surgeon Rear-Admiral Gordon. Appreciation of L. R. Braithwaite, 24—A rare cause of severe gastro-intestinal haemorrhage, with a note on aneurysm of the hepatic artery, 504 (O)—Review of *Pathology of Trauma* by A R Moritz, 666
GOUGH, W. Brian: A member resigns, 267
GOULD, J Noel (and Tudur Glyn THOMAS): Diagnosis of alkaptonuria. 788
GOURLAY, R. John: Interstitial emphysema of the hand, 746
Gout, treatment of, 808
Government and the profession, 359, 428—Undisclosed plans, 518—The proposals, 679, 710, 739
—— conference: Health services in industry, 514
Grafting, a new method of (P. Gabarro), 723 (O)
GRAHAM, Evarts A.: Editor of *1942 Year Book of General Surgery*, 727
—— George: Calorie control, 457
—— John R.: Scabies treated with one application of benzyl benzoate, 413 (O); correction, 496; correspondence, 496
—— Stanley: Factors influencing lactation, 517
GRAHAM-LITTLE, Sir E.: Venereal disease, Regulation 33B, 26—Call-up of doctors and protection of practices, 58—Private practice of alien doctor, 148—Insured persons and Protection of Practices Scheme, 149
GRANT, A. (and H WOTZILKA): Treatment of fulminating meningococcal septicaemia, 521
—— Madeleine (and others): *Psychology for Individual Education*, 103
GRASSE, Samuel: The Government's proposals, 679
GRAVES, J. H. (and others): Scientific freedom and social medicine, 428
—— Surg. Lieut. J. H., killed, 807
GRAY, G Douglas: Military psychiatry, 202
—— W. M.: Irritant spectacle frames, 648
Greece: Starvation in, 364—Food supplies for, 681
GREEN-ARMYTAGE, V. B: "Pitfall" (medico-legal) of puerperal sepsis, 328—Sterility and contraception, 776
GREENE, Raymond. Test of resolution and endurance, 648—Frost-bite and immersion foot, 798
GREENFIELD, J G.: Encephalitis, 297
Greenwood, Prof. Allen, death of, 493
GREGG, A L.: *Tropical Nursing. A Handbook for Nurses and Others going Abroad*, 2nd ed, 605
Grey matter (cerebrum and spinal cord), position of, 621
GRIFFIN, W. P.: Severe gunshot wound of the abdomen, 352
GRIFFITH, John G (and Edmond J FARRIS), editors of *The Rat in Laboratory Investigations*. By a staff of 30 contributors, 73
GRIFFITHS, H. E.: Consultation between Government and profession, 428
—— J: Mines medical services, 148
"Growing pains": Clinical significance of (D. Hubble), 122—And the subacute rheumatic state (D Hubble), 123—Nature of (D. Hubble), 124
Growth rates in school children, investigation of, 306
GRUNBERG, A. (and A. J. RHODES): Macrocytic anaemia following partial gastrecotomy, 726
GUEST, Haden: Venereal Disease, Regulation 33B, 25
GUIRDHAM, A.: Oestrogen treatment of diabetes, 202—The constitutional factor, 612
GUNN, W.: Chemotherapy in acute gastro-intestinal disorders, 485
GUTHRIE, Douglas: Tribute to Sir StClair Thomson, 204
—— D. J.: Mucin as nose and throat antiseptic, 391
GUTTMANN, Eric: Prognosis in civilian head injuries, 94 (O)—Treatment of head injuries, 579
Gynaecological surgery, review of book on, 568
Gynaecology, paediatric, review of book on, 568
Gynaecomastia produced by desoxycorticosterone acetate (doca) (R. D. Lawrence), 12

H

Haemarthrosis, recurrent, 714
Haematemesis and malaena, with special reference to bleeding peptic ulcers (F. Avery Jones), 689 (O)
Haematocrit, haemoglobinometry and the use of (report to Traumatic Shock Committee of M R C.), 209 (O); leading article on, 223; correspondence, 331
Haemoglobinometer (Haldane type), British standard specification No. 1079/1942, 14, 150
Haemoglobinometry and the use of the haematocrit (report to Traumatic Shock Committee of M R.C.), 209 (O); leading article on, 123; correspondence, 331
Haemoglobinuria, nocturnal, blood transfusion in (J. V. Dacie and Douglas Firth), 626 (O)
Haemolysis, effect of the *p*H of the blood on, with special reference to blackwater fever (F. Smith and R W Evans), 279 (O); correspondence, 360, 458, 551
Haemolytic transfusion reactions, investigation of (P. L Mollison) (report to M R.C.), 629 (O), 559 (O)
Haemophilia, precautions in, 621
Haemorrhage, adrenal, fulminating purpura and, 22, 120
—— gastric, aspirin and, 714, 768
—— severe gastro-intestinal, a rare cause of, with a note of aneurysm of the hepatic artery (G. Gordon-Taylor), 504 (O)
Haemorrhagic diseases and haemostasis, book review, 415
Haemothorax due to strangulated diaphragmatic hernia (S. Deaner and others), 72
HAGENS, Elmer W (and others): *The 1942 Year Book of Eye, Ear, Nose, and Throat*, 133
Hair, loss of, in rats, adrenalectomy on (L Stein and E. Wertheimer), 217
—— preparation, analysis of, 775
HALCROW, James P A: A case of haemorrhagic encephalopathy following arsenical therapy, 663 (O); correspondence, 771
HALL, Gilbert S.: Haemorrhagic suprarenal infarction, 22
—— Flying Officer Harold Patterson, killed in flying accident, [illegible]62
—— K. (and others): Effects of vitamins on experimental hyperthyroidism, 245 (O)
HALLAM, John W: A gag for dysfunction of the temporo-mandibular joint following mandibular injury, 569
HALLIBURTON, the late W. D. (and R. J S. MCDOWALL): *Handbook of Physiology and Biochemistry*, 37th ed, 73
HAMILTON, M.: War neuroses morale, and social psychology, 549
HAMILTON-PATERSON, I. L. (and L I. M CASTLEDEN): Three cases of intracardiac tumour, 398
HAMMOND, John: Nutrition in pregnancy, 297
—— Thomas Edwin, obituary notice of, 462
Hand and finger lesions, 55, 654
Hands, preparation of, for operation, 53, 114, 303, 528
HANSCHELL, H. M.: Venereal diseases, 430—V.D. in the Merchant Navy, 803
Harben gold medal, 482
HARDCASTLE, D. N.: A member resigns, 268
Hardie, R. S., prisoner in Thailand, 683
HARDY, T. L.: Eventration of the diaphragm, 201
HARGREAVES, Hilda: Investigation on mean birth weights of infants, 199
HARLEY, David: *Medico-legal Blood Group Determination: Theory, Technique, and Practice*, 758
HARMAN, N. Bishop: The measure of night vision, 43; correspondence, 146, 270—Night vision tests, 736
HARNETT, W. L (and Lord HORDER): Planning in the treatment of cancer, 706
HARPER, A. A (and others): Vitamins and physical fitness, 243 (O); annotation, 417; correspondence, 394, 487, 580—(And W. V. WADSWORTH): Resuscitation of the drowned, 645
HARRIES, E. H. R: Prophylaxis of acute specific fevers, 229
HARRIS, H. A.: Anatomical basis of physical medicine, 197—Diagnostic "tricks" for pleurisy and peritonitis, 737
—— Rufus: Emergency street first aid for air-raid casualties, 541
—— Wilfred: Appreciation of Leslie Paton, 741
HART, P. D'Arcy: Sir Arthur Newsholme and Russian medicine, 771

Harte, Edward, obituary notice of, 804
Harvey, H. W. (and H. W. Thomas): Absorption of iron, 83
Haslett, Caroline (and others): British hospital for Stalingrad, 711
Hasson, James: Prevalence of pityriasis versicolor, 654
Hastings, Somerville: Scientific freedom and social medicine, 392, 615—Medicine and politics, 766
Hathaway, S. R.: *Physiological Psychology*, 415
Hawksley, Margaret (and G. Humby): A universal apparatus for peroral intratracheal anaesthesia, 317 (O)
Haworth, James (and A Duff): A note on trichlorethylene anaesthesia, 381 (O); correspondence, 398, 489
Hawthorne, C. O.: Statement to Minister of Food on pasteurization of milk (B.M.A. deputation), 265
Haxton, Herbert: Anatomical nomenclature, 492
Hay, Percival John, obituary notice of, 236
Hay-fever, prophylaxis for, 242
Hayes, D. S.: Local application of promin (=promanide) in tuberculosis lesions, 81
Head injuries, acute, book review, 12
—— —— civilian, prognosis in (Eric Guttmann), 94 (O)
—— —— in motor-cyclists, with special reference to crash helmets (Hugh Cairns and H Holbourn), 591 (O)
—— —— planning for treatment of (Hugh Cairns), 313 (O); correspondence, 457, 550, 579, 647
Headaches and "silent" sinusitis, 90
Heald, C. B (and others). Joint Committee on Rheumatism and Orthopaedics, 54; correspondence, 111
Health: Of medical student, 30—On the hoardings, 109—Search for, 146—In West Indies, 400, annotation, 639—Vitamins and, 417
—— centre, *x*-ray department in, 23, 83, 146, 234
—— civilian, in wartime (book review), 383
—— Department of, for Scotland, 86
—— education, probable influence of, on the improving appendicitis mortality rate (D. B Armstrong), 277 (O)—For girls (annotation), 672
—— —— *Journal* (annotation), 388
—— industrial, and hygiene (annotation), 356
—— mental, planning for (leading article), 728
—— Minister of: Venereal disease, Regulation 33B, 26—On insured persons annd Protection of Practices Scheme, 149—Medical certificates, 176—On local authorities, 587
—— Ministry of: Improved arrangements for treatment of tuberculosis, 110—Circular on free insulin, 125—Circular on venereal diseases, 134—Circular on diphtheria immunization, 141—Circular on extension of length of service of M.O s, 150—And welfare of women in war factories (report from Select Committee on National Expenditure), 164—Memorandum on treatment of phosphorus burns (E M.S.I. 396), 229—On phosphatase test for heat-treated milk, 464—Salaries of whole-time E M S. officers, 339—Consultation with medical profession on Beveridge Report, 359; correspondence, 428; leading article, 670—Rehabilitation in civilian hospitals, a survey, 454—Memorandum on control of head lice, 526—Report on work of, 587—Returns required from local authorities, 683
——, negative, cult of, 766
—— positive (debate in House of Lords): 650
—— problems in the new London (annotation), 793
—— public, propaganda, 400
—— service plan, comprehensive, 553
——, —— national: Medical auxiliaries in, 464—Proposals, 806
—— services, Government's proposals, 650
—— units in the Colonies, 709

Heart:
  Cardiac arrhythmia, quinidine for, 452
    —— contusion in closed injuries of the chest, 471
    —— invalidism, unwarranted, in children, 114, 303
  Intracardiac tumour, three cases of (I. L. Hamilton-Paterson and L. I. M. Castleden), 398
  Maintenance treatment with digitalis (Alfred S. Rogen), 694 (O)
  Mitral systolic murmurs (William Evans), 8 (O); correspondence, 114, 145, 172, 202, 332, 459, 582
  Treatment of heart disease, review of book on, 447

Heat, effects of, in the Middle East Forces, 376
Heffernan, Patrick. Pulmonary disease in miners, 581
Heggie, R. M. and J. F: Flavines as surface antiseptics: influence on healing, 486
Hein, Lieut-Col. Gordon E: Atypical pneumonia in American Army, 515
Henderson, Surg. Cmdr.: Treatment of war neurosis, 422
—— J L· Sulphaguanidine in neonatal epidemic gastro-enteritis, 410 (O), 613
—— J. M.: The relation of sunlight to desert sores, 657 (O)—A member resigns, 267
—— Norman P.: Staffing mass miniature radiography units, 81, 487—German explosive bullets, 170—Specialists and State service, 710
Hendry, Prof. J: Factors influencing lactation, 517
Hendtlass, R. F. A case of extreme exomphalos, 477
Henry, S. A.: Byssinosis, 110
Herbalists, future of, 368
Heritage, Kenneth: Hypertension and renal disease, 799
Hernia, direct inguinal, 612, 678
—— pain in hernial scar, 434
—— strangulated diaphragmatic, haemothorax due to (S. Deaner and others), 72
—— through foramen of Winslow emerging through the gastro-hepatic omentum (H. Edwards and W. Stewart), 343 (O)
Herniae, multiple muscle (Ian D Kitchin and D. A. Richmond), 602 (O); correspondence, 738
Herpes zoster and varicella, viruses of, 466, 642
Hertz, J. H. (and others): British hospital for Stalingrad, 711
Herxheimer, H. G. J.: Rectal administration of sulphonamides, 90
Hewer, C. Langton: CO_2 absorption technique, 334—*Recent Advances in Anaesthesia and Analgesia (including O_2 Therapy)*, 415—Anaesthesia for laryngofissure, 458
Hewitt, J. and E. D. (and S. J. Cameron): *A Glasgow Manual of Obstetrics*, 4th ed., 163
Hexobarbitone as hypnotic, 714
Hick, R. H P.: Advice on sterility, 707
Higgins, L. G: Caesarean section in dystocia, 212 (O); correspondence, 361
Highet, W. Bremner, obituary notice of, 649, 711
Hill, Bradford: *Principles of Medical Statistics*, 3rd ed., 13
—— Charles· Health education and venereal diseases, 290—Health services in industry, 514—Future of medical services, 732
—— Horace: Electric convulsion therapy and brain damage, 146
—— Sir Leonard: High flying for whoopers, 54—Help for the shipwrecked, 269
—— T. Rowland: Planning for treatment of head injuries, 457
Hilton (and Sir Walter Langdon-Brown): *Physiological Principles in Treatment*, 605
Histamine and insulin in erythematous eczema, 426
—— blood, increase of after severe burns (B. Rose and J. S. L. Browne), 446
—— for psoriasis, 556
Hobson, A. J.: Scientific freedom and social medicine, 361
Holbourn, H (and Hugh Cairns): Head injuries in motor-cyclists, with special reference to crash helmets, 591 (O)
Holden, F. N.: Stilboestrol for immature infants, 234
Holman, C C.: Slow union of fractures, 735
Holroyd, J. B. H.: Oxford ether vaporizer, 556—Nasal intubation, 803
Home Guard, medical attention of, 26
—— Office: Pneumoconiosis and Workmen's Compensation Bill, 27
—— Security, Minister of: On private practice of alien doctor, 148
—— —— Ministry of: Action of radiant-heat cradles issued by (G. Malcolm Brown and others), 66 (O)
Hong Kong, prisoners of war in, 177
Honours: New Year, 50—Birthday, 734, 775
Hoople, Major: American experience of allergic rhinitis, 674
Hopkins, Frederick: Decrease in admissions to mental observation wards during war, 358
—— Sir Frederick Gowland: Resignation from Sir William Dunn Professorship of Biochemistry, 119—(And others): Minimum human requirements, 460—(And others): British hospital for Stalingrad, 711
Horder, Lord: Ex-Service Welfare Society, 422—Advice on sterility, 644
—— (and others): Minimum human requirements, 460
—— (and W. L. Harnett): Planning in the treatment of cancer, 706
Hormones In non-endocrine disorders (S L. Simpson), 250—Anterior pituitary sex, 527
Horne, J Landess: Foot-and-mouth disease in man, 614
Hoskins, J. L. (and R. E. Rewell): Chemical luminescence test for blood, 709
Hospital, Birmingham Accident: Annual Report, 549
—— —— United: Clinical teaching of medical students, 87
—— British, in North Russia, 239
—— —— for Stalingrad, 701, 711, 807
—— Bulawayo, 240
—— governors and medical auxiliaries (medico-legal), 522
—— Guy's: Appointments system, 119
—— Harlow Wood Orthopaedic, 6
—— libraries and diversionary therapeutics, 120
—— London. Cancer centre, 683—Director of new accident and orthopaedic department, 775
—— mental: Paying for V.D. treatment in, 21
—— military, experiences in, in Free China (H. T. Laycock), 262
—— planning, in *Art Notes*, 570
—— Queen Elizabeth, for Children: Gift from Marie Denny Memorial Trustees, 621
—— Queen Mary's (Roehampton): Supply of artificial limbs to workers, 561
—— Royal Cancer, London: Republication of selected papers, 448
—— St Bartholomew's: Resolution of medical council on preservation of medical freedom, 493
—— St. James's, Balham: Demonstrations by gastric and urological units, 713
Hospital ships, enemy attacks on, May 1940-May 1942, 805
—— Sir Patrick Dun's, Dublin (book on), 104
—— surveys: East Anglia and Bucks-Berks-Oxon, 241
—— Westminster: Dean appointed, 339, 586
Hospitals: Out-patient organization (F S. A. Doran), 420 (O); correspondence, 488—The medical superintendent, future position and functions of (W. J T. Kimber), 453
—— civilian, rehabilitation in (survey by Ministry of Health), 454
—— general, treatment of psychiatric patients in: a social experiment (Dalton E Sands), 628 (O); leading article, 637; correspondence, 735, 800
—— London Emergency Bed Service, 709
—— mental: Within Army, 4—Decrease in admissions to observation wards during war (F. Hopkins), 358; correspondence, 614
—— Merseyside Council, 51
—— Midlands, beneficiaries under will of Sir Charles Hyde, 345
—— voluntary: Meeting with Minister of Health, 368
—— *Year-Book, 1942*, 478
Houghton, Surg Lieut. Jack Bloor, "missing, presumed killed," 400
—— P W. (and J. N. Morrison). Treatment of fulminating meningococcal septicaemia, 363
Hours of work and their influence on health and efficiency: a tract for the times (annotation), 609—Youth registration and (annotation), 730
Houses to live in (leading article), 136; correspondence, 201, 268, 489, 584
Housing, an inquiry (annotation), 700
Howard, Russell, date of death corrected, 25
Howarth, Walter: Anaesthesia for laryngofissure, 334
Howe, Howard A. (and David Bodian): *Neural Mechanisms in Poliomyelitis*, 44
Howell, Trevor H.: Organization of postgraduate study, 643
Hubble, Douglas· Nature of the rheumatic child, 121 (O), 154 (O)
Hudson, John Harral, reported missing, 88
Huggett, Prof A. St G.: Placenta and foetal nutrition, 51—Wartime diet in pregnancy, 297
Hugo, Lieut-Col. James Henry, death of, 367
Hulme, John Walter, called to the Bar, 178
Human requirements, minimum (Sir Joseph Barcroft and others), 460
Humby, Graham (and M Hawksley): A universal apparatus for peroral intratracheal anaesthesia, 317 (O)
Humphrey, J. H.: Medicine and politics, 767
Humphris, F. Howard: Appreciation of W. J. Turrell, 271
Hunter, Capt. Frederick, death of, 239
—— William: Safe milk and milk products, 208
Hurrell, D. J.: *X*-ray department at health centre, 83
Hurst, Sir Arthur· War neuroses, 299, 459—*Medical Diseases of War*, 6th ed., 321—Asthma in childhood, 403 (O), correspondence, 518, 520, 550, 584—Appreciation of C. Lambrinudi, 650—Aspirin and gastric haemorrhage, 768
Hutchins, Myrtle M: Shortened puerperium, 768
Hutchinson, J R.: Maintenance of the dependants of tuberculous patients, 617
Huxley, Aldous: *The Art of Seeing*, reviewed by Sir Stewart Duke-Elder, 635
—— Julian S (and others): Minimum human requirements, 460
Hyde, Sir Charles: Bequests to hospitals and Birmingham University, 345
Hydrocephalus, communicating, surgery of (annotation), 357
Hygiene, Assistant Director of, at War Office, 207
—— personal and community (book review), 321
—— tropical (annotation), 638
Hypertension and renal disease (R S M), 799
Hyperthyroidism, experimental, effects of vitamins on (V Korenchevsky and others), 245 (O)
Hypnosis, 90
Hypnotic, hexobarbitone as, 714
Hypo- and hyper-chlorhydria, 714
Hypoglycaemia and the brain (annotation), 672
Hypopituitarism, hypogonadism, anaemia, 776

I

Iceland: Cases of effort syndrome among British Forces in (D E. Rodger), 351 (O)
Idle, E. Doreen. *War over West Ham* (annotation on), 764
Illingworth, C. F. W.: *Textbook of Surgical Treatment, including Operative Surgery*, 255
"Immersion foot" after shipwreck, 169
Immunity to tuberculosis (G. Gregory Kayne), 777 (O)
Immunization, diphtheria during (G. A Garrett), 102, correspondence, 171, 202. *See also* Diphtheria *and* Whooping-cough
—— the negative phase, 653
—— pertussis, 622
Immunology, review of book on, 133
Impetigo contagiosa: Treatment of, 90—In the Services, with special reference to its treatment with sulphathiazole (G. A. G Peterkin and E. Colin Jones), 318 (O)
—— neonatorum, bullous, investigations during outbreak of (T. H C Benians), 623 (O)
Impotence, psychological, 466

"In the discard," leading article on Government proposals for the medical profession, 670; Parliamentary debate on, 773; correspondence, 802

INCOME TAX
  Absentee practitioner—earned income, 30
  Appointments, 340, 654
  Bad debts, 119
  Bank interest, payment of, 29
  Car: Allowance for assistant providing, 308—Depreciation of, 340—Allowance for, 654
  Deduction of tax, 654
  Dissolution of partnership, 89
  Employment, civilian, return to, 308
  Entertainment expenses, 555
  Fees to R C P., 119
  Hospital appointment: Board and lodging, 89
  Income: Earned, reduction in, 30—Remaining abroad, 150
  Inspectors of taxes: Power in Eire, 89—Inquiries by, 178
  Irish resident, war work by, in U.K., 242
  Loan, repayment of, 556
  Marriage: Effect on allowances, 150
  Motor car expenses, 30
  Necessitous practices fund, 746
  Newcomer to England, 527
  Night, absence at, cost of meals, etc., 308
  Parents partially dependent, 556
  Private fees after retiring from public appointment, 89
  Purchase of practice, 590
  Receipts "in kind," 746
  Remittances from abroad, 29, 119
  Residence abroad, 276
  Retired practitioner, new appointment, residential expenses, 178
  Service in Forces, expenses, 308
  Single person's liability, 119
  Transfer, housing on, 496
  Travelling expenses, 276, 556
  Textbooks, cost of replacing, 556
  War damage contribution, 276, 746
  Wife, allowance for, 60
  —— deduction of tax from salary of, 276
  —— earnings of, 556, 746
  —— employment of, 60
  —— income from property in Dublin, 370

India: Malaria control in, 326—Medical aid to women of, 390—Social background of health in, 641—Vaccination in, 770
Indian Army Medical Corps, formation of: Proposals of the Souttar Mission, 575; correspondence, 677
Indexes, half-yearly, 260
Indium, toxic properties of (annotation), 793
Infancy, nutritional problems of (Nutrition Society meetings), 765
Infant feeding, 242—Review of book on, 697
—— mortality. *See* Mortality
—— premature: Management and prognosis (W. R. F. Collis and M. A. Majekodunmi), 31 (O); correspondence, 234
Infants, gastro-enteritis in, standardized plan of treatment for (C. E. Field and others), 371 (O); correspondence, 458, 486, 581
Infarction, haemorrhagic suprarenal, 22
Infection of the throat, combined with diphtheria and tuberculosis (J. J. Linehan), 162
—— in the crowded surgery, 556
—— notifiable, disposal of person dead from, 242
—— pyogenic, prevention of acute, of nose and throat (Section of Laryngology, R.S.M.), 391
—— streptococcal, epidemiology of (annotation), 195
—— virus, survey of (Society of M.O.H.s), 642
Infectious diseases: In Denmark, 150—And social conditions (leading article), 762—In Middle East Forces, 376. *See also* Epidemiology
Inflammation, wounds and, treatment by x rays and radium rays (N. S. Finzi and F. Freund), 34 (O)
—— membranous, of oropharynx, nose, and conjunctiva due to sulphathiazole administration (I. M. Schnee), 506 (O)
Influenza: Prevention of (annotation), 17
—— clinical, with epidemic staphylococcal pneumonia (M. Finland), 505
—— virus (S. P. Bedson), 642
Influenzal meningitis, successful treatment with sulphonamides (N. Archer and E. Singer), 286
Injection, the contaminated (annotation), 608; correspondence, 678, 776, 804
—— intramuscular, site for, 775
Inoculation: Probable tetanus despite inoculation with toxoid (R. J. McGill), 40 (O)
—— preventive (book review), 353
Institute of Experimental Medicine (for study and treatment of cancer), Buenos Aires, bulletin of, 14
—— Imperial, jubilee of, 622
—— National, for the Blind: Civilians blinded through enemy action, 150
—— —— for Medical Research and M.R.C., 337
—— of Public Health and Hygiene: Smith award, 526
Insufflation, transuterine, and salpingography (A. Leech-Wilkinson), 100 (O)
Insulin: Oestrogens on content of rat pancreas, 43—Free, parliamentary answer on, 58—Ministry of Health circular on, 125—And histamine in erythematous eczema, 426—Diet and, in diabetes, 737
Insurance, National Health: Insured persons and Protection of Practices Scheme, 149
Insurance, social, medical practice, and research, 803
Intelligence, pediculosis capitis and, in W.A.A.F. recruits (Henry R. Rollin), 475 (O)
Intestines: *Problems of Intestinal Obstruction*, four papers on, 73—Intestinal obstruction, 81—Treatment of intestinal carriers of enteric group of organisms (R. Craile), 604
Invalidism, cardiac, unwarranted, in children, 114, 202
Ireland, Northern: Registrar-General's quarterly returns, 59, 495, 806—Doctors in the Services, 764
—— Major: Allergic rhinitis, 675
Iron: Absorption of, 83—Too much? 340—In diet or as drug, 402
—— lung improvised in a warship (Surg. Lieut.-Cmdr. A. C. K. Yates), 256

J

JACKSON, A. Y.: *Banting as an Artist*, 448
—— Margaret C. N.: Advice on sterility, 802
—— Mary Percy: Fulminating purpura and adrenal haemorrhage, 22
JACOBS, A. L.: Appreciation of Olaf Scheel, 772
—— Morris B.: *War Gases: their Identification and Decontamination*, 104
Jamaica Medical Service, 148
JAMES, K. Wilson: Sacro-iliac strain, 150
—— Norman R.: *Regional Analgesia for Abdominal Operations: with Special Reference to Amethocaine Hydrochloride*, 666
JAMESON, Sir William: Health services in industry, 514
JARMAN, T. Francis: Promanide in local treatment of tuberculosis, 111
Jaundice and yellow fever vaccine (annotation), 77
—— epidemic catarrhal, an outbreak of (L. R. L. Edwards), 474 (O)—Study to be undertaken by M.R.C., 587, 609—Diet for, 684
—— following administration of human blood products (H. V. Morgan and D. A. J. Williamson), 750 (O)
Jeffrey, Surg. Lieut. Kenneth Cole, missing, presumed killed, 89
Jejunum, case of adenocarcinoma of (A. H. Sangster), 12
JENKINS, C. E. (and M. L. THOMSON): Haemoglobinometry and the haematocrit, 331
Jennings, Ernest Charles, obituary notice of, 617
Jendwine, Lieut.-Col. Wilfrid Wynne, death of, 239
JOBSON, T. B.: Allergic rhinitis, 675
Johnson's (Dr. Samuel) asthma, 584
JOHNSTON, Lennox: Control of venereal disease, 208
Johnston-Smith, Charles, obituary notice of, 205
JOHNSTONE, D. F.: Diphtheria during immunization, 171
—— I. Lloyd: Some useful ophthalmic sulphonamide preparations, 605
—— R. W.: *Text Book of Midwifery*, 11th ed., 113
Joints, acromio-clavicular, dislocated, treatment of, 22—Sacro-iliac strain, 150
JOKL, Ernst: *Aviation Medicine*, 287; correspondence, 677
Jones, D. N. Rocyn, appointed J.P. for Monmouthshire, 555
—— D. S. Morgan: B.M.A. and Beveridge Report, 362
—— E. Colin (and G. A. G. PETERKIN): Impetigo contagiosa in the Services, with special reference to its treatment with sulphathiazole, 318 (O)—Notes on treatment of respirator dermatitis, 757
—— F. Avery: Haematemesis and melaena, with special reference to bleeding peptic ulcers, 689 (O)
—— J. C.: The Government's proposals, 710
—— John Lewis, obituary notice of, 237
—— Ralph: Liq. ferri perchlor. for sore throat, 340
JORDAN, Henry H.: *Workmen's Compensation and the Physician. A Manual for the Use of General Practitioners and Insurance Carriers*, with a Discussion of Traumatic Neuroses by Paul H. Hoch, 13
JOULES, H.: Ward sisters' salaries, 365—A typical pneumonia, 516
Joyce, Capt. John Colin Ramsay, death of, on service, 176
JUBB, A. A.: Generalized vaccinia, 91 (O); correspondence, 425—Chemotherapy and serotherapy in cerebrospinal (meningococcal) meningitis. An analysis of 3,206 case reports, 501 (O)
JUDGE, Jane (and others): *Physiology for Individual Education*, 103

K

Kala-azar: In the Middle East Forces, 375—Diagnostic test for, 532
KATWINKEL, E. E.: *Bact. typhosum* and chemotherapy, 477
Kauntze, W. H., visit to tropical Africa for Colonial Office, 79
KAYNE, G. Gregory: Atypical pneumonia, 516—Extending the use of collapse therapy, 519—Immunity to tuberculosis, 777 (O)
Kelawala, Lieut.-Col. Maneckshaw Jamshedji, death of, 431
Keay, John, obituary notice of, 237
KEBBLE, Cmdr.: Official naval medical history of the war, 456
KEFALAS, A.: The contaminated injection, 678
Kelly, Howard, obituary notice of, 236
KENNAWAY, E. L.: Supply of water to rabbits and guinea-pigs, 760 (O)
KENNEDY, J. A. (and others): *Mass Miniature Radiography*, 415
KENNY, Elizabeth: Kenny treatment of poliomyelitis, 615
Kenya: Control of mosquitoes and epidemic yellow fever, 500
Keratoconjunctivitis, epidemic (annotation), 418
KERNAN, John Devereux: *Surgery of the Nose and Throat*, 383
Kerr, Major A. L., death of, 524
KERRY, Richard: Changing the *p*H, 521
KERSHAW, John D.: Strategy and tactics in research, 550
Ketosis and gonadotrophin secretion (annotation), 419
KEY, M. Aston: Preparation of the hands for operation, 114
KIDD, Mary: Shortened puerperium, 768
Kidney: Diet, influence of, on renal volume (annotation), 226—Hypertension and renal disease (R.S.M.), 799
Kilgore, Eugene Sterling, death of, 367
KILNER, S. D. (and others): Post-operative respiratory complications in Service cases, 754 (O)
KIMBER, W. J. T.: The medical superintendent, his future position and functions, 453; correspondence, 522
King Edward's Hospital Fund for London, 1897-1942 (leading article), 257
KING, J. E.: Irritant spectacle frames, 552
—— Lorna S.: Future of women in medicine, 461
—— Preston, obituary notice of, 236
Kirkconnel method for fractured spine, 82
KIRKPATRICK, H. J.: Rationed distribution of doctors, 23
KIRMAN, Brian H.: Admissions to mental wards in wartime, 614
KITCHIN, Ian D. (and D. A. RICHMOND): Multiple muscle herniae, 602 (O); correspondence, 738
KNIGHT, Gerald (and J. M. MALINS): "Calorie control" diabetic diet, 302
KNOTT, F. A.: Pemphigus epidemics, 455
KNOX, John Stuart: Histamine and insulin in erythematous eczema, 426
KOHN, B.: Peptic ulcer a deficiency disease, 489
KON, S. K.: Vitamin content of human milk, 765
KORENBERG, Morton (and Z. T. WIRTSCHAFTER): *Diabetes Mellitus*, 383
KORENCHEVSKY, V. (and others): Effects of vitamins on experimental hyperthyroidism, 245 (O)
KVITTINGEN, J.: Syphilis treated with daily multiple injections of mapharside, 69 (O)
KYLE, David: Perforated gastric ulcer at 19, 370

L

Laboratories, pathological: Supplies for (annotation), 18—Supply of water to rabbits and guinea-pigs (E. L. Kennaway), 760 (O)
Laboratory animals, welfare of, 808
Labour and National Service, Ministry of. Conference on health services in industry, 514
—— and State medicine (leading article), 761
Lack, Harry Lambert, obituary notice of, 304
Lactation, factors influencing (Nutrition Society), 517
Laguardia, Gerardo, death of, 367
LAKE, Norman C.: "Capacity to pay": A false premise, 578
LAKIN, C. E.: The first medical bulletin, 668
LAMBRINUDI, C.: Fractures of the carpal scaphoid, 484—Obituary notice of, 617, 650
LAMPARD, M. E.: A member resigns, 322
Lancashire, tuberculosis in, 368
LANE, R. E.: Industrial medicine, 514
—— Sir William Arbuthnot, obituary notice of, 115
LANGDON-BROWN, Sir Walter: Appreciation of George Washington Crile, 116—Houses to live in, 268—Freedom to practise, 427—Red Cross and Order of St. John, 517—State Medical Service, 710—(And HILTON): *Physiological Principles in Treatment*, 605
LANGSTAFF, John Brett: *Doctor Bard of Hyde Park: The Famous Physician of Revolutionary Times, the Man who saved Washington's Life*, 74
Lapping, Douglas James, award for bravery and distinguished service in Burma, 295
LARKIN, E. E.: Future of medical services, 733
—— R.: Slow union of fractures, 770
Laryngofissure, anaesthesia for (C. B. Lewis), 162; correspondence, 230, 302, 334, 395, 458
Laryngoscopy, mouth gag for (Surg. Cmdr. H. Parry-Price), 605
Larynx: Cancer of, treatment of (leading article), 45—Diphtheria with perforation of, 60
Latto, Surg. Lieut. Robert Rosie, missing, presumed killed, 239
LAUDENHEIMER, R.: Pitressin diagnosis of idiopathic epilepsy, 364
LAW, Frank W.: Prescription of lenses, 424
LAWRENCE, J. Stewart: Pernicious anaemia treated with pyloro-duodenal extract and liver in tablet form (=binaemon), 567
—— R. D.: Gynaecomastia produced by desoxycorticosterone acetate (doca), 12—"Calorie control" diabetic diet, 143, 234
LAWTHER, Will (and others): British hospital for Stalingrad, 711
LAYCOCK, H. T.: Experiences in a military hospital in Free China, 262
LAYTON, T. B.: Bed spacing in ear, nose, and throat wards, 391—Scientific freedom and social medicine, 491

Leach-Wilkinson, A.: Transuterine insufflation and salpingography, 100 (O)

Leading Articles:
  Alimentation, intravenous, 416
  Anaemia, is it prevalent? 449
  —— pernicious, of pregnancy, 105
  Association, British Medical: A member resigns, 135—And the Beveridge Report, 193
  Asthma, bronchial, psychogenic factors in, 416
  Beveridge to Brown, 449
  Brain: Cutting the frontal white fibres, 510
  Byssinosis and bagassosis, 46
  Cancer of the larynx, treatment of, 45
  —— lung, aetiology of, 194
  —— mammary, in mice, 385
  —— prostatic, acid phosphatase and, 571
  Children: The town child—a critical survey, 571
  Cirrhosis of the liver, 165
  Constitution and disease, 510
  Cyclotron, medical applications of the, 543; corrigendum, 622
  Dietetics of pregnancy, 16
  Diphtheria, control of, 15
  Disease, infectious, and social conditions, 762
  Dysentery, bacillary, control of, 106
  Exposure and thirst at sea, 729
  Flavines, rehabilitation of, 355
  Food: Minimum standards of feeding, 479
  Fractures, slow union of, 669
  Haemoglobinometry, accurate, 223
  Houses to live in (memorandum of R.C P), 136
  "In the discard," 670
  King's Fund, the, 257
  Leucopenia, splenopathic, 292
  Liver extracts and their biological effects, 698
  Malaria, treatment of, under war conditions, 75
  Medical education, some problems of, 698
  Medicine, democratic, 323
  —— industrial, new era in, 164
  ——State, Labour and, 761
  Mental health, planning for, 728
  Myasthenia gravis, cause of, 544
  Nerve regeneration, 606
  Neuroses, experimental, 386
  Nuffield foundation, 225
  Parliament and the Beveridge Report, 291
  Physiology of clothing, 224
  Psychiatry in the general hospital, 637
  Psychopath, responsibility of, 607
  Radiography, mass, units, 637
  Rehabilitation: The duty of social medicine, 322
  Splints, plaster, unpadded or skin-tight, 257
  T.A.B. vaccine vindicated, 728
  Tetanus, against, 76
  Tuberculous empyema, 792
  Ulcer, peptic, a panel on, 479
  United front, 354
  Vesalius: Fourth centenary of *De Fabrica*, 791

Leak, W. N: B M A. and Beveridge Report, 428
Learmonth, J. R. Vasomotor disorders in wartime, 797
Learoyd, C. G.: A member resigns, 300—Oedema of extremities at sea, 803
Lederle's pertussis antigen in treatment of whooping-cough, report of an investigation on (Richard S. W Baker), 562 (O); correspondence, 678
Lee, Douglas: *A Basis for Study of Man's Reactions to Tropical Climates*, 638
Leeds, cancer research at, 79
Leeds, C. R. Duncan · Filaria worm in eye, 169
Leggett, Bernard: Reporting deaths to coroner, 23—Unwarranted cardiac invalidism in children, 202
Legs, swollen, cause unknown, 370
Leicestershire: Reinstatement of police-surgeon refused after war service, 49—Small-pox outbreak in Leicester, 1903 (compared with Glasgow, 1942) (C. K. Millard), 288
Leitch, I.: Stillbirths and neonatal deaths in England and Wales, Scotland, New Zealand, 51
Lendrum, A. C.: Irritant spectacle frames, 552
Leningrad, surgeons and surgery in (N. Blinoff), 134
Leptospira icterohaemorrhagiae, abnormal agglutination reactions of a strain of (J C Broom and H. C. Brown), 783
Lerner, Eugene (and others): *Psychology for Individual Education*, 103
Lethane: Medicated hair oil, for eradication of head lice, 275, 526
Leucocytes, centrifuge tube for collection of (M A. Gohar), 542
Leucodermia, treatment of, 776
Leucopenia, splenopathic (leading article), 292
Leucorrhoea, treatment with acetarsol vaginal compound, 478
Leukaemia, lymphadenoma and (A. Wilson Gill and A. J. McCall), 284 (O)
Leverhulme research scholarships, 208
Levy, Hermann: Social insurance, medical practice and research, 803
Lewes, D. S.: Mitral systolic murmurs, 459
Lewin, Octavia: Nasal defence, 178
Lewis, Aubrey: Neurotic in family life, 422
—— C B.: Anaesthesia for laryngofissure, 162 (O); correspondence, 230, 302, 334
—— John A.: Vaccination in India, 770
—— J. Stephen: Mitral systolic murmurs, 459
—— J. Tudor (and D. D. Payne): Appreciation of Edward Harte, 804
—— Sir Thomas: Immersion injuries due to cold, 798
Leys, D. G.: Abortus fever, 187 (O); correspondence, 290, 394, 425, 677; leading article, 387
—— Duncan · Rationed distribution of doctors, 30
Leyton, Nevil: Treatment of migraine, 150
Lichtwitz, Leopold: *Nephritis*, 191
Life's Unfolding, review of Sir Charles Sherrington's book, 568
Limbs, artificial, supply of, to workers, 561
Lindon, Capt. George Leonard, death of, on service, 176
Linehan, J. J.: Combined infection of the throat with diphtheria and tuberculosis, 162
Lips, rough, and infected nails, 653
Liq. ferri perchlor. for sore throat, 340, 466, 528
Little Audrey and the doc., 398
Liver: The chief source of renin activator (Irvine H. Page), 127—Cirrhosis of (leading article), 164—Side-tracking the (leading article), 482—Function, hippuric acid synthesis and (annotation), 546
—— extract: Allergy to, 370, 528—Intolerance to in pernicious anaemia (E. Delikat), 539; correspondence, 613—Case treated with pyloro-duodenal extract and liver in tablet form (=binaemon) (J. Stewart Lawrence), 567—Complete extract ("plexan"), 569—Oral administration of, 746
—— extracts and their biological effect (leading article), 698
—— proteolysed, preliminary observations on treatment of pernicious anaemia with an experimental preparation of (L. J Davis and others), 655 (O)
—— —— (Evans), limited supplies available, 727
—— puncture (annotation), 78
Liverpool: Mental observation wards during war (F. Hopkins), 358
Livingstone, Dr.: Atypical pneumonia, 516
Lloyd, T. W.: Rh factor in haemolytic anaemia of the newborn, 132
Lloyd George, Rt. Hon. David (and others): British hospital for Stalingrad, 711
Local authorities, Minister of Health on, 587
Loewenstein, Arnold: Ophthalmology and sociology, 14
London County Council: Pathological service of, 14—Meeting with Ministry of Health, 368—Proposed reconstitution of coroners' districts, 506—Appointment of assistant pathologists, 652
—— Emergency Bed Service, 709
—— health problems in the new (annotation), 793
—— scabies to be compulsorily notifiable in County of, 775
Louse, head. *See* Pediculosis capitis
Loutit, John F.: Blood *p*H and haemolysis, 360
Lowsley, Oswald S: *The 1942 Year Book of Urology*, 727
Lucas, R. E.: The cult of negative health, 766
Ludford, R. J: Cancer research, 611
Lukis, Helen: B.M A. and Beveridge Report, 362
Lumsden, R J.: Glandular fever, 567
Lung disease in miners, 581
—— tumours in mice and man (J. Argyll Campbell), 179 (O); leading article on, 194; correspondence, 269
Lungs: Lung-dusting experiments (annotation), 18—Pulmonary congestion and oedema (annotation), 451—Pulmonary contusion and fat embolism in closed injuries of the chest, 472
—— radiographic postero-medial border (linear thoracic paraspinal shadow) (J. F. Brailsford), 219 (O)
Lupus erythematosus, acute disseminated · recovery with sulphanilamide (J. E G Pearson), 253 (O); correspondence, 460, 580
Lurie, M. B · Experimental tuberculosis (annotation on), 196
Lusk, James Wallace, award for bravery in Burma (citation), 295
Lymphadenoma and leukaemia (A. Wilson Gill and A. J. McCall), 384 (O)
Lymphogranuloma inguinale (tropical bubo) (F. A. R Stammers), 660 (O)
Lymphopathia venereum (annotation), 17
Lyster, R. A.: Venereal diseases, 492
Lyth, John: *Marcus Aurelius: A Rendering in Verse*, 255
Lytton, Lord (and others): British hospital for Stalingrad, 711

M

Mabane, Mr, statements in Parliament by: National loaf, 176—Pasteurization of milk, 176
MacAleer, Rev John, S.J., obituary notice of, 431
—— T B.: Filaria worm in the eye, 654
Macbeth, R. G: Bed spacing in ear, nose, and throat wards, 391
McCall, A. J. (and A W. Gill): Lymphadenoma and leukaemia, 284 (O)
McCarrison, Sir R. (and others): Minimum human requirements, 460
MacCarthy, D. (and others): A standardized plan of treatment for gastro-enteritis in infants, 371 (O); correspondence, 458, 486
—— D. W., killed on active service, 712
—— Joyce: The raw milk danger, 767
McCaughey, K. A.: Tanning for a skin lesion, 519
McClintock, Kathleen: Intra-uterine rupture of umbilical cord, 446; correspondence, 521
Macdonald, A H.: Pasteurization of milk, 52, 147
—— Donald · B M A and Beveridge Report, 428
—— J H.: Neuroses during air raids on the Clyde, 422
—— Norman: Ethyl chloride spray in pleuritic pain, 202
McDowall, R. J. S. (and the late W. D. Halliburton): *Handbook of Physiology and Biochemistry*, 37th ed., 73
McElligott, Wing-Cmdr G L. M. Non-specific epididymitis, 290
—— M. G., A Spanish-English medical dictionary, 808
Macfadyen, Norman: Houses to live in, 201
MacFarlane, Surg. Lieut. James Langford Brownrigg: Killed in action, 117—Mentioned in dispatches, 586
McGavin, Donald: Non-specific epididymitis, 295—Ligature of the innominate artery, 301
McGibbon, C. (and others): Arsenical encephalopathy. A complication occurring during the treatment of syphilis, 661 (O); correspondence, 771
McGill, R J: Probable tetanus despite inoculation with toxoid, 40 (O)
McGoey, Paul F.: Pelvic binder, 667
McGrath, Prof. J.: *Giardia lamblia* infestation, 456
Macgregor, A. S. M.: The outbreak of small-pox in Glasgow, 334
—— I. M: Dermatitis after local sulphanilamide treatment of a wound, 414
McIlroy, Dame Louise: Preservation of professional confidence, 328
McIntosh, D. G.: Mitral systolic murmurs, 459
—— J. M. (and others): Minimum human requirements, 460
—— Jean · Factors influencing lactation, 517, 590
Macintosh, R. R. (and F. B. Bannister). *Essentials of General Anaesthesia*, 353
Mackay, Helen: Nutritional problems of infancy, 765
—— I. F. S. (and others): Vitamins and physical fitness, 243 (O); annotation, 417, correspondence, 394, 486
McKendrick, Lieut.-Col. Anderson Gray, obituary notice of, 771
MacKenna, R. M. B.: Rehabilitation for skin cases, 392
Mackenzie, E K.: Pasteurization of milk, 52
McKenzie, Peter: Post-vaccinal picture Glasgow outbreak of small-pox, 1942, 198
Mackley, Capt A, death from wounds, 772
Mackwood, John: War neuroses · their nature and significance, 396
McLaren, John: A member resigns, 200
—— J.: External application of opium, 370
MacLaren, Col the Hon. Murray, obituary notice of, 57
Maclay, Hon. W.: War stress and neurosis, 422
MacLennan, William, obituary notice of, 57, 85
McLeod, Alan C. (and others): *The Dental Treatment of Maxillo-facial Injuries*, 758
MacLeod, Kenneth I. E.: Foot-and-mouth disease in man, 300, 582
MacMahon, J. Ross: Pasteurization of milk, 112
McManis, A. G. (and W. G Rich): Treatment of dysentery at sea, 82
MacMenemey, W. H. (and others): Haemothorax due to strangulated diaphragmatic hernia, 72
M'Naghten rules, 707
MacNalty, Sir Arthur S: The official medical history of the war (R.S M), 455—Appreciation of Sir Arthur Newsholme, 680
McNeil, Prof. Charles: Factors influencing lactation, 517—The bridgeheads of child health in the five ages of childhood, 715 (O)
MacQueen, I. A. G.: Haemorrhagic measles, 22
McRae, G. Douglas, obituary notice of, 650
MacRobert, Lady (and others): British hospital for Stalingrad, 711
MacWilliam, E. U.: A member resigns, 200
Magee, H E.: Public health aspects of infant nutrition, 765
Magnesium trisilicate for peptic ulcer, 527
Magnus, Georg, death of, 650
"Magtriz," an antacid, 509
Mair, William, *Index of Modern Remedies*, 789
Majekodunmi, M. A. (and W. R. E. Collis): The premature infant: management and prognosis, 31 (O); correspondence, 234
Malaria: Treatment of, under war conditions (leading article), 75—Control in India (Sir Rickard Christophers in India and Burma Section, Royal Society of Arts), 236—In the Middle East Forces, 374—Treatment of, in England (Alec Wingfield), 476—Dose of atebrin in, 770—Symptomatology of (P. H. Birks), 784 (O)
—— malignant tertian, a case of (W. L. Anderson and D B Bradshaw), 508; correspondence, 613, 622, 678, 714
—— subtertian, treatment of, 770
Malins, J. M. (and G. Knight): "Calorie control" diabetic diet, 302
Malkin, S Alan S.: Observations on injuries to the semilunar cartilages in Service patients, 6 (O)—(And Gilbert Parker): Rehabilitation in an E M S. orthopaedic unit, 315 (O)
Malleson, Joan: Advice on sterility, 769
Malnutrition: Neurological complications of, 80
Maloney, Edward R., death of, 650
Malpas, D. D. (and others): Doctors and the future, 649
Malta. Visit to, by medical adviser to Colonial Office, 79—Textbooks for medical students in, 556
Mammary *See* Breast
Manchee, Miss (chief almoner, St. Mary's) · Health education and venereal disease, 290
Manchester, Dr. Boyd's gift to (annotation), 138
Mandelbaum, M. (and others): A European Association of Clinical Pathologists, 365
Mann, Bertram · Delay in diagnosis and sanatorium treatment of phthisis, 283 (O)
—— Ida. A disclaimer, 746
Mannington, Frank: Recurrent chicken-pox, 30
Man-power, medical and ancillary, 587

MANSON-BAHR, Sir Philip: Appreciation of Prof. Warrington Yorke, 585—*Synopsis of Tropical Medicine*, 789
Mapharside, syphilis treated with daily multiple injections of (J. Kvittingen), 69 (O)
Marchand, Dr, Professor of Paris Faculty of Medicine, death of, 367
Marching and standing, 583
Marcus Aurelius: A Rendering in Verse (John Lyth), book review, 255
MARKBY, C. E. P.: Doctors and the future, 649
MARKHAM, S. F.: *Climate and the Energy of Nations*, 163
MARR, James, obituary notice of, 430
MARRACK, J. R.: *Food and Planning*, 1st ed., 191—Dietetics of pregnancy, 269, 297
MARRINER, Humphrey I. (and others): Doctors and the future, 649
MARSHALL, Prof. C. R.: Methaemoglobin in normal human blood, 340
—— Geoffrey: Atypical pneumonia, 516
—— J. Cole: Liq. ferri perchlor. for sore throat and erysipelas, 466
MARTIN, Charles (and others): Minimum human requirements, 460
—— Derrick J. (and others): Post-operative respiratory complications in Service cases, 754 (O)
—— Ewart: The nasal mucus, 391
—— Henry Meredith, obituary notice of, 85
—— J. E.: Atropine glaucoma, 631 (O); correspondence, 708
—— J. Graham: Wheeled stretcher carrier, 746
—— Nicholas H: Pyogenic skin infections and the skin-carrier rate, 269
—— W. B: Treatment with tuberculin, 736
—— W. J. (and W. T. RUSSELL): Dietetics of pregnancy, 204, 301
Masterman, E. W. G., obituary notice of, 493
MASTERS, V. F: Treatment of dislocated acromioclavicular joint, 22
Mastitis, hypertrophic, 653
Maternity: Hospitals and nursing homes, provision of, by local authorities, 206—Expectant mothers in factories, 206—Shortage of accommodation in Yorkshire, 208—Beds in London, 240; in England and Wales, 806
MATHERS, Grenville: Treatment of dysentery at sea, 614
MATTHEW, P. C.: Temperature-taking in tuberculosis, 466
MATTHEWS, Margaret E: Influenzal meningitis in a child of 2 treated with sulphapyridine, 540
MAY, Otto: Health education and venereal disease, 290
Meals, acid, alkali, and, effect of on blood level and excretion of sulphapyridine in children (H. Ellis C. Wilson), 507 (O)
MEARS, Eleanor: Future of women in medicine, 461
Measles: Associated with unusual nervous signs, 203—Sulphonamides in (R. Swyer), 485—With severe Parkinsonian rigidity, followed by encephalitis (B. Meyer), 508
—— haemorrhagic, case of, 22
—— serum, convalescent, antibody in, 807
Medical aid to women of India, 390
—— boards, cost and staffing of, 240, 306
—— centre, industrial, model, 576
—— certificates: Payment for (parliamentary question), 58—Excessive number of, 176—Issue of false, 241
—— dictionary, Spanish-English, 808
—— *Directory*, 99th ed., 44
—— education: The pre-clinical years, with special reference to the teaching of physiology (C. F. J. Cropper), 389—Some observations leading to the planning of (Francis Davies), 547—Organization of postgraduate study, 643; correspondence, 676, 800—Some problems of (leading article), 698—State subsidy for, 767
—— examinations: Periodic, 56—Of directed workers, 368—Of soldiers by women doctors, 587—At detention barracks, 806
—— folklore (annotation), 452
—— journalism, a birthday in (annotation), 731
—— officers of health, plan of, 239
—— —— native, for West Africa, 464
—— —— salaried, private fees of, 234, 430
—— —— serving, legal protection for, 590
—— practice: Private, 578—Compensation for loss of, 587—Scheme for protection of, 681
—— practitioner as teacher (annotation), 701
—— problems in social work (book review), 696
—— profession: Consultation between Government and, 359, 428, 712—Representative committee for consultation, 466—Unity in the profession? 579, 679—A problematical future, 675—The Government's proposals, 679, 801, 805—Achieving reform, 709—State control of, 739
—— records in wartime, 23
—— referees for war workers, 240
—— regrading and Army employment, 400
—— reorganization: the constitutional problem, 675
—— research: Committee for Middlesex County Medical Society to advance, 60—Strategy and tactics in (F. M. R. Walshe), 467 (O); correspondence, 550
—— Research Council: Guide to preservation of life at sea after shipwreck, 168—Haemoglobinometry and the use of the haematocrit (report to the Traumatic Shock Committee), 209 (O); leading article on, 223—Sterilization of sulphanilamide powder, 263
—— schools, interdepartmental committee on: Memorandum of evidence by B.M.A., 702
—— Service, National, 615
Medical Service, State, 710—Specialists and, 10
—— services: Industrial, in wartime, 79—Mines, 148, 240, 525—Jamaica, 148—Colonial, recruitment to, 148—For Ethiopia, 239—For West Africa, 525—Future of (address by Dr Charles Hill), 732, 801—Reorganization of (House of Lords debate), 742
—— students: Health of, 30—Entrants for Glasgow and Edinburgh, Oct. 1943, Ministry of Labour Regulations, 29—Biochemistry for, 520—Selection of, 767, 800
—— superintendent, future position and functions of (W. J. T. Kimber), 453; correspondence, 522
—— training, breadth or depth in (annotation), 640
Medicine, specialists in, 145—Review of textbook of, 163—Increasing importance of endocrinology in (S. L. Simpson), 247 (O)—Vitamins in (book review), 320—Freedom to practise, 328—Future of women in, 329, 392, 428, 461—And pharmacy in other countries, 340—And politics (Geoffrey Bourne), 673; correspondence, 738, 766—Independence for, 709
—— aviation, review of book on, 287; correspondence, 677
—— clinical, the ophthalmoscope in (A. Maitland Ramsay), 685 (O)
—— democratic (leading article), 323
—— forensic (book review), 697
—— *General*: *1942 Year Book of* (book review), 353
—— industrial: New era in (leading article), 164—Research in (annotation), 672
—— internal, a miscellany (book review), 666
—— legal, in South Africa (book review), 287
—— military, in the Middle East: an experience of 13,532 cases (E. Bulmer), 374 (O); correspondence, 462
—— *Minor*, a "Practitioner" handbook, 727
—— physical, anatomical basis of, 197
—— preventive, 579—Training in, 556
—— Russian, Sir Arthur Newsholme and, 771
—— social: Social aspects of allergy (E. M. Fraenkel), 216 (O)—Scientific freedom and (Geoffrey Bourne), 227; correspondence, 298, 331, 361, 392, 427, 490, 614; leading article on, 323—Rehabilitation: the duty of social medicine (leading article), 322; correspondence, 392
—— State, labour and (leading article), 761
—— tropical: Review of a manual on, 666, 727—*Synopsis of* (book review), 789
—— war, aspects of in the R.A.F. (D. Stafford-Clark), 139 (O)
Medico-legal: Church cellar murder, 619—Criminal negligence: a conviction quashed, 619—Hospital Governors and medical auxiliaries, 522—Misuse of medical title, 86
MEEK, T. H.: *Guide to First-aid Treatment of Home Guard Casualties*, 697
Melaena and haematemesis, with special reference to bleeding peptic ulcers (F. Avery Jones), 689 (O)
MELLANBY, Sir Edward: Medical research and industry, 514
—— Kenneth: *Scabies*, 636
MELTON, G.: Treatment of asthma by nicotinic acid, 600 (O)
MELVIN, R. G.: Dr Johnson's asthma, 584
MENDELSSOHN, K. (and others): The action of radiant-heat cradles, 66 (O)
Meningeal reaction in a case of glandular fever (J. Shafar and J. C. R. Weir), 218 (O)
Meningitis, acute aseptic, case of (A. B. Christie), 41
—— cerebrospinal (meningococcal), chemotherapy and serotherapy in. An analysis of 3,206 case reports (A. A. Jubb), 501 (O) *And see* Fever, cerebrospinal
—— due to *Diplococcus mucosus* (a report to the M.R.C.) (P. T. Bray and J. C. Cruickshank), 601 (O)
—— influenzal: Successful treatment of, with sulphonamides (N. Archer and E. Singer), 286 (O)—In a child of 2 treated with sulphapyridine (Margaret E. Matthews), 540
—— Pfeiffer's bacillus: recovery after sulphapyridine (C. Allan Birch), 72
—— virus, 642
Meningococcal infections, chemotherapy in (H. S. Banks), 485
Meningo-encephalitis, rubella, two cases of (R. I. C. Bradford), 312 (O)
Menstruation, irregular, 496
Mental patients, mortality among, 337
Mepacrine hydrochloride and methanesulphonate, manufacturers, dosage, and pack, 452
MEREWETHER, E. R. A.: Appointed Senior Medical Inspector of Factories, 29—Occupational disease is preventable, 514
MERRIMAN, B. M: Allergy to liver extract, 528
Mersalyl, a mercurial diuretic, 478
Merseyside Hospitals Council, 51
MERSON, G. P: Unusual triple complication of pregnancy, 120
Metabolism of fat, review of book on, 790
—— fluid, desoxycorticosterone and (annotation), 513
—— mineral, phytic acid and (annotation), 794
Metatarsalgia, Morton's, 808
Methaemoglobin in normal human blood, 340
Methaemoglobinaemia, familial idiopathic, with a note on the treatment of two cases with ascorbic acid (James Deeny and others), 721 (O)
Methedrine, a new blood-pressure-raising drug, use of in surgical operations (H. Dodd and F. Prescott), 345 (O)
Methedrine, hypoloid (*d*-N-methylamphetamine hydrochloride), 509
Methyl salicylate liniment, fatal poisoning by (E. Townsend), 382 (O)
MEYER, B.: Encephalitis after measles with severe Parkinsonian rigidity: recovery, 508
MICKIEWICZ, J.: Analgesia and anaesthesia in obstetrical practice, 577
MICKS, R. H.: The diet in diabetes, 598 (O); correspondence, 676, 737
Middle East, military medicine in: an experience of 13,542 cases (E. Bulmer), 374 (O); correspondence, 462
Midwifery: Reviews of textbooks of, 13, 133, 222—Shortage of midwives, 206
Migraine, treatment of, 150
MILES, Alexander (and G. F. NUTTALL): *Surgical Ward Work and Nursing*, 509
—— U. W. N.: Appreciation of John Lionel Stretton, 336
—— Capt. W. D, death of, from wounds, 742
Milk: Pasteurization of, 22, 52, 80, 88, 112, 147, 171, 176, 240, 274, 276, 368, 432, 525—(G. S. Wilson), 261 (O)—Investigation into the standard of, supplied to children (Arthur G. Watkins), 140 (O); correction, 276—Safe, and milk products, 208—Doctors agree about (annotation), 258—Safe supply (B.M.A. deputation to Ministry of Food), 265—Supply and tuberculosis, 306—Outbreak of diphtheria in E. Yorks traced to, 400—The nation's, 494—Compulsory pasteurization (annotation), 512—And bread (Parliament), 681—Local authorities and (Parliament), 682
—— human, vitamin content of, 765
—— raw, danger, 767
Millar, Daniel, obituary notice of 741
MILLARD, C. Killick: The outbreak of small-pox in Glasgow: some comments, a criticism, and a comparison, 228
MILLER, H. G: Pernicious anaemia of pregnancy, 233
MILLS, A. J. E: A case of eventration of the diaphragm, 97 (O); correspondence, 201, 397
MILNER, C. E. H.: A new syndrome, 590
MIMPRISS, T. W.: Private fees of salaried medical officers, 234
Mind-body relationship (D. Hubble), 121
Mines: Medical services, 148, 240, 525
Miners' cancer, 194
Mining industry: Dermatitis in, 400—Fitness centre at Gleneagles, 587, 760
MINSKI, Louis: Psychotherapy in general hospitals, 800
MOBSBY, Arthur, award for bravery in Burma (citation), 295
MOIR, J. Chassar: Radiological diagnosis of disproportion, 142; correspondence, 233
—— J. L.: First aid for fractured spine, 614
Moiser, Bernard, awarded O.B.E. for work for relief of lepers, 88
MOLLISON, P. L.: The investigation of haemolytic transfusion reactions (report to M.R.C.), 529 (O), 559 (O)
—— W. M: Gargles and lozenges, 391
MONAHAN, Bryan W: A member resigns, 230
MONCRIEFF, Alan: Nutritional problems of infancy ("marasmus," malnutrition, infection, rickets), 765—Statement to Minister of Food on pasteurization of milk (B.M.A. deputation), 265
Monisse, Asst. Surg. W. T. J, death of, 431
MONRO, I. C: Foot-and-mouth disease in man, 520
MONTGOMERIE, J: Modification for CO_2 absorption with field pattern Boyle's apparatus, 129 (O)
MONTGOMERY, Col.: Atypical pneumonia, 516
MONTUSCHI, E.: Pleurisy and pleural effusion, 301
MOON, Virgil H: *Shock, its Dynamics, Occurrence, and Management*, 604
MOOR, Frewen: Double beds and scabies, 402
MOORE, A. E.: B.M.A. and Beveridge Report, 362
—— Squad. Ldr. Frederick Thomas, appointed O.B.E. (citation), 651
—— Irwin: Radium and radon burns, 29
—— T.: Placenta and vitamins, 297
MOORHEAD, Thomas Gillman: *A Short History of Sir Patrick Dun's Hospital, Dublin*, 104
Morale, war neuroses, and social psychology, 549
MORAN OF MANTON, Lord (and others): Minimum human requirements, 460
MORGAN, H. B: Venereal disease, Regulation 33B, 26
—— H. V (and D. A. J. WILLIAMSON): Jaundice following the administration of human blood products, 750 (O)
MORGANS, C. Christopher: Intolerance to liver extract in pernicious anaemia, 613
MORITZ, Alan Richards: *The Pathology of Trauma*, 666
MORLOCK, H. V. (and N. L. RUSBY): Collapse therapy, 648
Morphine and shock, 340
MORRISON, J. N. (and P. W. HOUGHTON): Treatment of fulminating meningococcal septicaemia, 363
—— John T.: The medical superintendent, 522
Mortality, infantile, causes of (annotation), 19
—— maternal and infant, 1941-2, statistics, 464
—— of mental patients, 337
Morton, R. A.: *The Application of Absorption Spectra to the Study of Vitamins, Hormones and Coenzymes*, 2nd ed., 44
Mosquitoes, bee-stings, and chloroform, 462
—— control of, in Britain (annotation), 482
—— —— in Brisbane, 621
—— —— in Kenya, 500

Motor-cyclists, head injuries in, with special reference to crash helmets (Hugh Cairns and H. Holbourn), 591 (O)
Mouth, occupation and (annotation), 356
MUDD, Stuart (and W. THALHIMER): *Blood Substitutes and Blood Transfusion*, 221
MULLER, F.: Pancreatitis as a complication of mumps, 114
—— Hendrik: Sulphonamide-resistant bacteria, 202
MUMMERY, N. Howard: Resuscitation by rocking, 759
Mumps: Pancreatitis as complication of, 114—Orchitis of, operation for (annotation), 138
MUNRO, Major-General: Knee-joint injuries, 484
—— Robert: Liq. ferri perchlor for sore throat, 528
Murdoch, Andrew, obituary notice of, 524
MURDOCK, Eric T. (and others): Familial idiopathic methaemoglobinaemia, with a note on the treatment of two cases with ascorbic acid, 721 (O)
MURGATROYD, F.: Weil's disease, 395—(And J. V. DACIE): Effect of *p*H of blood on haemolysis, 458
Murmurs. *See* Heart
MURPHY, John J.: Bilateral fracture of the patella, 725
—— Lois Barclay (and others) *Psychology for Individual Education*, 103
—— William Martin, obituary notice of, 366
Murray, Col. Henry Walker, death of, 89
—— James, obituary notice of, 304
—— J. Elliot, treatment of malignant tertian malaria, 613
—— Lilian: Future of women in medicine, 429
—— Mary (and others): British hospital for Stalingrad, 711
—— R. G.: A member resigns, 200
MURRAY-BROWNE, W. G.: B.M.A. and Beveridge Report, 299
MUSHIN W. A.: A new circle-type CO_2 absorber, 130 (O)
Myasthenia gravis: Glycine for, 21—The cause of (leading article), 544—Treatment of, 746
MYERS, Bernard: Pasteurization of milk, 112
Myles, Capt. Thomas Picton, death of, 338

N

NAIDU, S. Rajagopal (and N. PITCHANDI): Chemical luminescence test for blood, 583
Nails, infected, 653
NANKIVELL, J. W. (and others). Doctors and the future, 649
Nasal defence, 178, 402
—— drops, 654
—— intubation. Dangers and difficulties from the rhinological aspect (A. R. Dingley), 693 (O); correspondence, 803
—— sinuses, review of book on, 163
National Health Insurance. *See* Insurance
Nausea and vomiting, epidemic (W. H. Bradley), 309 (O)
Nayland Hall Sanatorium, 589
NEAL, Josephine B. (editor): *Encephalitis: A Clinical Study*, 636
Necrosis, trophic, skin-grafting, and vitamin C (Griffith Evans), 788
NEECH, Jas. T.: Treatment of small-pox, 113
NEEDHAM, Joseph. *Biochemistry and Morphogenesis*, 286
Neff, Erroll Aubrey, obituary notice of, 524
NEGUS, V. E.: A very simple interceptor mask, 391
NELSON, J. A. (and A. O. WHIPPLE): *End-results of Decompression of Intestinal Tract with and without Operation*, 73
—— R. B. (and others): Arsenical encephalopathy: a complication occurring during treatment of syphilis, 661 (O); correspondence, 771
Nephritis following varicella (Dorothy Gill), 44—Review of book on, 191
Nerve cells, chromosomes in, 684
—— injuries, aids to investigation of peripheral (M.R.C. War Memorandum No. 7), 78—Diagnosis of peripheral (annotation), 138
—— regeneration (leading article), 606
Nerves, peripheral, principles of anatomy and (Section of Physical Medicine, R.S.M.), 197
—— —— in rheumatoid arthritis (annotation), 640
Nervous signs, unusual, measles associated with, 203
—— system, wasting disease and lesions of (annotation), 195—*Diseases of, described for Practitioners and Students* (F. M. R. Walshe), 3rd ed., 727
NEUMANN, H.: Treatment of chronic ulcerative colitis by pneumoperitoneum, 9 (O); correspondence, 113
Neuralgia, nicotinic acid for, 555
Neuroblastoma, adrenal, 51
Neurology: Neurological complications of malnutrition, 80—Vasomotor complications in wartime, 797
Neuroses, the war: their nature and significance (W. R. D. Fairbairn), 183 (O); correspondence, 299, 333, 396, 426, 459, 549
Neurosis and psychosis: influence of war stress on (Ex-Service Welfare Society), 422
Neurosurgery, review of book on, 192
Neutrons, slower (leading article), 481
New Zealand, stillbirths and neonatal deaths in, 51
Newborn, care of the (annotation), 759
Newcastle-upon-Tyne, cancer research in, 79
NEWCOMER, H. Sidney: Houses to live in, 489
NEWELL, A. G.: Diphtheria during immunization, 202
Newman, Lieut.-Col. Ernest Alan Robert, death of, 367
Newsholme, Sir Arthur: Obituary notices of, 680, 804—And Russian medicine, 771
NEWTON, W. H.: Placenta and maternal weight, 297
NICHOLSON, Clark: Pelvic measurements, disproportion, and nutrition, 142
NICOL, A. A. McIntosh: A case of bilateral Bell's palsy, 220
—— Hamish: Control of venereal diseases, 53
NICOLE, Ernest A.: Principles of exercise therapy, 747
Nicotinic acid: For neuralgia, 555—For asthma (G. Melton), 600 (O)
Night vision. *See* Vision
Nimmo, Charles Stuart, obituary notice of, 366
NISSE, Bertram S. (and others): Joint Committee on Rheumatism and Orthopaedics, 54; correspondence, 111
NISSEN, Rudolf (and Ernst BERGMANN): Cineplastic operations on stumps of the upper extremity, 696
Nit-wits, 590
NIXON, W. C. W. (and others). Dietetics of pregnancy, 231
N-methylamphetamine = methedrine, *q.v.*
NORMAN, R. C.: Adoption of children, 235
Northamptonshire, diphtheria immunization in, 1941 to date, 423
Norway, Sterilization Decree, 190
Nose and throat. *See* Rhino-laryngology

Notes, Letters, Answers, etc.:
  Abortion, habitual, 807
  Allergy to liver extract, 370, 528
  Anaemia, hypopituitarism, hypogonadism, 776
  —— iron for, 242
  Anaesthetics: Oxford ether vaporizer, 556—The epiglottis in anaesthetic deaths, 590
  Animals, laboratory, welfare of, 808
  A.P.T.: Keeping it cool and upright, 775
  Arteriosclerosis, cramp in, 340
  Arthritis, rheumatoid, soluseptasine in, 30
  —— and intestinal streptococci, 654
  Aspirin and gastric haemorrhage, 714
  Bandage, barrel, 589
  Bees, diet of, and queening, 30
  Blackwater fever, treatment of, 528
  Blood-blisters, oral, 745
  B.M.J.: lost through enemy action, 308
  Bread, the national, 808
  Breast-feeding, factors influencing lactation, 590
  British Pharmacopoeia amendments, 178
  Bruise, colour of, 745
  Buerger's "exercises in comfort," 120
  Burns, radium and radon for, 29
  Calcium in pregnancy, 370
  Cancer. Of breast, dressing for, 29—Oestrogen and, 434
  Casualties in rough country, 654
  Cheiropompholyx, 276
  Chemist's shop in Denmark, 178, 340
  Chicken-pox, recurrent, 30
  Chilblains, treatment of, 370
  Chromosomes in nerve cells, 684
  Claudication, intermittent, treatment of, 308
  Colds, common: disclaimer, 90
  Colitis, spastic, enterospasm and, 402, 496
  Cork adapted for washing contaminated eyes, 90
  Corrigenda, 276, 308, 434, 466, 496, 622
  Cotton-wool sandwich, 528
  Cramps: In arteriosclerosis, 340—In an elderly woman, 402—Nocturnal, 402
  Deafness, prostigmin for, 308
  Death from notifiable infection, disposal of body, 242
  Desert sores, sunlight and, 808
  Diarrhoea, bacteriology of, 276
  Diphtheria: With perforation of larynx, 60, 120—In the immunized, 496—Period of prophylaxis, 589
  —— carriers, treatment of, 434
  Disclaimer, 208, 276, 622, 746
  Doctors: Rationed distribution of, 30—Legal protection for serving medical officers, 590
  Drug-resistant organisms, 808
  Dysmenorrhoea, treatment of, 340
  Ejaculatio praecox, 653
  Emphysema, interstitial, of the hand, 746
  Enterospasm and spastic colitis, 402
  Eruption, toxic, 496
  Filaria worm in eye, 402, 654
  Freedom, "scientific" or "unlimited," 622
  Gonorrhoea, sulphonamides for, 434
  Gout, treatment of, 808
  Grey matter, position of, 621
  Haemarthrosis, recurrent, 714
  Haemophilia, precautions in, 621
  Haemorrhage, gastric, aspirin and, 714
  Hair preparation, analysis of, 775
  Hand and finger lesions, 654
  Hands, preparation for operation, 528
  Hay-fever, prophylaxis for, 242
  Health of medical student, 30
  Hernia: pain in hernial scar, 434
  Herpes: Post-herpetic pain and paresis, 120—Viruses of varicella and herpes zoster, 466
  Hexobarbitone as hypnotic, 714
  Horner's syndrome after birth, 776
  Hypnosis, 90
  Hypo- and hyper-chlorhydria, 714

Notes, Letters, Answers (*continued*):
  Hypopituitarism, hypogonadism, anaemia, 776
  Immunization, the negative phase, 653
  Impetigo, treatment of, 90
  Impotence, psychological, 466
  Income tax, 29, 60, 89, 119, 150, 178, 242, 276, 308, 340, 370, 496, 527, 555, 590, 654, 746. For details *see* General Index
  Infant feeding, 242
  Infection in the crowded surgery, 556
  Injection, contaminated, 776
  —— intramuscular, site for, 775
  Institute, Imperial, jubilee, 622
  Iron: Too much? 350—In diet or as drug, 402
  Jaundice, catarrhal, diet for, 684
  Keep it short, 654
  Legs, swollen, cause unknown, 370
  Leucodermia, treatment of, 776
  Lips, rough, 653
  Liver extract: Allergy to, 370—Oral administration of, 746
  Malaria, malignant tertian, 622, 714
  Mastitis, hypertrophic, 653
  Measles serum, convalescent, antibody in, 807
  Medical dictionary, English-Spanish, 808
  —— students in Malta, textbooks for, 556
  Medicine and pharmacy in other countries, 340
  —— preventive, training for, 556
  Menstruation, irregular, 496
  Metatarsalgia, Morton's, 808
  Methaemoglobin in normal human blood, 340
  Migraine, treatment of, 150
  Milk, safe, and milk products, 208
  —— pasteurization of, 276
  Morphine and shock, 340
  Myasthenia gravis, treatment of, 746
  Nails, infected, 653
  Nasal defence, 178, 402
  —— drops, 654
  Neuralgia, nicotinic acid for, 555
  Newspaper, inaccurate report in, 684
  Nit-wits, 590
  Nutmeg, addiction to, 745
  Obstetrics: Coarctation of the aorta as obstetrical complication, 528
  Opium, external application of, 370, 622
  Pain in the fore-foot, 555
  Paper, waste, 434
  Paratyphoid carrier, treatment of, 276
  Parkinsonism, treatment of, 276
  Pertussis, immunization against, 622
  —— therapy, vaccine in, 808
  Pessaries: Unreliable vaginal, 30—Ring, 590
  *p*H, changing the, 684
  Pityriasis versicolor, prevalence of, 654
  Pneumonia: Pneumococcal vaccine in, 527—Pathology of atypical, 745
  Pregnancy. Unusual triple complication, 120—Calcium in, 370—Food priority for pregnant women, 684
  Psoriasis, histamine for, 556
  Purpura, fulminating, and adrenal haemorrhage, 120
  Rehabilitation: supply of occupational therapists, 622
  Sacro-iliac strain, 150
  Scabies, 150—And double beds, 402—Treatment of, 496, 556
  Sclerosis, disseminated, treatment of, 496
  Sedimentation rate, 370
  Sex hormones, anterior pituitary, 527
  Shock, morphine and, 340
  Sinusitis "silent," 90
  Skin lesion, tanning for, 684
  Small-pox, accurate diagnosis of, 90
  Society, London and Counties Medical Protection, 30
  Spinal cord constriction, signs of, 683
  Spine, fractured, first aid for, 60
  Sterility: Management of sterile partners, 776—And contraception, 776
  Stretcher carrier, wheeled, 746
  —— wheeled, for resuscitation, 746
  Sulphonamides: Rectal administration of, 90—List of some of the preparations and conditions for which they are the drugs of choice, 466
  Surgery, gastro-duodenal, in the aged, 714
  Syndrome, a new, 590, 654
  Tanning, resistance to; 807
  Temperature, normal range, 683
  Tetanus, 776
  Therapy, diversional: books and diversions, 120
  Thirst at sea, 684
  Threadworms, gentian violet for, 714
  Throat, sore, liq. ferri perchlor. for, 340, 466, 528
  Tuberculosis, pulmonary, surgical emphysema complicating, 120
  —— sacro-iliac, healed, and child-bearing, 242
  —— temperature-taking in, 308, 466
  Ulcer, gastric, perforated, at 19, 370, 556
  —— lingual, 621
  —— peptic: Age and perforation of, 434—Magnesium trisilicate for, 527
  Universal Decimal Classification: reprinting, 90
  Varicella and herpes zoster, viruses of, 466
  Venereal disease: Control of, 208—And alcohol 528—Gonococcal reinfection and stricture, 555
  Virus infection, immunity to, 714
  Vitamin C in marmalade and apples, 527
  —— K, prophylactic use of, 308
  Workmen's compensation, medical aspects of, 208

NOVA ET VETERA:
  Alcocke, Nicholas, surgeon to Henry VIII and Edward VI, 20

NOVA ET VETERA (*continued*):
  Bard, Dr., of Hyde Park: the Famous Physician of Revolutionary Times, the Man who Saved Washington's Life (John Brett Langstaff), 74
  Blood transfusion, history of, 74
  Caesarean section, curiosities of (L. A. Parry), 20
  Dissection, bodies for, in Dublin in 1818 (W. B. Heywood), 74
  Exanthemata, folk-lore of acute, 109
  Gunshot wound in 1814, 733
  Lawson Tait's case, 668
  Medical bulletin, the first, 668
  Meig's syndrome, 668
  Nurse, status of, 668

Novutox, anaphylaxis after conduction anaesthesia with (R. Armattoe), 191
NUFFIELD, Lord: Central Provident Association, 705
—— Foundation (leading article), 225
—— Provincial Hospitals Trust: Women's Advisory Council, 621
Nurse: In training, review of book on, 447—Assistant, in Scotland, 773—Status of, 668
Nurses: Salaries and emoluments of (first report of Rushcliffe Committee), 264—Recruitment and distribution of, 306—Ward sisters' salaries, 365—Nurses' Bill, parliamentary debate on, 432, 494, 525, 553, 587—Shortage of, 525—In Scotland, 586; salaries of, 668; Nurses (Scotland) Bill, 650
Nursing in the Tropics, review of book on, 605
—— homes, domestic staff of, 651
Nutmeg, addiction to, 745
Nutrition in relation to cancer incidence, 79
—— human, review of book on, 191
—— maternal, during wartime, 199
—— in pregnancy (Nutrition Society), 297
—— surveys, 484
NUTTALL, G. F. (and Alexander MILES): Surgical ward work and nursing, 509
NYSTROM, Prof. Gunnar: Appendicitis in Sweden, 150
NYSWANDER, Dorothy B.: *Solving School Health Problems: The Astoria Demonstration Study*, 758

O

OAKESHOTT, S. H. (and M. W. GOLDBLATT): Inactivation of phosphorus on the skin, 128 (O)
OAKLEY, Wilfred: Atypical pneumonia, 516

Obituary:
  Abel, Rudolf, 367
  Adam, Thomas Blane, 431
  Adams, Alfred, 237
  Aiton, Temp. Surg. Lieut. Archibald Barr, 117
  Allen, Edgar, 650
  —— Frank James, 86; corrigendum, 148
  Anstey-Chave, Thomas, 399
  Antaki, Capt. Albert Joseph, 117
  Archer, Col. Samuel Arthur, 367
  Armour, Theodore Robert William, 431
  Armstrong-Jones, Sir Robert, 175
  Austen, Harold W. C., 304
  Bailhache, Major E., 176
  Banerjee, Capt. P. C., 27
  Barnes, Lieut. G. F., 683
  Battye, Lieut.-Col. Walter Rothney, 617
  Bégouin, Prof. Paul, 586
  Behr, Michael, 272
  Blackmore, F. J. C., 365
  Blusger, Isak Nahum, 367, 431
  Bodley, Alfred Lang, 366
  Bond, Col. James Henry Robinson, 239
  Bourgeois, Surg. Lieut. J. de L., 431
  Boyd, Robert, 117
  Brackett, E. G., 367
  Braham, G. N., 650
  Braithwaite, Leonard Ralph, 24, 57
  Bringan, Surg. Capt. James Campbell, 585
  Brookes, Major W. L., 400
  Brown, Lieut. Sheila Dorothy Markham, 651
  —— Stanley Mewburn, 430
  Brownlee, James, 366
  Bruce, Col. William, 89
  Buchanan, Donald, 399
  —— George Burnside, 366
  —— James, 85
  —— Peter S., 365
  Buist, Henry, 586
  Burckhardt, Jean Louis, 650
  Burton, Col. Charles Frank, 117
  Butcher, Lieut.-Col. Trevor Aveling, 27
  Calder, Capt. George Macbeth, 493, 552
  Cassidy, Capt. J. G., 712
  Cattle, Charles Henry, 335
  Chambers, Major John Ferguson, 176
  Cheatle, Lady, 85
  Chisholm, William, 586
  Colbeck, Edmund Henry, 25
  Cooper, Lieut.-Col. Sir Leonard, 176
  Corry, Capt. Samuel David, 742
  Craighead, Lieut.-Col. Alexander Clifton, 618
  Craik, Robert, 175
  Crile, George Washington, 116, 271
  Culbertson, Carey, 367
  Cutter, William Dick, 367
  Cyrias-Williams, Capt. William Richard, 683
  Darby, Capt. W., 524
  Davison, Charles, 367
  Day, Ewing Wilber, 650
  Deatker, 1st Class Asst. Surg. F. G. P., 524
  Denny, Surg. Rear-Admiral Herbert Reginald Harry, 617
Obituary (*continued*):
  Dickinson, Surg. Lieut. W. R. B., 463
  Dixon, Godfrey Brookes, 336
  Drapes, Thomas Lambert, 272
  Eastwood, William James, 649
  Edgeworth, Francis Henry, 235
  Fell, Lieut. David Walton, 58
  Fergus, John Freeland, 399
  Ferguson, Arnold Samuel, 553
  Ferguson-Davie, Charlotte Elizabeth, 462
  Fischer, Isidor, 238
  Fischer-Wasels, Bernhard, 493
  Footner, George Rammell, 741
  Gallie, Major-Gen. James Stuart, 712
  Gibbes, Lewes Nicholas, 86
  Girling, Charles John, 237
  Graves, Surg. Lieut. J. H., 807
  Greenwood, Allen, 493
  Hall, Flying Officer Harold Patterson, 552
  Hammond, Thomas Edwin, 462
  Harold, Russell, 25
  Harte, Edward, 804
  Harvey, Major-Gen. Alexander William Montgomery, 27
  Hay, Percival John, 236
  Highet, William Bremner, 649, 711
  Houghton, Surg. Lieut. Jack Bloor, 400
  Hugo, Lieut.-Col. James Henry, 367
  Hunter, Capt. Frederick, 239
  Jeffery, Surg. Lieut. Kenneth Cole, 89
  Jennings, Ernest Charles, 617
  Jeudwine, Lieut.-Col. Wilfrid Wynne, 239
  Johnston-Smith, Charles, 205
  Jones, John Lewis, 237
  Joyce, Capt. John Colin Ramsay, 176
  Keay, John, 237
  Kelawala, Lieut.-Col. Manekshaw Jamshadji, 431
  Kelly, Howard, 236
  Kerr, Major A. L., 524
  Kilgore, Eugene Sterling, 367
  King, Preston, 236
  Lack, Harry Lambert, 304
  Laguardia, Gerardu, 367
  Lambrinudi, Constantine, 617
  Lane, Sir William Arbuthnot, 115
  Latto, Surg. Lieut. Robert Rome, 239
  Lindon, Capt. George Leonard, 176
  McAleer, Father John, 431
  McCarthy, Capt. D. W., 712
  MacFarlane, Surg. Lieut. James Langford Brownrigg, 117
  McKendrick, Lieut.-Col. Anderson Gray, 771
  Mackler, Capt. A., 772
  MacLaren, Col. the Hon. Murray, 57
  MacLennan, William, 57, 85
  McRae, G. Douglas, 650
  Magnus, Georg, 650
  Maloney, Edward R., 650
  Marchand, Dr. (Paris), 367
  Marr, James, 430
  Martin, Henry Meredith, 85
  Masterman, Ernest William Gurney, 493
  Miles, Capt. W. D., 742
  Millar, Daniel, 741
  Monisse, W. T. J., 431
  Murdoch, Andrew, 524
  Murphy, William Lombard, 366
  Murray, Col. Henry Walker, 89
  Myles, Thomas Picton, 338
  Neff, Erroll Aubrey, 524
  Newman, Lieut.-Col. Ernest Alan Robert, 367
  Newsholme, Sir Arthur, 680, 804
  Nimmo, Charles Stuart, 366
  O'Grady, Lieut.-Col. Donald de Courcy, 272
  Paine, William Henry, 57
  Parry, Robert Henry, 204
  Parsons, Frederick Gymer, 740
  Paton, Leslie Johnston, 741
  Pearson, George Bruce, 337
  Philips, Lieut. Dudley Vaughan, 89
  Pinching, Charles James, 366
  Pomroy, Lieut.-Col. H. R., 807
  Potter, C. E., 85
  Powell, Dan A., 56
  —— Surg. Lieut. J. E., 239
  Pridmore, Col. Walter George, 463; correction, 524
  Puckle, Selwyn Hale, 237
  Purslow, Geoffrey Charles, 86
  Rees, John Morgan, 148
  —— Surg. Lieut. Philip Alan, 617
  Richards, H. Meredith, 57
  Riding, Temp. Surg. Lieut. Eric Beresford, 117
  Ridout, Constance Elizabeth, 305
  Rosanoff, Aaron Joshua, 650
  Ross, Thomas William Edmondston, 147
  Russell, Gladys Julia Cuthbertson, 25
  —— Robert Usher, 85
  Rutherford, James Mair, 399
  Scheel, Olaf, 772
  Schofield, John Hugh, 366
  Schwartz, Major Zelman, 176
  Scott, Arthur Eldon, 553
  Shale, Capt. Donald, 176
  Shirley, Herbert John, 711
  Simpson, Archibald, 771
  Sircar, Sir Nilratan, 711
  Skoufarides, Capt. Vlas Michael, 367
  Smith, David King, 650
  Snape, Harold, 585
  Spicer, Robin Gerald, 338
  Sprott, Gregory, 86
  Steadman, Frank St. J., 617
  Stephen, Lieut.-Col. Lessel Philip, 305
  —— W. Henderson, 804
  Stewart, John, 337
Obituary (*continued*):
  Stirling, James Mair, 365
  Stone, Lieut. Edward Raymond, 400
  Storey, Surg. Lieut. T. P., 683
  Straton, Arthur Arbuthnot, 585
  Stretton, John Lionel, 336
  Summerskill, William, 681
  Swan, Russell Henry Jocelyn, 335
  Tasker, Ronald Henry, 399
  Taylor, Alfred Simpson, 367
  Teevan, Capt. K., 431
  Thompson, George Kenworthy, 117
  Thomson, Sir StClair, 173, 204, 235
  —— Fl. Lieut. Stuart, 176
  Thornton, Kenneth Roy, 366
  Tull, Capt. J. A. C., 524
  Turrell, Walter John, 271
  Warnock, Flying Officer Archibald Clark, 742
  Watts, Alexander Minter, 237
  Weir, Capt. S. I., 176
  Welchman, Walter, 367
  Weston, Lieut. W. F. J., 524
  Wilkinson, William J., 553
  Wilson, G. Frederick, 741
  Wood, Lieut.-Col. John Lawrence, 239
  —— Orby Russell Morgan, 205
  Yorke, Warrington, 585

O'BRIEN, G. T.: Miliary tuberculosis, 517
—— John G.: Coarctation, 738
—— R. A.: Decentralization and co-operative research, 229
Obstetrics: Radiological diagnosis of disproportion (R.S.M.), 142; correspondence, 233—*Glasgow Manual of* (S. J. Cameron and others), note on, 163—Caesarean section in dystocia (L. G. Higgins), 212 (O)—Placental polypus, 229—Coarctation of the aorta as an obstetrical complication (C. W. Walker), 190 (O); correspondence, 302, 426, 528, 738—A persistent brow presentation (G. H. H. Booth), 320; correspondence, 460—Tetanus in the puerperium (E. C. Edwards), 382—Intra-uterine rupture of umbilical cord (Kathleen McClintock), 446; correspondence, 521—Exomphalos, extreme, a case of (R. F. Hendilass), 477—Interstitial emphysema during labour (Roger Stanley), 477; correspondence, 552, 582, 678—Anaesthesia and analgesia in obstetrical practice (R.S.M.), 577—Action of drugs on the uterus, 643—Case for a shortened puerperium, 644, 706, 768—*Year Book of, and Gynaecology*, 697—Birth weights on a sliding scale, 706—Childbirth, training for (book review), 758
Occupation and the mouth (annotation), 356
OCKMAN, D.: Medicine and pharmacy in other countries, 340
O'CONNOR, Donald M.: "Scientific" or "unlimited" freedom? 622
ODLUM, Doris: Psychological factors in alimentary tract dysfunction, 518
Oedema of extremities at sea, 708, 803
Oesophagus: Surgery of oesophageal cancer (annotation), 48—Perforated, following burns (L. C. Robson), 414—Peptic ulcer of (leading article), 573
Oestrogen treatment of diabetes (annotation), 107; correspondence, 202
Oestrogens: Effect on insulin content of rat pancreas, 43—And cancer, 434
O'Grady, Lieut.-Col. Donald de Courcy, death of, 272
OLDFIELD, Josiah: A nutritious diet-drink, 584
OLIVER, T. H.: "Calorie control" diabetic diet, 302
O'LOGHLEN, J. E.: Eventration of the diaphragm, 397
O'MEARA, D. G. P.: Age and perforated gastric ulcer, 556
Omentum, gastro-hepatic, hernia through foramen of Winslow emerging through (H. Edwards and W. Stewart), 343 (O)
O'MULLANE, J. J.: Peptic ulcer a deficiency disease? 302
Opacol = sodium iodophthalein, *q.v.*
Ophthalmia, phlyctenular, 231
Ophthalmology: And sociology (Arnold Loewenstein), 14—And endocrines (S. L. Simpson), 250—Prescription of lenses (F. W. Law), 424—Riboflavin and corneal vascularization (annotation), 545—Retinal venous changes in diabetes (annotation), 546—Ophthalmic treatment, review of book on, 604—Some useful ophthalmic sulphonamide preparations (I. Lloyd Johnstone), 605—An unusual retrocorneal phenomenon (H. M. Tietze), 665; correspondence, 736
Ophthalmoscope in clinical medicine: the interior of the eye considered as a biochemical laboratory (A. Maitland Ramsay), 685 (O)
Opium, external application of, 370, 622
—— Permanent Central Board of League of Nations (annotation), 512
Orbicularis oris in facial paralysis, 170
Orchitis of mumps, operation for (annotation), 138
Order, Venerable, of the Hospital of St. John of Jerusalem: Medical promotions and appointments, 87
ORR, H. Winnett: *Wounds and Fractures. A Clinical Guide to Civil and Military Practice*, 73
Orthopaedics: Rehabilitation in an E.M.S. orthopaedic unit (S. A. S. Malkin and G. Parker), 315 (O)—Military orthopaedics, 483
Osler's *Principles and Practice of Medicine* (H. A. Christian), 14th ed., 163
OSMOND, Col. T. E.: Non-specific epididymitis, 296

Osteomyelitis due to a penetrating wound, surgical treatment of (George Perkins), 441 (O)
Osteopaths, future of, 368, 651
O'SULLIVAN, F.: A universal first-aid splint, 448
—— J. V (and L. B. BOURNE): Ante-natal and gynaecological clinic within a factory, 51
Oto-rhino-laryngology in the Services, review of book on, 789
OUTHWAITE, James E: Appreciation of L R Braithwaite, 57
Out-patients: A successful appointments system in a fracture clinic (F. S. A. Doran), 420
OWEN, David "In the discard," 802
—— R A. C.: Direct inguinal hernia, 678
Oxford: Cancer research at Sir William Dunn School of Pathology, 79
—— ether vaporizer, 232
Oxygen-therapy, substitute for flowmeter in (Martin Wright and R. V. Christie), 287

P

Paediatrics, review of two books on, 789
PAGE, Irvine H · Liver, the chief source of renin activator, 127
Pain, biliary, some observations on (Alastair A. Douglas), 10 (O)
—— and cancer, 737
—— pleuritic, ethyl chloride spray in, 202
—— post-herpetic, and paresis, 120
Paine, William Henry, obituary notice of, 57
Palate, cleft, tube grafts in, 581
PALMER, W. H: Multiple muscle herniae, 738
Pamaquin, manufacturers, dosage, and pack, 452
Pancreatitis as complication of mumps, 114
Paper, waste, 434
Pappenheim stain, improved, for detection of gonococci in smears of pus (M. M Barritt), 254
Paralysis, facial, orbicularis oris in, 170
PARAMORE, R. H: Analgesia and anaesthesia in obstetrical practice, 577
Parasitology, review of book on, 509
Parathyroids, endocrine disorders of (S L. Simpson), 249
Paratyphoid carrier, treatment of, 276
—— fever (annotation), 792
Paresis, post-herpetic pain and, 120
PARFITT, Gilbert J (and others) · *The Dental Treatment of Maxillo-facial Injuries*, 758
PARKER, Gilbert (and S. A. S. MALKIN): Rehabilitation in an E M S. orthopaedic unit, 315 (O)
—— G S.: Foot-and-mouth disease in man, 365
PARKES, A. S: Nutrition in pregnancy, 297
PARKINSON, Lieut.-Col G. S.: Education and research in industrial medicine, 514
Parkinsonism, severe, with measles, followed by encephalitis (B Meyer), 508
—— treatment of, 276
Parliament and the Beveridge Report (leading article), 291

Parliament, Medical Notes in:
  Accidents, industrial, statistics, 744
  Agriculture: cottages for farm workers, 240
  Appeal tribunals, medical staffing of, 240
  Army: Proportion of men rejected for, 368—Vaccination in, 400—Medical regrading and army employment, 400—Men invalided for neurosis, 432—Skin diseases in, 773
  Belgium, nutrition and child mortality in, 773
  Beveridge Report, 273, 305, 338, 464
  Bread: National Loaf, 176, 240—And milk, 681
  Cancer, maintenance of patients, 240
  Children: Child Adoption (1939) Act, 240—Growth rates investigation of, among school children, 306
  China, medical supplies for, 464
  Committee, Food Rationing (Special Diets) Advisory, 682
  —— Industrial Health Advisory, 464
  —— Interdepartmental, on Dentistry, 525
  —— Medical Advisory, 464
  —— Parliamentary Medical, 240
  —— —— Social Services, 206
  —— Representative of Medical Profession, 464
  —— Scottish Medical Advisory, members of, 337
  —— University Grants, funds, of, 774
  Compensation for practices, 587
  Contraceptives, manufacture of, 525
  Council, Medical Research, National Institute for Medical Research and, 337
  Dermatitis: In mining industry, 400—Prevention of, 525
  Diphtheria · Statistics, 58—Immunization, 206—Outbreak in E. Yorks traced to milk supply, 400—Among immunized children, 464—And immunization in Germany, 553—Immunization and incidence, 712
  Doctor, free choice of, 525
  Doctors: Call up of, and protection of practices, 58—Relieving the G.P., 587—Compensation for practices, 587
  —— alien, after the war, 773
  —— —— private practice of, 148
  Food inspection, 587
  Greece: Food supplies for Greeks, 681
  Health: comprehensive service plans, 553
  —— National Service: Medical auxiliaries in, 464—Proposals, 806
  —— positive, 650
  —— public: Propaganda, 400
  —— services, Government proposals, 650
  —— in the West Indies, 400
  Herbalists, future of, 368
  Home Guard, medical attention of, 26

Parliament, Medical Notes in (*continued*):
  Hospital ships, enemy attacks on, May 1940-May 1942, 805
  Hygiene, Assistant Director of, at War Office, 207
  "In the discard," 773
  Infant mortality, 464
  Institute, National, for Medical Research and M R C., 337
  Insulin, free, 58
  Insurance National Health: Insured persons and Protection of Practices Scheme, 149
  Lancashire, tuberculosis in, 368
  Local authorities, 587
  Man-power, medical and ancillary, 587
  Maternity: Provision by local authorities, 206—Expectant mothers in factories, 206—Beds, 240, 806—Maternal and infant mortality, 464
  Medical boards: Cost and staffing of, 240—Number of chairmen of, 306—Fees paid to consultants and specialists, 306
  —— certificates, 58, 176
  —— examination: Of directed workers, 368—By women doctors, 587—At detention barracks, 806
  —— inspections by women doctors, 586
  —— officers of health, plan of, 239
  —— —— native, for West Africa, 464
  —— practices, protection scheme, 681
  —— profession, consultation with Government, 712
  —— referees for war workers, 240
  —— Research Council Special study of epidemic catarrhal jaundice, 587
  —— Services · recruitment to Colonial, 148—Jamaica, 148—Mines, 148, 240—For Ethiopia, 239—Reorganization of, 742—Consultant service, 744—Government's proposals for, 805
  Mental patients, mortality among, 337
  Midwives, shortage of, 206
  Milk: Pasteurization of, 176, 240, 432, 525—Pasteurization processes and vitamins, 274—Non-pulmonary tuberculosis and pasteurization, 368
  —— and bread, 681
  —— the nation's, 494
  —— supply: And tuberculosis, 306—And local authorities, 682
  Miners: Medical service, 525—Fitness centre at Gleneagles, 587
  Ministry of Health, report on work of, to be published, 587
  Nurses: Recruitment and distribution of, 306—Nurses Bill, 432, 494, 525, 553, 587—Shortage of, 525—In Scotland, 586—Assistant, in Scotland, 773
  Nursing homes, domestic staff of, 651
  Osteopaths, future of, 368, 651
  Penicillin, 525—Committee on, 553
  Pensions Appeal Tribunals, 463, 587
  Potato flour, 206
  Prisoners of war in Hongkong, 177
  Psychoneurosis, members of Forces discharged for, 806
  Rehabilitation. In the Army, 337—Of civilians, 651
  Russia, North, British hospital in, 239
  Services, examination of personnel by women M.O s, 553
  Sickness, short-term, increase of, 806
  Silicosis Medical Board, 368
  Skin diseases among troops, 239
  Small-pox and vaccinia deaths, 240
  Sulphapyridine, issue of, to troops, 712
  Tuberculosis: Mortality, 206, 432—Milk supply and, 306—Non-pulmonary and pasteurization, 368—Financial help for tuberculous persons, 368, 587—In Lancashire, 368—Tuberculous cattle, removal to markets prohibited, 368—Non-pulmonary, under Government's scheme, 773—Investigations into incidence of, 805
  Vaccination in the Army, 400
  Vaccine lymph, 464
  Vaccinia and small-pox deaths, 240
  Venereal disease · Regulation 33B, 25, 681—Treatment in the Army, 58, 239—Treatment of syphilis under 33B, 177—Cost of propaganda campaign, 274—Treatment of syphilis in the Army, 274—Publicity campaign, 338—Treatment of, 525—Army education on, 553—Compulsory treatment by special practitioner under 33B, 587—Compulsory notification, 773
  Wales, no special diagnostic service for, 240
  War casualties, 773
  X-ray equipment: Miniature, 26—Shortage of therapy and diagnostic tubes, 274

PARRY, L. A: Curiosities of Caesarean section, 20
—— Robert Henry, obituary notice of, 204
—— T. Wilson: *The Spirit of "This England,"* 13
PARRY-PRICE, Surg. Cmdr. H.: Mouth gag for laryngoscopy, 605
PARSONS, A. R: Miliary tuberculosis, 518
—— F Gymer, death of, 462; obituary notice, 740
—— Harold · Planning for treatment of head injuries, 550
—— J Herbert. Testing for night vision, 146
—— Leonard G.: Erythroblastosis foetalis, 54
Partnership or bondage, 518
Pasteurization of milk, 22, 52, 80, 88, 112, 147, 171, 276, 368, 432, 525 (G. S. Wilson), 261 (O)—Doctors agree about (annotation), 258—Effect on vitamins, 274—Compulsory (annotation), 512. *See also* Milk
Patella, bilateral fracture of (J. J. Murphy), 725
PATERSON, A Spencer: Case-taking schemes for psychoses and neuroses, 478
PATERSON, M. W.: Industrial medicine, 514
Pathology: Service of L.C.C., 14—Supplies for pathological laboratories (annotation), 18—Clinical pathological investigations (book review), 353—Of closed injuries of the chest (J. V. Wilson), 470 (O)
Patient, what of the? 490
Paton, Leslie Johnston, obituary notice of, 741
PATRICK, James: Appointments system at fracture clinic, 488
PATTEE, Alida Frances · *Vitamins and Minerals for Everyone*, 759
PATTERSON, Norman: Anaesthesia for laryngofissure, 395
PAYAN, J. F. Infection in the crowded surgery, 556
PAYNE, D. Derry (and J. T. LEWIS): Appreciation of Edward Harte, 804
PEARCE, Evelyn C.: *Fevers and Fever Nursing*, 5th ed., 667
—— J. Cuthbert: B M A. and the Beveridge Report, 362
PEARSE, A. S: *Introduction to Parasitology*, 509
Pearson, George Bruce, obituary notice of, 337
—— J. E. G.: Acute disseminated lupus erythematosus · recovery with sulphanilamide, 253 (O); correspondence, 460
Pediculosis capitis and intelligence in W A.A F recruits (Henry R. Rollin), 475 (O)—Memorandum on control of head lice (Min of Health), 526; correspondence, 647, 734
PEGGE, George: War neuroses, 333
Pellagra (Job's illness) (C. J Brim), 74
Pelvic binder (Paul F. McGoey), 667
Pemphigus epidemics, 455
PENDRED, Vaughan: Interstitial emphysema during labour, 582
PENFIELD, Wilder (and T C ERICKSON): *Epilepsy and Cerebral Localization · A Study of the Mechanism, Treatment, and Prevention of Epileptic Seizures*, 568
Penicillin (leading article), 481—Question in Parliament, 525—Committee to report on, 553
PENNELL, Alice: Health in India, 641
PENROSE, J. H.: Private fees of salaried medical officers, 430
Pensions Appeal Tribunals, 463, 587
PERCIVAL, G. H: Economy in fats and oils in treatment of skin diseases, 160 (O)
Periarteritis nodosa, new light on (annotation), 608
PERIGAL, Arthur F.: Treatment of small-pox, 234
Perimetry, Clinical, Introduction to (H. M Traquair), 2nd ed., 163
PERKINS, George: Surgical treatment of osteomyelitis due to a penetrating wound, 441 (O), 483
PERN, Sydney: Headaches and "silent" sinusitis, 90
Pertussis antigen, Lederle's, in treatment of whooping-cough: Report of an investigation (Richard S. W. Baker), 562 (O); correspondence, 678
—— immunization against, 622
—— therapy, vaccine in, 808
Pervitin = methedrine, *q.v.*
Pessaries, ring, 590
PETERKIN, G A. Grant (and E. C JONES): Impetigo contagiosa in the Services with special reference to its treatment with sulphathiazole, 318 (O)
PETERS, J. P.: *Obstruction of the Gastro-intestinal Tract*, 73
PETRIE, Col. A. A. W. War stress and neurosis, 422
—— G F. (and D. STEABBEN): Specific identification of the chief pathogenic Clostridia of gas gangrene, 377 (O)
Pfeiffer's bacillus meningitis, recovery after sulphapyridine (C. Allan Birch), 72
*p*H. *See* Blood
Phenobarbital, skin reaction to (annotation), 763
Phillips, Lieut. Dudley Vaughan, death of, 89
—— James: Surgical emphysema, 552
—— Walter: Dressing for cancer of breast, 29
—— W. Powell (and C. W. ANDERSON). *Preventive Inoculation*, 353
PHILPS, Seymour · Atropine glaucoma, 708
Phosphorus, inactivation of, on the skin (M W. Goldblatt and S. H. Oakeshott), 128 (O)
—— burns, treatment of (revised Ministry of Health Memorandum), 229
—— poisoning: And blood urea, 56—From German bullets, 170
Phthisis. *See* Tuberculosis
Physiology and biochemistry, review of handbook of, 73
—— of clothing (leading article), 224
—— pre-clinical years, with special reference to the teaching of (C. F. J. Cropper), 389
—— principles of, in treatment, review of book on, 605
Phytic acid and mineral metabolism (annotation), 794
PICK, F (and others) A European Association of Clinical Pathologists, 365
PICKEN, Prof. R. M. F.: Statement to Minister of Food on pasteurization of milk (B M A. deputation), 265
PICKERILL, H. P.: Bee-stings, mosquitoes, and chloroform, 462—Tube grafts in cleft palate 581
PICKWORTH, F. A.: Eosinophilia in allergic rhinitis, 675
PILCHER, A. M: Pasteurization of milk, 113
Pinching, Charles James, obituary notice of, 366
PINES, A.: First aid for fractured spine, 60
PINNOCK, D Denham (and Paul WOOD): Blast injury to the abdomen by depth charge, 537 (O); correspondence, 648
PITCHANDI, N. (and S. Rajagopal NAIDU): Chemical luminescence test for blood, 583

Pitressin diagnosis of idiopathic epilepsy (William Blyth), 100 (O); correspondence, 364
Pituitary: Effect of oestrogens on insulin content of rat pancreas brought about by medium of (H. L. Fraenkel-Conrat), 43—Adrenal-pituitary disorders (S. L. Simpson), 247—Anterior pituitary sex hormones, 527
—— extract for congenital pyloric stenosis, 145
Pityriasis versicolor, prevalence of, 654
Plague abroad (annotation), 699
Plants causing irritation (F. J. Chittenden), 799
Platt, Prof. Harry: Knee-joint injuries, 484
Pleurisy and pleural effusion, significance of, in differential diagnosis (R. R. Trail), 98 (O); correspondence, 301, 397
—— and peritonitis, diagnostic "tricks" for, 737
Pleuritic pain, ethyl chloride spray in, 202
Pleuritis, aseptic obliterative, silver nitrate for (annotation), 419
"Plexan" = complete extract of liver, 569
Plimmer, R. H. A. and V. G.: *Food, Health, Vitamins*, 9th ed., 384
Pneumoconiosis and Workmen's Compensation Bill, 27
Pneumonia, a typical (R.S.M. discussion), 515; (Soc. of M.O.H.s), 642—Pathology of, 745
—— chemotherapy in (T. Anderson), 485—Some aspects of chemotherapy of (T. Anderson), 717 (O)
—— primary atypical, aetiology unknown (annotation), 225
—— staphylococcal, epidemic, in patients with clinical influenza, chemotherapy for (M. Finland), 550
—— vaccine, pneumococcal, in, 527
Pneumoperitoneum, treatment of chronic ulcerative colitis by (H. Neumann), 9 (O); correspondence, 113
Poisoning, fatal, by methyl salicylate liniment (E. Townsend), 382
—— non-fatal effects of exhaust-fume (F. W. Eurich), 326
—— tetrachlorethane (Gilbert Forbes), 348 (O)
Police: Reinstatement of surgeon to Leicester County Police refused after war service, 49
Poliomyelitis: Pathogenesis of, review of book on, 44—In Manitoba, 1941 (C. R. Donovan and M. Bowman), 118—Virus of, in water (annotation), 545—Kenny treatment of, 615—Virus present in stools, 643
Politics, medicine and (Geoffrey Bourne), 673; correspondence, 738
Polson, Cyril: *Clinical Pathological Investigations*, 353—Pathological aspects of nasal allergy, 674
Polyneuritis, infectious (annotation), 292
Polypus, placental (Section of Obstetrics, Royal Academy of Medicine in Ireland), 229
Pomroy, Lieut.-Col. H. R., death of, 807
Popjak, G. (and others): A European Association of Clinical Pathologists, 365
Popplewell, J. R. F.: German explosive bullets, 111
"Portrait of a doctor," note on a B.B.C. production, 797
Postgraduate study. *See* Medical education
Potato flour, 206
Potter, C. E., obituary notice of, 85
Powders, dry, sterilization of, 426
Powell, Dan A., obituary notice of, 56
—— Temp. Surg. Lieut. J. E., "missing, believed killed," 239
Poynton, F. John: State control of the medical profession, 739
Praagh, Harold Van: Freedom to practise, 427
Pregnancy: Dietetics of (leading article), 16; correspondence, 144, 204, 231, 268, 363, 460—Influence of diet during (Nutrition Society, Scottish Group), 51; correspondence, 550—Pernicious anaemia of (leading article), 105; correspondence, 233—Unusual triple complication, 120—And puerperium, macrocytic anaemia of (H. W. Fullerton), 158 (O)—And labour in a case of congenital coarctation of the aorta (C. W. Walker), 190 (O); correspondence, 302—Healed sacro-iliac tuberculosis, and, 242—Nutrition in (Nutrition Society), 297—Calcium in, 370, 550, 613, 678—Tetany in, treatment of (annotation), 418—Toxaemia of, value of vitamin B_1 in prevention of (F. J. Browne), 445 (O)—Review of book on, 636—Food priority for pregnant women, 684
Pregnenolone, action of, with testosterone (Hans Selye and S. Albert), 679

Preparations and Appliances:
  Acetarsol vaginal compound, 478
  Blood for transfusion, safety device for suction pump used for obtaining (E. M. Watson), 321
  Clamps for abdominal surgery (D. Lang Stevenson), 13
  CO_2 absorber improvised at sea from respirator parts (Surg. Cmdr. H. Parry Price), 569
  Dilator, anal, a new St. Mark's Hospital, 636
  Diuretic, mercurial (mersalyl), 478
  Dressing: transparent wrapping material for open wounds and ulcers (M. Ellis), 697
  Endotracheal suction union (W. A. Cobb), 667
  Gag for dysfunction of temporo-mandibular joint following mandibular injury (John W. Hallam), 569
  —— mouth, for laryngoscopy (Surgeon Cmdr. H. Parry-Price), 605
  Leucocytes, centrifuge tube for collection of, 542
  Liver, complete extract of ("plexan"), 569
  —— proteolysed (Evans), 727
  "Magtriz," 509

Preparations and Appliances (*continued*):
  Methedrine, hypoloid (*d*-N-methylamphetamine hydrochloride), 509
  Oxygen therapy, substitute for flowmeter in (Martin Wright and Ronald V. Christie), 287
  Pelvic binder (Paul F. McGoey), 667
  "Plexan," 569
  Resuscitation by rocking (N. Howard Mummery), 759
  Serum transfusion in the field, simple method of (J. C. McC. Browne), 384
  Sigmoidoscope, new form of (C. P. G. Wakeley), 222
  Splint, first-aid, universal (F. O'Sullivan), 448
  Suction apparatus, portable and non-electric (N. F. Safier and R. Salt), 790
  Sulphanilamide for local application, 13
  Sulphonamides, some useful ophthalmic preparations (L. Lloyd Johnstone), 605
  Stretcher, wheeled, or equipment carrier (K. Vernon Bailey), 542
  Syringe, ampoule (Roche Products, Ltd.), 727

Prescott, Frederick (and F. Bicknell): *The Vitamins in Medicine*, 320
—— (and H. Dodd): Use of methedrine, a new blood-pressure-raising drug, in surgical operations, 345 (O)
Preston, Francis E.: *The Ophthalmic Prescriber's Codex*, 604
Prestwich, J. C.: The diet in diabetes, 676
Price, Dorothy: Two cases of miliary tuberculosis, 517
—— H. Parry: CO_2 absorber improvised at sea from respirator parts, 569
Pridmore, Col. Walter George, obituary notice of, 463; correction, 524
Priest, W. M.: Treatment of bacillary dysentery, 303
Prisoners of war, books for, 797
Progesterone and vitamin E (annotation), 259
Promin (promanide): local application of, in tuberculous lesions, 81, 111
Propamidine (annotation), 324
Prophylaxis of acute specific fevers (Section of Disease in Children of R.S.M.), 229
Prostigmin for deafness, 308
Protein reservoir (annotation), 572
Provident schemes, 705
Pseudohermaphroditism, 486
Psittacosis virus and atypical pneumonia, 642
Psoriasis: Histamine for, 556—Sarsasaponin for (F. M. Thurmon), 563
Psychiatric patients, treatment in general hospitals: a social experience (Dalton E. Sands), 628 (O); leading article, 637; correspondence, 735
Psychiatry, military, three years of, in the United Kingdom (J. R. Rees), 1 (O); correspondence, 111, 202, 233
Psychology: Reviews of books on, 103, 133, 383, 415, 447—A medical psychologist unbends (book review), 222—Psychological factors in asthma (C. H. Rogerson), 406 (O); psychogenic factors in asthma (leading article), 416; correspondence, 518—Psychological impotence, 466
—— social, war neuroses, morale, and, 549
Psychoneuroses: And endocrine disorders (S. L. Simpson), 249—In the Services, 806
Psychopath, responsibility of a (leading article), 607
Psychoses and endocrine disorders (S. L. Simpson), 249
Psychosis, mild depressive (B. Andratschke and C. H. Rogerson), 780
Psychotherapy in general hospitals, 800
Puckle, Selwyn Hale, obituary notice of, 237
Puerperium. *See* Obstetrics
Puestow, Charles B. (and Warren H. Cole): *First Aid: Surgical and Medical*, 568
Pullinger, B. D.: Work in cancer research, 611
Pulse, charting the, 84
Purcell, F. M.: A member resigns, 300
Purpura, fulminating, and adrenal haemorrhage, 22, 120
Purslow, Geoffrey Charles, obituary notice of, 86
Pus, improved Pappenheim stain for detection of gonococci in smears of (M. M. Barritt), 254
Pyke, David: Textbooks for medical students in Malta, 556
Pylorus: Functions of the pyloric canal, 142—Pituitary extract for congenital pyloric stenosis, 145

Q

Questions (new Queries and Answers column), annotation on, 225; correspondence, 335
Quick, Armand J.: *The Hemorrhagic Diseases and the Physiology of Hemostasis*, 415
Quilliam, J. P. (and C. E. Field): Primary bronchial carcinoma at the age of 4 years 4 months, 691 (O)
Quinidine, use restricted, 452
Quinine: Control of, by Ministry of Supply, 87—Substitutes for (annotation), 452

R

Radclyffe, Leon: Preparation of the hands for operation, 303
Radford, Maitland: Health education and venereal disease, 290
Radiant-heat cradles, action of (G. Malcolm Brown and others), 66 (O)
Radiography: Postero-medial border of lung (linear thoracic paraspinal shadow) (J. F. Brailsford), 219 (O)
—— mass miniature units: Staffing of, 81, 146, 172, 398, 487, 616—In Scotland, 401—In London, 668—Review of book on, 415—Advisory report on working of (leading article), 637—Results of 75,000 cases in R.A.F. and W.A.A.F. (A. G. Evans), 565 (O); correspondence, 646, 770
Radiological and tuberculin survey, combined (annotation), 47
—— diagnosis of disproportion (J. Chassar Moir, R.S.M.), 142; correspondence, 233
Radiologists and the future, 802
Radium and radon burns, 29
—— rays and x rays, treatment of wounds and inflammation by (N. S. Finzi and F. Freund), 34 (O)
Ramsay, A. Maitland: The ophthalmoscope in clinical medicine: the interior of the eye considered as a biochemical laboratory, 685 (O)
Randall, Minnie: *Training for Childbirth from the Mother's Point of View*, 759
Raper, H. S. (and others): Vitamins and physical fitness, 243 (O); annotation, 417; correspondence, 394, 486
Rat, the laboratory, review of book on, 73
Raushenbush, Esther (and others): *Psychology for Individual Education*, 103
Raven, R. W.: *Surgical Care: A Handbook of Pre- and Post-operative Treatment*, 103
Raw, Stanley C.: Abdominal rigidity in blast injuries, 645
Ray, M. B. (and others): Joint Committee on Rheumatism and Orthopaedics, 54; correspondence, 111
Read, Grantly Dick: Analgesia and anaesthesia in obstetrical practice, 577
Rectal dilator, a new St. Mark's Hospital (W. B. Gabriel), 636
Red Cross principles and organizations (R.S.M.), 516
Reece, Norman: Radiological diagnosis of disproportion, 233
Rees, John Morgan, obituary notice of, 148
—— J. R.: Three years of military psychiatry in the United Kingdom, 1 (O); correspondence, 111, 202, 233—Incidence of neurosis and war strain, 422
—— T. Percy (and W. H. Shepley): Psychiatric treatment in general hospitals, 735
Registrar-General: Quarterly returns for Eire, 495; England and Wales, 59, 465; Northern Ireland, 59, 495, 806; Scotland, 369, 774
Rehabilitation: In Scotland, 86—In an E.M.S. orthopaedic unit (S. A. S. Malkin and G. Parker), 315 (O)—The duty of social medicine (leading article), 322; correspondence, 392—In the Army, 337—For skin cases, 392—In civilian hospitals (survey by Ministry of Health), 454; correction, 622—The word (J. D. Byrd), 487—Mental After-Care Association meeting, 598—Treatment for civilians, 651—For Scottish miners, 760
Reid, Hugh: Collapse therapy, 679
Reilly, M. T. C.: Removal of filaria worm from eye, 103; correspondence, 169, 269, 402, 654
Reinhold, C. H.: Charting the pulse, 84
Reiss, Frederick: Subclinical vitamin A deficiency, 426
Relapsing fever in the Middle East Forces, 375
Remedies, Index of Modern, 789
Renal. *See* Kidney
Research, strategy and tactics in (F. M. R. Walshe), 467 (O); correspondence, 550, 583, 803
Respiration, artificial, 83, 173, 270, 490, 594—Complacency in resuscitation of the drowned (F. C. Eve), 535 (O); correspondence, 645, 746—Resuscitation by rocking (N. Howard Mummery), 759
Respiratory complications, post-operative, in Service cases (H. Marcus Bird and others), 754 (O)
—— diseases in the Middle East Forces, 376

Reviews of Books:
  Allergy, Synopsis of (H. L. Alexander), 353
  Anaesthesia, General, Essentials of (R. R. Macintosh and F. B. Bannister), 3rd ed., 353
  —— and Analgesia, Recent Advances in (including Oxygen Therapy) (C. Langton Hewer), 4th ed., 415
  —— Endotracheal (Noel A. Gillespie), 478
  Anaesthetics Afloat (Ronald Woolmer), 221
  Analgesia, Regional, for Intra-abdominal Surgery: with Special Reference to Amethocaine Hydrochloride (Norman R. James), 666
  Asthma, Physical Exercises for (Asthma Research Council), 4th ed., revised, 287
  Aviation Medicine (Ernst Jokl), 287
  Banting as an Artist (A. Y. Jackson), 448
  Biochemistry and Morphogenesis (Joseph Needham), 286
  Blood Group Determination, Medico-Legal: Theory, Technique, and Practice (David Harley), 758
  —— Substitutes and Blood Transfusion (S. Mudd and W. Thalhimer), 221
  Bristol, Population of (H. A. Shannon and E. Grebenik), 509
  Britain in Pictures: British Rebels and Reformers (Harry Roberts), 542
  British Journal Photographic Almanac, 84th issue, 287
  —— Pharmaceutical Codex, 1934, 5th Supplement, 13
  Cancer: Selected Papers from the Royal Cancer Hospital, London, and Chester Beatty Research Institute, 448

Reviews of Books (*continued*):
Care of the Aged (Geriatrica) (Malford W. Thewlis), 4th ed., 44
Cerebral Cortex, Human, Postnatal Development of (J. LeRoy Conel), Vol. II: Cortex of the One-month Infant, 44
Charities, Annual Register and Digest, 1943, 192
Childbirth, Training for, from the Mother's Point of View (Minnie Randall), 3rd ed., 759
Cineplastic Operations on Stumps of the Upper Extremity (Rudolf Nissen and Ernst Bergmann), 696
Climate and the Energy of Nations (S. F Markham), 163
Conference, National, of Social Work, Proceedings of (selected papers), 696
Constitution and Disease (J. Bauer), leading article on, 510, publication announced, 667
Dentists Register, 1943, 759
Diabetes Mellitus (Z T. Wirtschafter and M. Korenberg), 383
Diagnosis, Symptom: Regional and General (Wallace Mason Yater), 4th ed, 666
Dictionary, Stedman's Practical Medical, 15th ed., 605
Digestive Diseases in General Practice (John H. Willard), 758
Doctor Bard of Hyde Park: The Famous Physician of Revolutionary Times, the Man who Saved Washington's Life (John Brett Langstaff), 74
Ear, Nose and Throat in the Services (R Scott Stevenson), 789
Emulsions, Theory of, and their Technical Treatment (William Clayton), 104
Encephalitis: A Clinical Study (ed. by Josephine B. Neal), 636
Epilepsy and Cerebral Localization: A Study of the Mechanism, Treatment, and Prevention of Epileptic Seizures (Wilder Penfield and Theodore C. Erickson), 568
Experiments, Design of (R. A. Fisher), 3rd ed., 192
Eye, Ear, Nose, and Throat, 1942 Year Book (L. Bothman, S. J. Crowe, and E. W. Hagens), 133
Fevers and Fever Nursing (Evelyn C. Pearce), 667
First Aid, Air Raid (W. A. Ashford), 541
—— —— Emergency Street, for Air Raid Casualties (Rufus Harris), 541
—— —— in Royal Navy (H M. Stationery Office), 759
—— —— Surgical and Medical (Warren H. Cole and Charles B. Puestow), 568
—— —— Training in, for Civil Defence Purposes (A.R P. Handbook No. 10), 383
—— —— Treatment of Home Guard Casualties (T. H. Meek), 697
Food and Planning (J. R. Marrack), 191
Gas Warfare (W. K. Fitch), 104
Gases, War: Their Identification and Decontamination (Morris B. Jacobs), 104
Gynaecological Surgery, Textbook of (Sir Comyns Berkeley and Victor Bonney), 4th ed., 568
Gynaecology, Pediatric (Goodrich C. Schauffler), 541
Haemorrhagic Diseases and the Physiology of Haemostasis (A. J. Quick), 415
Head, Acute Injuries of: Their Diagnosis, Treatment, Complications, and Sequels (G. F. Rowbotham), 12
Health, Personal and Community (C E. Turner), 6th ed., 321
—— Civilian in Wartime (F. R. Dieuaide), 383
Heart: Tratamiento de las Enfermedades del Corazón (Luis Calandre), 447
Hospitals Year-Book, 1942, 478
Immunology (N. P. Sherwood), 2nd ed, 133
Infant Feeding in General Practice (J. Vernon Braithwaite), 2nd ed., 697
Inoculation, Preventive (W. P. Phillips and C. W. Anderson), 353
Insurance for All and Everything (Sir Ronald Davison), 569
Intestinal Obstruction, Problems of (four papers from University of Pennsylvania), 73
Jetsam (E Roland Williams), 569
Life's Unfolding (Sir Charles Sherrington, O.M), The Thinker's Library, 568
Man, Goals and Desires of (P Schilder), 383
Marcus Aurelius: A Rendering in Verse (John Lyth), 255
Maxillo-facial Injuries, Dental Treatment of (W. Kelsey Fry and others), 758
Medical Directory, 99th ed, 44
—— Jurisprudence: A South African Handbook (W. F. Rhodes and others), 287
—— Statistics, Principles of (Bradford Hill), 3rd ed., 13
Medicine, Forensic: A Textbook for Students and Practitioners (Sydney Smith), 8th ed., 697
—— General, 1942 Year Book of (ed G. F. Dick), 353
—— Internal, Advances in (ed J. Murray Steele), 666
—— Minor (*Practitioner* handbook), 727
—— Principles and Practice of (Osler's), 14th ed., 163
—— Tropical: A Manual (P E. Turner), 3rd ed., 667, 727
—— —— A Synopsis of (Sir P. Manson-Bahr), 789
Midwifery, Short Textbook of (G F Gibberd), 3rd ed, 222
—— by Ten Teachers, 7th ed, 13

Reviews of Books (*continued*):
Midwifery, Textbook of (R. W. Johnstone), 11th ed, 133
Nasal Sinuses: An Anatomic and Clinical Consideration (O. E Van Alyea), 163
Nephritis (Leopold Lichtwitz), 191
Nervous System, Diseases of, Described for Practitioners and Students (F. M. R. Walshe), 3rd ed, 727
Neuro-Anatomy (Walter R. Spofford), 478
Neuroses and Psychoses, Case-taking Schemes for (A. Spencer Paterson), 478
Nose and Throat, Surgery of (J D Kernan), 383
Nursing Life and Discipline (Sheila M Bevington), 447
—— Tropical: Handbook for Nurses going Abroad (A. L. Gregg), 2nd ed., 605
Obstetrics, Glasgow Manual of (S J Cameron, John Hewitt, Ellen D Hewitt), 4th ed, 163
—— and Gynecology, 1942 Year Book of, 697
Ophthalmic Prescriber's Codex (Francis E Preston), 604
Out of Working Hours. Medical Psychology on Special Occasions (Henry Yellowlees), 222
Parasitology, Introduction to (A. S. Pearse), 509
Pathology: Clinical Pathological Investigations (C. Polson), 353
Pediatrics, Advances in (ed. by Adolph G de Sanctis), Vol. I, 789
—— Year Book, 1942 (ed by Isaac A and Arthur F. Abt), 789
Perimetry, Clinical, Introduction to (H. M. Traquair), 2nd ed., 163
Physiological Principles in Treatment (Langdon-Brown and Hilton), 605
Physiology and Biochemistry, Handbook of (late W. D. Halliburton and R. J. S. McDowall), 37th ed, 73
Poliomyelitis, Neural Mechanisms in (Howard A Howe and David Bodian), 44
Pregnancy, Toxemias of (William J. Dieckmann), 636
Psychiatry in Medical Education (Franklin G Ebaugh and Charles A. Rymer), 103
Psychological Effects of War on Citizen and Soldier (R. D Gillespie), 133
Psychology, Experimental, Sensation and Perception in the History of (E G Boring), 447
—— for Individual Education (Lois Barclay Murphy and others), 103
—— Physiological (S R. Hathaway), 415
Radiography, Mass Miniature (R. R. Trail and others), 415
Rat in Laboratory Investigations (Staff of Thirty Contributors: edited by John P. Griffith and Edmond J. Farris), 73
Reason, Return to: An Essay in Political Diagnosis (Geoffrey Bourne), 104
Refraction, Practice of (Sir Stewart Duke-Elder), 447
Remedies, New and Modern, Index of, 789
Scabies (Kenneth Mellanby), 636
School, Girls', Year Book, 37th ed., 133
—— Health Problems: The Astoria Demonstration Study (Dorothy B Nyswander), 758
Science and World Order (Penguin Special), 13
Shipwreck Survivors: A Medical Story (Macdonald Critchley), 726
Shock: Its Dynamics, Occurrence, and Management (Virgil H Moon), 604
Silicosis, *X*-ray Atlas of (A J Amor), 2nd ed, 192
Sir Patrick Dun's Hospital, a Short History (T G. Moorhead), 104
Spectral Absorption, Application of, to the Study of Vitamins, Hormones, and Coenzymes (R A. Morton), 2nd ed., 44
Spinal Cord, Membranes and Nerve Roots, Symptoms, Diagnosis, and Treatment of Surgical Diseases of (Charles A. Elsberg), 509
Spirit of "This England" (T Wilson Parry), 13
Sulphanilamide and Related Compounds in General Practice (W W. Spink), 2nd ed., 163
Surgery (Carson's), Modern Operative (ed. by G. Grey Turner), 3rd ed, Vol I, 696
—— General, 1942 Year Book (ed. by Evarts A. Graham), 727
—— Neurological, Principles of (Loyal Davis), 2nd ed., 192
Surgical Care: A Handbook of Pre- and Postoperative Treatment (R. W Raven), 103
—— Treatment, Textbook of, including Operative Surgery (ed. by C. F W. Illingworth), 255
—— —— Illustrations of: Instruments and Appliances (Eric L Farquharson), 2nd ed 321
—— Ward Work and Nursing (A. Mills and G F. Nuttall), 7th ed., 509
Trauma, Pathology of (Alan Richards Moritz), 666
Tuberculosis: Modern Aspects of the Anti-tuberculosis Program (J. Burns Amberson and others), 255
Urology, 1942 Year Book (Oswald S. Lowsley), 727
—— in War: Wounds and Other Emergencies of the Genito-urinary Organs, Surgical and Medical (C. Y. Bidgood), 789
Vision: The Art of Seeing (Aldous Huxley), 635
Vitamins in Medicine (Franklin Bicknell and Frederick Prescott), 320
—— and Minerals for Everyone (Alida Frances Pattee), 759
War, Medical Diseases of (Sir Arthur Hurst), 3rd ed., 321

Reviews of Books (*continued*):
War Surgery, Principles and Practice of: With Special Reference to Biological Method of Treatment of Wounds and Fractures (J Trueta), 541
Wartime, How to Keep Well in (Hugh Clegg), 478
Whitaker's Almanack, 1943, 192
Workman's Compensation and the Physician: A Manual for the Use of General Practitioners and Insurance Carriers (Henry H Jordan). With a discussion on Traumatic Neuroses by Paul H. Hoch, 13
Wounds and Fractures: A Clinical Guide to Civil and Military Practice (H. Winnett Orr), 73

Rewell R E: Phosphorus poisoning and blood urea, 56
—— (and J. L. Hoskins): Chemical luminescence test for blood, 709
Rh factor in haemolytic anaemia of the newborn (T. W. Lloyd), 132
Rheumatism: Nature of the rheumatic child (D Hubble), 121 (O), 154 (O)—Sixth annual report of Empire Council, 358
Rhino-laryngology: Review of book on, 383—Prevention of acute pyogenic infections of nose and throat (Section of Laryngology, R S M), 391
Rhodes, A. J. (and A. Grunberg). Macrocytic anaemia following partial gastrectomy, 726
—— W. F. (and others): *Medical Jurisprudence: A South African Handbook*, 287
Rhodesia, Southern: Minister of Defence, 369
Riboflavin and corneal vascularization (annotation), 545, correspondence, 645
Rich, W. Gordon (and A. G McManis). Treatment of dysentery at sea, 82
Richards, Henry: Desert sores, 334
—— H Meredith, obituary notice of, 57
—— M. B.: Bread factor in a wartime human dietary, 160 (O)
Richardson, G O. (and others): A national medical service, 615
Richmond, David A (and I. D. Kitchin): Multiple muscle herniae, 602 (O); correspondence, 738
Riddoch, Brigadier George: Appreciation of W. Bremner Highet, 711
—— J. W.: Treatment of chronic ulcerative colitis, 113
Riding, D. (and others). Treatment of pernicious anaemia with an experimental proteolysed liver preparation, 655 (O)
—— Surg Lieut. Eric Beresford, obituary notice of, 117
Ridout, Constance Elizabeth, obituary notice of, 305
Roberton, Violet: Health education and venereal disease, 290
Roberts, Harry: Free choice of doctor, 392—*British Rebels and Reformers*, 542
—— Lawrence: Collapse therapy, 648
—— Llywelyn: Outbreak of small-pox in Swindon, 425
—— Nigel W.. Diphtheria during immunization, 232
Robertson, Daniel: Diphtheria during immunization, 232
—— Douglas (and others). A national medical service, 615
—— J. Douglas Calcium intake in pregnancy, 550, 678
—— P A M: A case of balantidiosis, 145
Robinson, R. H. O B.: Non-specific epididymitis, 295
—— V. C.: Scientific freedom and social medicine, 491
Robson, L. C: Perforated oesophagus following burns, 414
—— Thomas (and others): Doctors and the future, 649, 739, 801
Rochford, J. D. (and B. T. Broadbent): Ethyl chloride analgesia, 664 (O)
Rodger, D E.: Effort syndrome in Iceland, 351 (O)
Rogan, John J. (and others): Familial idiopathic methaeglobinaemia, with a note on the treatment of two cases with ascorbic acid, 721 (O)
Rogen, Alfred S.: Maintenance treatment with digitalis, 694 (O)
Rogers Lambert: Treatment of cerebral contusion, 151 (O)—Amnioplastin as absorbable tissue isolator, 423
Rogerson, C H: Psychological factors in asthma, 406 (O), 423, correspondence, 518, 550
—— (and B. Andratschke): Mild depressive psychosis, 780 (O)
Rolleston, J. D: Small-pox in Scotland in 1942, 270—Appreciation of Sir Arthur Newsholme, 804
Rollin, Henry R.: Pediculosis capitis and intelligence in W A A F recruits, 475 (O)
Rooke, A. Basil (and others): Doctors and the future, 649
—— C. J. (and others): Scientific freedom and social medicine, 428
Rorke, Margaret: Control of venereal disease, 53
Rosanoff, Aaron Joshua, death of, 650
Rose, B (and J. S. L. Browne): Increase in blood histamine after severe burns, 446
Ross, Thomas William Edmondston, obituary notice of, 147
Rossdale, G. H: Independence for medicine, 709
Roth, Paul Bernard: Surgery of tendons, 426; corrigendum, 466
Roughton, Dorothy: Future of women in medicine, 394

Rowbotham, G. F.: *Acute Injuries of the Head: Their Diagnosis, Treatment, Complications, and Sequels* (with foreword by Norman M. Dott), 12
Rowley, G. D.: Fractures of the carpal scaphoid, 484
Rowntree, B. S (and others): Minimum human requirements, 460
Rowstron, Noel F: Notification of venereal disease, 21; corrigendum, 120
Rubella meningo-encephalitis, two cases of (R. I. C. Bradford), 312 (O)
Rusby, N. L. (and M. V Morlock): Collapse therapy, 648
Russell, Dr. Analgesia and anaesthesia in obstetrical practice, 577
—— A. Wilson: Pertussis antigen, 678
—— Dorothy: Encephalitis, 297
—— E. N.: Phage for dysentery, 769
—— G. L: Venereal diseases, 430
—— Gladys Julia Cuthbertson, obituary notice of, 25
—— Robert Usher, obituary notice of, 85
—— W. Ritchie: Treatment of cerebral contusion, 331
—— W T (and W. J. Martin): Dietetics of pregnancy, 204, 301
Russia, British Hospital in North, 239—British Hospital for Stalingrad, 701, 711—Surgical mission to, 701
Rutherford, James Mair, obituary notice of, 399
Rycroft, B. W.: The measure of night vision, 270
Ryle, John A.: Resignation from Regius Professorship of Physic, Cambridge, 119—Election as Professor of Social Medicine, Oxford, 119
Rymer, Charles A. (and Franklin G. Ebaugh): *Psychiatry in Medical Education*, 103

S

Sadusk, J. F. (and B. G. Anderson): Chancre of the gum, 56
Saher, N F. (and R. Salt): A portable suction apparatus not dependent on a source of electricity, 790
St. Dunstan's, guests of, 109
Salpingography, transuterine insufflation and (A. Leech-Wilkinson), 100 (O)
Salt, R. (and N. F. Saher): A portable suction apparatus not dependent on a source of electricity, 790
Sampson, Basil F.: Bovine tuberculosis in South Africa, 708
Samuel, Major E.: Atypical pneumonia, 516
Sanderson, Dr.: Ministry of Pensions and the Official History of the War, 456
Sands, Dalton E.: Treatment of psychiatric patients in general hospitals: a social experiment, 628 (O); leading article, 637; correspondence, 735
Sangster, A. H.: Case of adenocarcinoma of the jejunum, 12
Sanguinetti, Harold H.: Achieving reform, 709
Sarkisov, S. A.: Visit to U.K., 650—Reception to, 719
Sarsasaponin in treatment of psoriasis (F. M. Thurmon), 563
Sawyer, Capt. S D., appointed M.B.E. (citation), 632
Scabies: Supplies of benzyl benzoate available, 119—Ointment for, 150—Double beds and, 402—Treated with one application on benzyl benzoate (John R. Graham), 413 (O); correspondence, 496, 519, 556, 647; correction, 496—Treatment by T.E.T M S (T. M. Clayton), 443 (O)—On the screen (annotation), 451, 713—Control of (book review), 636—Compulsory notification of, in London, 775
Scaife, Lieut.-Col. C.: Generalized vaccinia and vaccination, 425
Scarff, R. W.: Hypertension and renal disease, 799
Schauffler, Goodrich C.: *Pediatric Gynecology*, 541
Scheel, Olaf, obituary notice of, 772
Schilder, Paul: *Goals and Desires of Man*, 383
Schiller, Francis: Planning for treatment of head injuries, 647
Schleyer, E: Three comments on the prevention of sterility, 71 (O); correspondence, 203
Schnee, I. M.: Membranous inflammation of oropharynx, nose, and conjunctiva, due to administration of sulphathiazole, 506 (O)
Schofield, John Hugh, obituary notice of, 366
School, Girls', Year Book, 1942-3, note on, 133
—— health in New York City, review of book on, 758
—— medical field service, 555
Schwartz, Major Zelman, death of, on service, 176
Science and World Order (Penguin Special), 13
Sclerosis, disseminated, treatment of, 496

Scotland:
  Assistant nurse in, 773
  Central Midwives Board: elections, 400
  Conjoint Board in: pass lists, 205
  Glasgow: Cancer research, 79—Small-pox outbreak, 1942 (C. K. Millard), 288; correspondence, 334
  Medical Advisory Committee, 337
  —— student entrants, Oct., 1943, 29
  Nurses' Bill, 494
  —— salaries, 264
  Nutrition Society: Influence of diet during pregnancy, 51
  Radiography: Miniature mass units, 401

Scotland (*continued*):
  Registrar-General's quarterly returns, 369, 774
  Rehabilitation, 86—For miners, 760
  Scottish Committee of British Social Hygiene Council, 381
  Small-pox in 1942, 198; correspondence, 270
  Stillbirths and neonatal deaths, 51

Scott, Arthur Eldon, obituary notice of, 553
—— Ella (and A. C. Crooke): Calorie control: a new dietetic treatment of diabetes mellitus, 64 (O); correspondence, 143, 200, 234, 302, 333, 361, 457, 676
—— H. C: Toxic reactions to sulphathiazole, 635
—— R A. Murray: Reactions to ephedrine, 414
Seddon, Prof. H. J.: Inaccurate report in newspaper, 684
Selkirk, W. J. B: Artificial respiration, 83, 173—Sunlight and desert sores, 808
Sellick, B. A.: Analgesia and anaesthesia in obstetrical practice, 577
Selye, Hans (and S. Albert): Gonad-protecting power of steroids, 679
Sensation and perception studied historically, review of book on, 447
Septicaemia, fulminating meningococcal, treatment of, 363, 521
Sequeira, James H: Scientific freedom and social medicine, 298
Serotherapy and chemotherapy in cerebrospinal fever (P. B. Beeson and E Westerman), 499
—— —— —— (meningococcal) meningitis: an analysis of 3,206 case reports (A. A. Jubb), 501 (O)
Serum transfusion, a simple method of, in the field (J. C. McC. Browne), 384

Services:
  Appointments, 27, 58, 89, 205, 238, 239, 272, 294, 431, 552, 586, 617, 632, 651, 807
  Awards, 58, 89, 117, 148, 205, 238, 272, 294, 305, 338, 400, 493, 586, 617, 742, 807—In Burma, for bravery and distinguished services, 295
  Casualties, 27, 58, 89, 117, 176, 206, 239, 272, 305, 338, 400, 431, 463, 493, 524, 552, 586, 617, 651, 683, 712, 742, 772, 807
  Commendations for brave conduct, 89, 400
  Efficiency Decoration of T.A., 205 431, 772
  Effort syndrome in Iceland (D. E. Rodger), 351 (O)
  First Aid in the Royal Navy, 759
  Impetigo contagiosa in the Services, with special reference to its treatment with sulphathiazole (G. A G Peterkin and E C. Jones), 318 (O)
  Medical examination in detention barracks, 806
  Mentioned in dispatches, 27, 58 89, 117, 148, 305, 400, 431, 552, 586, 742, 807
  Missing, 58, 176, 206, 400, 524, 617
  Observations on injuries to the semilunar cartilages in Service patients (S. Alan S. Malkin), 6 (O)
  Permission granted to wear Greek decoration, 58
  Prisoners of war, 27, 58, 89, 117, 148, 176, 206, 239, 272, 305, 338, 400, 431, 493, 524, 586, 683, 712, 742, 807
  —— —— in Hongkong, 177
  —— —— in Japanese hands, 651, 683
  R.A F.: Aspects of war medicine in (D. Stafford-Clark), 139 (O)—Incidence of pulmonary tuberculosis of adult type in: results of 75,000 cases (mass radiography) (A. G. Evans), 565 (O)
  R.N V R Officers' Decoration, 89, 586
  Respiratory complications, post-operative, in Service cases (H. M. Bird and others), 754 (O)
  W.A A F.: Pediculosis capitis and intelligence in recruits (Henry R. Rollin), 475 (O)
  Waziristan, "gallant and distinguished services" in, 27
  Women M O.s, examination of men by, 553

Sex hormones, anterior pituitary, 527
Shackleton, R P. W. (and R. A Gordon): Trichlorethylene anaesthesia in plastic surgery, 380 (O); correspondence, 398, 489
Shafar, J. (and J. C. R Weir): Meningeal reaction in a case of glandular fever, 218 (O)
Shale, Capt. Donald James, death of, on service, 176
Shanks, S. Cochrane: Radiologists and the future, 802
Shannon, H A. (and E Grebenik): *The Population of Bristol*, 509
Sharp, C. G. Kay: Prevention of blindness, 55
Shaw, B. H.: Health of the medical student, 30—Changing the *p*H, 684
—— G. E (and others): Treatment of pernicious anaemia with an experimental proteolysed liver preparation, 655 (O)
—— James: Fulminating purpura and adrenal haemorrhage, 120
Shea, Bernard F: Soluseptasine in rheumatoid arthritis, 30
Sheffield Radium Centre: Director appointed, 401
Shepherd, P. Rae (and others): *The Dental Treatment of Maxillo-facial Injuries*, 758
Shepley, W. H. (and T P. Rees): Psychiatric treatment in general hospitals, 735
Sherrington, Sir Charles: *Life's Unfolding*, 568
Sherwood, N. P.: *Immunology*, 2nd ed., 133
Shipwrecked: Help for the (annotation), 167—A guide to preservation of life at sea after shipwreck (M R C. Committee report), 168; correspondence, 269—Survivors from shipwreck (book review), 726—Exposure and thirst at sea (leading article), 729
Shirlaw, J. Thomson: Stilboestrol in cancer, 55
Shirley, Herbert John, obituary notice of, 711
Shock: Morphine and, 340—Review of book on, 604
—— Traumatic, Committee of M.R C., 209
Sickness, short-term, increase in, 806
Sigmoidoscope, new form of (C. P. G. Wakeley), 222
Silberstein, F. (and others): A European Association of Clinical Pathologists, 365
Silicosis: Note on *X*-ray Atlas of, 192—In Sweden (annotation), 260—Medical Board for, 368
Silver nitrate for aseptic obliterative pleuritis (annotation), 419
Simey, A. I.: Scarlet fever immunization, 229
Simpson, Archibald, obituary notice of, 771
—— C Keith: The church cellar murder: identification of victim, 619
—— R. E. Hope: Weil's disease, 425
—— S. L.: "Calorie control" diabetic diet, 200—Increasing importance of endocrinology in general medicine, 247 (O)
Sinclair, H. M.: Nutritional deficiency and pregnancy, 51; correspondence, 550—Calcium intake in pregnancy, 613—Vitamins and peripheral neuropathies, 80
—— J. J.: Interstitial emphysema during labour, 552
Singer, E. (and N. Archer): Successful treatment of influenzal meningitis with sulphonamides, 286 (O)
Sinton, Dorothea W: Future of women in medicine, 428
Sinus, cavernous, thrombophlebitis of: recovery (A. R. C. Doorey), 42; correspondence, 203
Sinusitis, "silent," headaches and, 90
Sircar, Sir Nilratan, obituary notice of, 711
Skin: Inactivation of phosphorus on (M. W. Goldblatt and S. H. Oakeshott), 128 (O)—Pyogenic skin infections and the skin-carrier rate (N. H. Martin), 269
—— cases, rehabilitation of, 392
—— diseases: In war, 145—Economy in fats and oils in treatment of (G. H. Percival), 160 (O)—Among troops, 239, 773—In Middle East Forces, 376
—— grafting, trophic necrosis, and vitamin C (Griffith Evans), 788
—— lesion, tanning for, 519, 684
—— reaction to phenobarbital (annotation), 763
Skoufarides, Capt. Vias Michael, death of, 367
Slater, Dr.: Neurotics returning to civil life, 422
—— Eliot: Scientific freedom and social medicine, 331
Slaughter, E. V.: CO_2 absorption technique, 232
Slesinger, E. G.: Non-specific epididymitis, 295
Small-pox: Accurate diagnosis of, 90—Treatment of, 113, 234—In Scotland in 1942 (R.S M., Section of Epidemiology and State Medicine), 198; correspondence, 270—And vaccinia deaths, 240—In Glasgow, 1942; some comments, a criticism, and a comparison (C. K. Millard), 288; correspondence, 334, 425
Smart, A. G. H.: Visit to Middle East and Malta for Colonial Office, 79
—— G. A. (and others): A national medical service, 615
Smedley-Maclean, Ida: *The Metabolism of Fat*, 790
Smeed, Edward: Interstitial emphysema during labour, 678
Smith, Alasdair McI: Abortus fever, 425
—— David King, death of, 650
—— Denys J. Neal: The case for a shortened puerperium, 644
—— D. Priestley: External application of opium, 622
—— Felix (and R. W. Evans): Effect of *p*H of blood on haemolysis, with special reference to blackwater fever, 279 (O); correspondence, 360, 458, 528, 551, 684
—— F. Lawrence: Diphtheria during immunization, 171
—— H. Elkington: A problematical future, 675
—— H. Gordon: Venereal diseases, 460
—— J. A. B.: Factors influencing lactation, 517
—— R. E., appointed Health Adviser to National Association of Boys' Clubs, 29—Abandonment of mass quarantine, 229
—— S. M. (and others): Haemothorax due to strangulated diaphragmatic hernia, 72
—— Sydney: Chairs of Child Health, 584—*Forensic Medicine: A Textbook for Students and Practitioners*, 697
Smout, C. F. V.: Planning of medical education, 676
Social psychiatry in the Army, 6
Snape, Harold, obituary notice of, 585
Society of Apothecaries of London: Court of Assistants meeting, 147—Apprentices bound, 147—Diplomas granted, 147, 463—Admissions to Freedom of the Society, 147—Pass lists, 147, 463—Pre-medical examinations, 147—Representative to Central Midwives Board elected, 463—Examiner in surgery nominated, 463—Scholarships, 463
—— of British Neurological Surgeons: Strategy and tactics in research (F. M. R Walshe), 467 (O)
—— Ex-Service Welfare: Annual Medical Conference: The influence of war stress on neurosis and psychosis in the armed Forces, in industry, and in the general population, 422
—— Harveian, of London: Buckston Browne Prize awarded, 369
—— London and Counties Medical Protection, jubilee of, 30
—— Medical, of London: Maternal nutrition, 199—Election of president, 798
—— —— of Pernambuco, Brazil, 87

P25510

Society of Medical Officers of Health: Ante-natal and gynaecological clinic established in a factory, 51—Sulphonamide therapy, 484—Survey of virus infections, 642
— Medico-Legal (Joint meeting with Obstetrical and Gynaecological Section of R.S.M.): Medico-legal pitfalls in obstetrical and gynaecological practice, 327—The church cellar murder, 619
— Middlesex County Medical: Committee to advance medical research, 60—Ward sisters' salaries (Rushcliffe Committee), 365
— Nutrition: Influence of diet during pregnancy, 51—Nutrition in pregnancy, 297—Factors influencing lactation, 517—Nutritional problems of infancy, 765
— Paracelsus, founded in Switzerland, 178
— for Relief of Widows and Orphans of Medical Men: Annual meeting, 659
— Royal: New fellows, 419
— — of Arts: *India and Burma Section:* Malaria control in India, 326
— — of Edinburgh: Fellows elected, 369

Society, Royal, of Medicine:
Section of Disease in Children: Prophylaxis of acute specific fevers, 229
— *Epidemiology and State Medicine:* Small-pox in Scotland in 1942, 198
— *History of Medicine:* The Official Medical History of the War, 455
— *Laryngology:* Prevention of acute pyogenic infections of nose and throat, 391
— *Medicine:* Atypical pneumonia, 515
— *Neurology:* Neurological complications of malnutrition, 80—Recent experience of encephalo-myelitis and allied conditions, 296—Vasomotor disorders in wartime, 797
— *Obstetrics and Gynaecology*. Radiological diagnosis of disproportion, 142; correspondence, 233—Joint meeting with Medico-Legal Society. Medico-legal pitfalls in obstetrical and gynaecological practice, 327—Analgesia and anaesthesia in obstetrical practice, 577
— *Physical Medicine*· The anatomical basis of physical medicine, 197
— *Surgery and of Urology*: Non-specific epididymitis, 295
— *Urology*. Hypertension and renal disease, 799

Society, Shipwrecked Fishermen and Mariners' Royal Benevolent, 29
— Smoke Abatement, 621
— Winnipeg Medical, 273
Sodium iodophthalein ("opacol") in treatment of intestinal carriers of enteric group of organisms (R Cralle), 604
Solomons, Bethel. Placental polypus, 229
— Edward: A case of pseudohermaphroditism, 486
— (and J D H. Widdess)· Action of drugs on uterus, 643
Soluseptasine in rheumatoid arthritis, 30
Soto-Hall, Major· Fractures of carpal scaphoid, 484
South Africa: Bovine tuberculosis in, 708—Hospital at Bulawayo, 240—Institute for Medical Research, report, 1941, 186—Legal medicine in (book review), 287—Native clinics in Bulawayo, 240
Souttar Mission: Proposals for formation of Indian Army Medical Corps, 575
Spackman, E. D: Treatment of scabies, 496
— W. C: Diagnostic test for kala-azar, 552
Sparks, J. V.· X-ray department at health centre, 23, 146—Staffing of miniature mass radiography units, 398; correspondence, 646
Spence, A. M (and F Glyn-Hughes)· Sulphanilamide in acute disseminated lupus erythematosus, 460
— J. C: Chairs of Child Health, 649—Maternal and child welfare, 765
— (and others). Minimum human requirements, 460
Spencer, S J. G: Search for health, 146
Spermatozoa, counting, 621
Spicer, Lieut. Robin Gerald, killed on active service, 338
Spina bifida in binovular twins (A Fry), 131, correspondence, 232
Spinal-cord constriction, signs of, 683
Spine, fractured, first aid for, 60, 82, 614
Spink, Wesley W · *Sulfanilamide and Related Compounds in General Practice*, 2nd ed, 163
Splints, unpadded or skin-tight (leading article), 257
— universal first-aid (F. O'Sullivan), 448
Spofford, Walter R: *Neuro-anatomy*, 478
Sprott, Gregory, obituary notice of, 86
Sprue syndrome, pathogeny of (annotation), 639
Stafford-Clark, D.. Thrombophlebitus of cavernous sinus, 203
Stamm, Major T. T.: Knee-joint injuries, 483
Stammers, F. A R.: Lymphogranuloma inguinale (tropical bubo), 660 (O)
Stanbury, W. S. (and others): Withdrawal of blood for transfusion, 707
Standing and marching, 583
Stanley, Roger: Interstitial emphysema during labour, 477; correspondence, 552, 582
Stannus, Hugh S: Ariboflavinosis, 645
Staphylococcal typing, 455
Starvation: In Europe (annotation), 46; correspondence, 270, 364—In Southern France (annotation), 166
Statistics, vital. *See* Epidemiology

Steabben, Dorothy (and G F. Petrie): Specific identification of the chief pathogenic clostridia of gas gangrene, 377 (O)
Steadman, Frank St. J, obituary notice of, 617
Stedman's Practical Medical Dictionary (edited by S T Garber), 15th ed, 605
Steele, Basil L: Freedom and the Beveridge Report, 235
— J Murray, editor of *Advances in Internal Medicine*, 666
Steen, R E: Miliary tuberculosis, 518
Stein, L (and E. Wertheimer): Adrenalectomy and loss of hair in rats, 217
Stephen, Lieut-Col. Lessel Philip, death of, 305
— W Henderson, obituary notice of, 804
Stephenson, R. W.: Diphtheria with perforation of larynx, 60—Dose of atebrin in malaria, 770
Sterility· Three comments on the prevention of (E Schleyer), 71 (O), correspondence, 203—Advice on, 644, 707, 769, 802—Management of sterile partners, 776—And contraception, 776
Sterilization of dry powders, 426
Stevenson, D. Lang. Clamps for abdominal surgery, 13
— R. Scott· *The Ear, Nose, and Throat in the Services*, 789
— Ruth M · X-ray investigation of stridor in a child, 221
Stewart, Donald: Need for a national accident policy, 360
— John, obituary notice of, 337
— R M · Vitamins and neurological complications, 80
— W (and H Edwards). Hernia through foramen of Winslow emerging through gastro-hepatic omentum, 343 (O)
Stilboestrol: In cancer, 55—For immature infants, 234
Stirling, James Mair, obituary notice of, 365
Stocker, C. J.: A member resigns, 267
Stomach, subdivisions of (J F. Donegan), 142
Stone, Lieut. Edward Raymond, "killed," 400
Stopes, Marie C: Unreliable vaginal pessaries, 30
Storey, Surg Lieut T. P, missing, presumed killed, 683
Stowell, Thomas E. A. Anaesthesia for laryngofissure, 302
Straton, Arthur Arbuthnot, obituary notice of, 585
Streptococcal infections, epidemiology of (annotation), 195
— — intestinal, and arthritis, 654
Stretcher, wheeled, or equipment carrier (K. Vernon Bailey), 542; correspondence, 648, 746
Stretton, John Lionel, obituary notice of, 336
Stridor, x-ray investigation of, in a child (Ruth M Stevenson), 221
Study groups, value of, 518
Suction apparatus, portable and non-electric (N. F. Saher and R. Salt), 790

Sulphonamide Group:
Sulphadiazine, 466—In staphylococcal pneumonia, 505
Sulphaguanidine· Use of, in bacillary dysentery (Angus E. Brewer), 36 (O)—In treatment of dysentery at sea, 82—In neonatal epidemic gastro-enteritis (J. L. Henderson), 410 (O); correspondence, 613—Use of, 466
Sulphanilamide· "Wellcome" brand, for local application, 13—Recovery from acute disseminated lupus erythematosus with (J E G. Pearson), 253 (O); correspondence, 460—Powder, sterilization of (M R C findings), 263—Dermatitis after local treatment of wound (I. M. Macgregor), 414—Use of, 466
Sulphapyridine: Recovery from Pfeiffer's bacillus meningitis after (C. Allan Birch), 72—Treatment of vomiting after, 459, 551—Use of, 466—Blood level and excretion of, in children, effect of acid, alkali, and meals on (H Ellis C. Wilson), 507 (O)—Influenzal meningitis in a child of 2 treated with (Margaret E. Matthews), 540—Issue of, to troops, 712
Sulphathiazole: Impetigo contagiosa in the Services with special reference to its treatment with (G. A. G Peterkin and E. C. Jones), 318 (O)—Use of, 466—In staphylococcal pneumonia, 505—Membranous inflammation of oropharynx, nose, and conjunctiva due to administration of (I. M Schnee), 506 (O)—Toxic reactions to (H C. Scott), 635
Sulphonamide chemotherapy: Notes on a book on, 163—Drugs of choice, 466—Discussion at meeting of Society of Medical Officers of Health (Fever Hospital Medical Service Group), 484—In staphylococcal pneumonia, 505—And pneumococcal vaccine in pneumonia, 527
Sulphonamide-resistant bacteria, 201
Sulphonamides Cerebrospinal fever with special reference to chemotherapy; analysis of 3,575 case reports (Paul B. Beeson and Ethel Westerman), 497 (O)—Rectal administration of, 90—Successful treatment of influenzal meningitis with (N Archer and E Singer), 286 (O)—For gonorrhoea, 434—In asthma, 551—Useful ophthalmic preparations (I Lloyd Johnstone), 605

Summerskill, Edith: Venereal disease, Regulation 33B and compulsory notification, 25
— William, obituary notice of, 681
Sunlight, relation of, to desert sores (J. M. Henderson), 657 (O)
Supply, Ministry of: Control of quinine, 87
Surgeons and surgery in Leningrad (N. Blinoff), 134

Surgery, abdominal, clamps for (D. Lang Stevenson), 13
— care before and after operation (book review), 103
— of communicating hydrocephalus (annotation), 357
— gastro-duodenal, in the aged (N. C Tanner), 563 (O); correspondence, 714
— *General, 1942 Year Book of*, 727
— neurological, book review, 192
— of oesophageal cancer (annotation) 48; correspondence, 169
— operative, review of book on, 696
— plastic: trichlorethylene anaesthesia in (R A. Gordon and R. P. W. Shackleton), 380 (O)
— of tendons (annotation), 325, correspondence, 426
Surgical diseases of spinal cord, review of book on, 509
— Mission to Russia (annotation), 701
— operations: Use of methedrine, a new blood-pressure-raising drug (H Dodd and F Prescott), 345 (O)
— treatment, illustrations of (book review), 321
— — of osteomyelitis due to a penetrating wound (G Perkins), 441 (O)
— — review of book on, 255
— ward work and nursing, notes on a book on, 509
Sutherland, D S.. Statement to Minister of Food on pasteurization of milk (B M.A deputation), 265
— Ian: Small-pox in Scotland in 1942, 198
Sutherland-Rawlings, E.· Prophylactic centres to combat venereal disease, 113
Sutton, William St John, sentenced for issuing false certificates, 241
Sutures in tonsillectomy, thread for, 233
Swan, Russell Henry Jocelyn, obituary notice of, 335
Swanston, Catherine. Future of women in medicine, 461
Sweden: Statistics for venereal disease, 25, 26, leading article on, 574—Statistics for appendicitis, 150—Silicosis in (annotation), 260
Swindells, S. W.: Preparation of the hands for operation, 528
Swindon, outbreak of small-pox in (L Roberts), 425
Switzerland: Paracelsus Society founded in, 178
Swyer, R.: Sulphonamides in measles, 485
Sydenstricker, V P: Nicotinic acid deficiency, 80
Syndrome, a new? 590. 654
— Horner's, after birth, 776
— sprue, pathogeny of (annotation), 639
— Waterhouse-Friderichsen, 22
Syphilis. *See* Venereal diseases
Syringe, an ampoule (Roche Products, Ltd), 727

T

Tanner, Jack (and others). British Hospital for Stalingrad, 711
— Norman C: Gastro-duodenal surgery in the aged, 563 (O); correspondence, 714
Tanning: For skin lesion, 519—Resistance to, 807
Tarsh, Jack: Sick absence among munition workers, 110
Tasker, Ronald Henry· Reported missing, 60—Obituary notice of, 399
Taylor, Alfred Simpson, death of, 367
— F W: Chronic ulcers of the limbs, 630
— G N · Treatment of fractured great toe, 724 (O)
— G. Orissa: Venereal disease and alcohol, 528
Teeth: Operative dental treatment in Royal Ordnance Factories, 668
Teevan, Capt. K, death of, 431
Temperature, body, normal range, 683
Temporo-mandibular joint, gag for dysfunction of, following mandibular injury (John W. Hallam), 569
Tendons, surgery of (annotation), 325· correspondence, 426
Tennent, Lieut-Col T: War stress and incidence of neurosis, 422
Terry, H.: Caustic soda burns, their prevention and treatment, 756 (O)
Tetanus: Probable, despite inoculation with toxoid (R. J McGill), 40 (O)—Case of, 55—Against (leading article), 76—In the puerperium (E C Edwards), 382—Earliest symptoms of, 776
Tetany, treatment of, in pregnancy (annotation), 418
Tetrachlorethane poisoning (G. Forbes), 348 (O)
Tetraethylthiuram monosulphide (T E.T M S), treatment of scabies by (T M. Clayton), 443 (O)
Theophylline for asthma (annotation), 731
Thalhimer, William (and S. Mudd). *Blood Substitutes and Blood Transfusion*, 221
Thewlis, Malford W: *The Care of the Aged (Geriatrics)*, 4th ed, 44
Thirst at sea, 684; leading article, 729
Thistlethwaite, H.: Irritant spectacle frames, 493
Thomas, C. Hamblen· Allergic rhinitis, 675
— H. W. (and H W Harvey): Absorption of iron, 83
— Russell·, Pneumoconiosis and Workmen's Compensation Bill, 27
— Tudur Glyn (and J Noël Gould) Diagnosis of alkaptonuria, 788
Thompson, A · Case of adrenal neuroblastoma, 51
— Brian C. Medicine and politics, 767

THOMPSON, G : Absenteeism in industry, 429
—— George Kenworthy, obituary notice of, 117
—— R B : Lawson Tait's case, 668
—— Winifred M.: Infant feeding, 242
Thomson, E. J · Artificial respiration, 490
—— M. L. (and C. E JENKINS). Haemoglobinometry and the haematocrit, 331
—— Sir StClair, obituary notice of, 173, 204, 235
—— Fl. Lieut. Stuart, death of, on service, 176
Thorax · Linear thoracic paraspinal shadow (J F. Brailsford), 219 (O)
THORN, Harold E.: Oedema of extremities at sea, 708
Thornton, Kenneth Roy, obituary notice of, 366
THORPE, F. T.: Electric convulsion therapy and brain damage, 23, 146
—— Surg. Rear-Admiral: Thirst at sea, 684
Threadworms, gentian violet for, 714
Throat. Infection of, combined with diphtheria and tuberculosis (J. J. Linehan), 162—Liq. ferri perchlor. for sore, 340, 466, 528
Thrombophlebitis of the cavernous sinus: case of recovery (A. R. C. Doorly), 42; correspondence, 203
—— migrans, post-scarlatinal (I Vincent Bates), 665
THURMON, F. M.: Sarsasaponin in treatment of psoriasis, 563
Thyroid gland, disorders of, and endocrinology (S. L Simpson), 249
—— —— multiple foetal adenomata of (Charles Maclay), 695
TIDY, Sir Henry: Atypical pneumonia, 516
TIETZE, H. M.: An unusual retrocorneal phenomenon, 665; correspondence, 736
TITMUSS, Richard: Stillbirth and neonatal mortality, 298
TOMB, J. Walker: Crush injury and anoxia, 708
Tongue: Lingual ulcers, 621
Tonsillectomy, thread for sutures in, 233
TOWNSEND, Eric: Fatal poisoning by methyl salicylate liniment, 382
Toxaemia of pregnancy, value of vitamin B_1 in prevention of (F. J. Browne), 445 (O)
Tract for the times (annotation on *Hours of Work and their Influence on Health and Efficiency*), 609
TRAIL, R. R.: Significance of pleurisy and pleural effusion in differential diagnosis, 98 (O); correspondence, 301
—— (and others): Mass miniature radiography, 415
Transfusion. *See* Blood *and* Serum
TRAQUAIR, H. M.: The specialist in medicine, 145—*Introduction to Clinical Perimetry*, 2nd ed., 163
Trauma, problems of, review of book on, 666
TRENCHARD, H. J. (and others): *Mass Miniature Radiography*, 415
Trichlorethylene anaesthesia. *See* Anaesthesia
Trinitrotoluene poisoning, diet and (annotation), 671
Tropical diseases in Middle East Forces, 374
TRUETA, J.: *Principles and Practice of War Surgery, with Special Reference to the Biological Method of Treatment of Wounds and Fractures*, 541—Guest of honour, 794
Tuberculin and radiological survey, combined (annotation), 47
—— patch test, 455—Versus Mantoux test (Mary Crago), 603
—— treatment with, 736
Tuberculosis: In wartime, 28, 110, 423—Local application of promin (promanide) in tuberculous lesions, 81, 111—Improved arrangements for treatment of, 110—Incubation period (annotation), 260—And diphtheria, combined infection of the throat with (J. J. Linehan), 162—Experimental (annotation), 196—Mortality (Parliamentary answers), 206, 432—Notification of women born in 1923 with history of, 241—Studies from United States (book review), 255—Delay in diagnosis and sanatorium treatment of phthisis (Bertram Mann), 283 (O)—Milk supply and, 306—Temperature-taking in, 308, 466—Periodicity of relapses in, 332—Financial help for tuberculous persons, 368, 587—In Lancashire, 368—Removal of affected cattle, 368—Diagnosis of, 455—Extending the use of collapse therapy, 519, 581, 648, 679—Campaign against (Press conference at Ministry of Health), 576—Mantoux test versus patch test (Mary Crago), 603—Maintenance of dependants of tuberculous patients, 617—Cases notified, 1938-42, with age groups, 620—Treatment of cavities (annotation), 763—Immunity to (G. Gregory Kayne), 777 (O)—And exposure to infection, 802—Investigations into incidence of, 805
—— bovine, in South Africa, 708
—— endobronchial (annotation), 294
—— miliary (Royal Academy of Medicine in Ireland), 518
—— non-pulmonary: And pasteurization, 368—Under Government's scheme, 773
—— officers, report on condition of ex-soldiers to be furnished by, 208
—— pulmonary: Surgical emphysema complicating, 120—Incidence of, of adult type, in R.A.F.; results of mass radiography of 75,000 cases (A. G. Evans), 565 (O); correspondence, 646, 770—Diet in (leading article), 574
—— sacro-iliac, healed, and child-bearing, 242
Tuberculous empyema, leading article on, 792
Tull, Capt. J. A. C, death of, 524
Tumours, intracardiac: three cases (I. L. Hamilton-Paterson and L. J. M. Castleden), 398
—— lung, in mice and man (J. A. Campbell), 179 (O): leading article on, 194
TURNER, C E.: *Personal and Community Health*, 6th ed., 321
TURNER, G. Grey Preparation of the hands for operation, 53—Surgery of oesophageal cancer, 169—Appreciation of Sir StClair Thomson, 235—Appreciation of Howard Kelly, 236—Appreciation of G. W Crile, 271—(*Carson's*) *Modern Operative Surgery*, 3rd ed., Vol. I, 696
—— H., M. Stanley: The dysentery carrier, 54—Absenteeism in industry, 429
—— Percy E.: *A Tropical Medicine Manual*, 3rd ed, 666, 727
—— R (and others) *Medical Jurisprudence: A South African Handbook*, 287
Turrell, W. J., obituary notice of, 271
Twins, binovular, spina bifida in (A. Fry), 131; correspondence, 232
Typewriters, licence required for sale and hire, 652
TYTLER, W. H.: Statement to Minister of Food on pasteurization of milk (B.M A. deputation), 265

U

Ulcer, chronic, of the limbs (F. W. Taylor), 630
—— duodenal, physiological gastrectomy for (annotation), 388
—— gastric, perforated at age 19, 370, 556
—— lingual, 621
—— peptic: Pathogenesis of (annotation), 165—A deficiency disease? 302, 489—Rate of healing under oral treatment with milk and cream (G. F. Dick and C. W. Eisele), 350—Age and perforation of, 434—A panel on (leading article), 479—Magnesium trisilicate for, 527—Of oesophagus (annotation), 573
—— —— bleeding, haematemesis and melaena with special reference to (F. Avery Jones), 689 (O)
Ulcers, open wounds and, transparent wrapping material for dressing (M Ellis), 697
UNDERWOOD, E. A: Post-vaccinal encephalitis, 199—The *Fabrica* of Andreas Vesalius, a quatercentenary tribute, 795
UNGAR, G. (and others): A European Association of Clinical Pathologists, 365
UNGLEY, C. C.: Immersion injuries due to cold, 798
United Kingdom: Three years of military psychiatry in (J. R Rees), 1 (O); correspondence, 111, 202, 233
United States of America: School health in New York City (book review), 758
Universal decimal classification: British Standards Institute, 90
University of Birmingham · Pharmacology, chair of, established, 238—Sir Charles Hyde's bequests to, 345

UNIVERSITY OF CAMBRIDGE:
Balfour professorship of genetics, 742
Degrees approved, 119, 338
—— conferred, 119, 147, 176, 238, 338, 463, 742
—— —— by diploma, 205, 618
Fellows elected, 742
Pass lists, 27
Raymond Horton-Smith Prize, 272
Regius Professorship of Physic, 119
Regulations amended, 238, 431
Sir William Dunn Professorship, 119, 618
Vice-Chancellor elected, 742

University of Dublin: Pass lists, 27, 432
—— Edinburgh: Degrees conferred, 176, 494—Diplomas conferred, 176, 494—Polish Medical School, 88, 742; degrees conferred, 176, 494
—— Glasgow: Degrees conferred, 553, 618—Prizes awarded, 553—Regius Professor of Obstetrics appointed, 772
—— Leeds: Pass lists, 27, 463—Scholarships and prizes, 463
—— Liverpool: Pass lists, 58, 463

UNIVERSITY OF LONDON:
Ceylon, University of, to be inaugurated, 58
Convocation, 618
Corrigendum, 86
Diplomas: Academic Postgraduate, in Medical Radiology: Regulations amended, 58; granted, 494—In Psychological Medicine conferred, 618
Examinations: Arrangements, 307—Regulations amended, 586
Goldsmid Entrance Scholarship, 205
Pass lists, 431, 742
Reader in Medicine, title conferred, 494
Prizes, 58
Senate, meeting of, 307
Westminster Hospital Medical School: Dean appointed, 586
William Julius Mickle Fellowship, 307
Women, committee to report on facilities for medical education of, 586

University of Manchester · Pass lists, 586
—— National, of Ireland (University College, Cork): Pass lists, 147

UNIVERSITY OF OXFORD:
Buzzard, Sir Farquhar, 772
Czechoslovak medical degrees conferred (annotation), 325
Degrees conferred, 58, 205, 338, 618, 651, 683
General medical electorate, 338
Radcliffe Scholarship in Pharmacology, 586
Social medicine, professor elected, 119

University of Pennsylvania Bicentennial Conference (book review on tuberculosis studies), 255
—— Sheffield: Appointments, 238, 651—Pass lists, 494
Urea, blood, phosphorus poisoning and, 56
Urinary tract, irritation of, by "doped" beer (G A. Ballance), 540
Urology, 1942 Year Book of, 727
—— in war, review of book on, 789
U S.S.R.: Surgeons and surgery in Leningrad (N. Blinoff), 134—Report by Committee of Soviet Scientists: Gas infection of the brain as one form of the serious complications of cerebrocranial injuries, 785
Uterus, action of drugs on, 643
—— hypoplasia of, and sterility (E. Schleyer), 71

V

Vaccination: B.C.G. (annotation), 167—Post-vaccinal picture in Glasgow outbreak, 1942 (Peter McKenzie), 198—Resolution by R S M, Section of Epidemiology and State Medicine, 199—In Army, 400—In India, 770
Vaccine lymph, bacteria in, 464
—— pneumococcal, in pneumonia, 527
—— T A B, vindicated (leading article), 728
—— typhus, reaction to, 734
—— yellow fever, jaundice and (annotation), 77
Vaccinia: Generalized (A. A. Jubb), 91 (O); correspondence, 425—And small-pox deaths, 240
VAN ALYEA, O. E: *Nasal Sinuses: An Anatomic and Clinical Consideration*, 163
VAN NOSTRAND, Col.: Conscription and neurosis, 422
VARADI, S · A case of Weil's disease in an Army camp, 126 (O); correspondence, 231, 300, 395
Varicella: Nephritis following (Dorothy Gill), 44—And herpes zoster, viruses of, 466
Varicose veins, a new and simple method for subcutaneous ligature of (B. W. Goldstone), 753
VASQUEZ-LOPEZ, E: Cancer research, 611
Venereal disease, 331, 430, 460, 492, 522—Notification of, 21; corrigendum, 120—Pay for treatment in mental hospital, 21—Control of, 53, 208—Service cases on demobilization, 84—Prophylactic centres to combat, 113—Ministry of Health circular on, 134—Statistics of (annotation), 137—Health education and (Central Council for V.D), 290—Conference on (Scottish Committee of British Social Hygiene Council), 381—And alcohol, 528—Sentence imposed under Regulation 33B, 555—In Sweden (leading article), 574—Incidence of, 645—In Merchant Navy, 645, 803—Colonial Advisory Medical Committee · subcommittee to advise on V.D. in the Colonies, 652

VENEREAL DISEASES:
Gonorrhoea: And sterility (E. Schleyer), 71—Sulphonamides for, 434—Gonococcal reinfection and stricture, 555
Parliamentary debates; Regulation 33B, 25, 587, 681—Example of Sweden, 25—Widespread ignorance, 26—Minister of Health on Regulation 33B, free treatment, safeguards, and Sweden's records, 26—Examination of soldiers on leave, 58—Treatment of syphilis under 33B, 177—Treatment of, in Army, 239—Cost of propaganda campaign, 274—Treatment of syphilis in the Army, 274—Publicity campaign, 338—Treatment of, 525—Army education on, 553—Compulsory notification, 773
Syphilis: Treated with daily multiple injections of mapharside (J Kvittingen), 69 (O)—Treated with arsenical therapy: encephalopathy occurring, as complication of (R. B. Nelson and others), 661—A case of haemorrhagic encephalopathy following arsenical therapy (James P A. Halcrow), 663 (O); leading article, 671—Early diagnosis and treatment of, 775

Verwey, John Henry, appointed J.P. for Monmouthshire, 555
VERNON, H. M.: *Hours of Work and their Influence on Health and Efficiency* (annotation), 609
Vesalius, Andreas, the *Fabrica* of: a quatercentenary tribute (E. Ashworth Underwood), 795
Vi bacteriophage, experiences with typing of typhoid bacilli by means of (A. Felix), 435 (O)
VICK, Reginald M. (and F. C. W. CAPPS): Preserving medical freedom, 493
VICKERS, H. E.: Unity in the profession, 679
Virus, poliomyelitis, in water (annotation), 545
—— infections: Survey of (Society of M O H s), 642—Immunity to, 714
Vision, Aldous Huxley on, Sir Stewart Duke-Elder's review of, 635
—— night: Critique of the Bishop Harman test (John Yudkin and Andrew Ferguson), 633 (O)
—— —— the measure of (N. Bishop Harman), 43; correspondence, 146, 270, 736
—— —— specifications for dark-adaptation tests (K. J. W. Craik), 632 (O)
Vitamin A subclinical deficiency, 425
—— B, value of, in prevention of toxaemia of pregnancy (F. J. Browne), 445 (O)
—— C.: Investigation on national sources of, in South Africa, 186—Saturation test (W. R. G Atkins), 254—In marmalade and apples, 527—Trophic necrosis, skin-grafting, and (Griffith Evans), 788
—— content of human milk, 765
—— E, progesterone and (annotation), 259
—— K, prophylactic use of, 308

Vitamins: Of "royal jelly" (bees), 30—And hormones, spectroscopy of (book review), 44—And physical fitness (A. A. Harper and others), 243 (O); annotation, 417; correspondence, 394, 487, 580—In experimental hyperthyroidism (V Korenchevsky and others), 245 (O)—Reduced contents of caps. liq. vitamin A et D conc., 275—In medicine (book review), 320—Food, health, vitamins (book review), 384—And minerals for everyone (book review), 759
Volkmann's ischaemic contracture, treatment of (annotation), 108; correspondence, 172
Vomiting and nausea, epidemic (W H. Bradley), 309 (O)
—— treatment of, after sulphapyridine, 459, 551

W

Wadsworth, W. V. (and A A. Harper): Resuscitation of the drowned, 645
Wakeley, C. P. G: A new form of sigmoidoscope, 222
Wales, no special diagnostic service for, 240
Walker, C. W.: Adder bite, 55—Pregnancy and labour in case of congenital coarctation of aorta, 190 (O); correspondence, 302, 426, 528
—— G. F.: Medical aspects of workmen's compensation, 208
—— Joan: Future of women in medicine, 429
—— Vera: Diet and allergic rhinitis, 675
Walshe, F. M. R: Strategy and tactics in research, 467 (O); correspondence, 550, 583—*Diseases of the Nervous System described for Practitioners and Students*, 3rd ed., 727
Walters, F R. Tuberculosis and exposure to infection, 802
Walton, Sir James: Abdominal wounds in war: treatment of individual lesions, 61 (O)—Scientific freedom and social medicine, 298
Wangansteen, Owen H.: *Distension in Intestinal Obstruction*, 73

War:
  Absence, sick, among munition workers, 110
  Army blood transfusion service, 610
  Asthma and other allergic conditions in military service (E M Fraenkel), 216 (O)
  Blast injury to abdomen by depth charge (D. D. Pinnock and P. Wood), 537 (O)
  Blood groups, determination of (annotation), 764
  Bread factor in human dietary (M B. Richards), 161 (O)
  Casualties (British Empire Forces, all ranks), 773
  Civilian health in wartime (book review), 383
  County borough (West Ham) in the front line (annotation), 764
  Dermatitis, respirator, notes on treatment of (E. Colin Jones), 757
  Enemy attacks on hospital ships, May, 1940, to May, 1942, 805
  Enteric group of fevers in prisoners of war from Western Desert, with special reference to prophylactic inoculation, Jan., 1941, to Feb., 1943, 719 (O); leading article, 728
  Factories, health and welfare of women in, 164
  Famine Relief Committee: food conditions in Europe, 14
  Home Guard, medical attention of, 26
  How to Keep Well in Wartime (Hugh Clegg), 478
  Industrial medical services, 79
  Iron lung improvised in a warship (A. C. K Yates), 256
  Leicestershire police surgeon: reinstatement refused after war service, 49
  Malaria, treatment of (leading article), 75
  Medical Diseases of War (Sir Arthur Hurst), 6th ed., 321
  —— History, Official (Sir A. S. MacNalty), 455
  —— records in wartime, 23
  Medicine, military, in Middle East: an experience of 13,542 cases (E. Bulmer), 374 (O)
  Mental observation wards, decrease in admissions to (F. Hopkins), 358
  Nerve injuries, peripheral, aids to investigation of (M.R.C War Memorandum No 7), 197
  Neuroses, their nature and significance (W R D. Fairbairn), 183 (O); correspondence, 299, 333, 396, 426, 459, 549
  Neurosis, proportion of men invalided from Army for, 432
  Nutrition, maternal (Medical Society of London), 199
  Orthopaedics, military, 483
  Pediculosis capitis and intelligence in W A A.F. recruits (Henry R. Rollin), 475 (O)
  Psychological effects of (book review), 133
  R A F., Aspects of medicine in (D Stafford-Clark), 139 (O)—Incidence of pulmonary tuberculosis in; results of mass radiography of 75,000 cases (A. G. Evans), 565 (O)
  Rationing, wartime, and consumption (League of Nations), 479
  Rehabilitation in the Army, 337
  Respiratory complications, post-operative, in Service cases (H M. Bird and others), 754 (O)
  St Dunstan's, guests at, 109
  Skin diseases in, 145—Economy in fats and oils in treatment of (G. H. Percival), 160 (O)—In Army, 773
  Stress and incidence of neurosis and psychosis (ex-Service Welfare Society), 422

War (*continued*):
  Surgeons and surgery in Leningrad (N. Blinoff), 134
  Surgery (book review), 541
  Three years of military psychiatry in the United Kingdom (J. R. Rees), 1 (O); correspondence, 111, 202, 233
  Tuberculosis in wartime, 28, 110, 423
  Vaccine, T.A.B., vindicated (leading article), 728
  Vasomotor diseases in wartime (R S M), 797
  Venereal disease, treatment of, in Army, 58
  War over West Ham (E. Doreen Idle), 764
  Weil's disease in an Army camp (S Varadi), 126 (O); correspondence, 231, 300, 395
  Wounds, abdominal, treatment of individual lesions (Sir James Walton), 61 (O)
  —— chest, pathology of closed injuries of (J. V. Wilson), 470 (O)

Warnock, Flying Officer Archibald Clark, obituary notice of, 742
—— C. M.: Measles associated with unusual nervous signs, 203
Wasting disease and lesions of nervous system (annotation), 194
Water, supply of, to rabbits and guinea-pigs (E L Kennaway), 760 (O)
Watkins, Arthur G: Investigation into the standard of milk supplied to children, 140 (O)
—— Harold E: Scabies, 150
Watson, Donald: Unity in the profession? 579
—— E. M.: Safety device for suction pump used for obtaining blood for transfusion, 321, correspondence, 707
Watson-Jones, R: Report to British Orthopaedic Association on future civil accident service, 484
Watts, A. M., obituary notice of, 237
—— A S: Tuberculin patch test, 455
Wauchope, G M: Calorie control, 361
Waugh, W. Grant: Treatment of ischaemic contracture, 172
Webb-Johnson, Sir Alfred: Education grants for doctors' sons, 115—Statement to Minister of Food on pasteurization of milk (B M A deputation), 265
Weber, F. Parkes, double anniversary of, 621
Webster, J H. Douglas: Periodicity of relapses in tuberculosis, 332
Weil's disease in an Army camp, case of (S Varadi), 126 (O); correspondence, 231, 300, 395, 424
Weir, J. C R (and J Shafar): Meningeal reaction in a case of glandular fever, 218 (O)
—— Capt. S. I, death of, on service, 176
Welchman, Walter, obituary notice of, 367
Wells, C. J. L: The Government's proposals, 740
Wernher, Sir Harold: London Emergency Bed Service, 709
Wertheim, L: Tanning for a skin lesion, 684
Wertheimer, E (and L. Stein): Adrenalectomy and loss of hair in rats, 217
West Indies, health in, 400; annotation, 639
Westell, Una M: Anaesthesia for laryngofissure, 459
Westerman, Ethel (and Paul B. Beeson): Cerebrospinal fever—analysis of 3,575 case reports with special reference to sulphonamide therapy, 497 (O)
Weston, Lieut. W. F J, death of, in Singapore, 524
Wheeler, Sir W. I. de C: Ligature of innominate artery, 173
Whigham, J. R M.: Spina bifida, 232—Age and perforated gastric ulcer, 556
Whipple, A. O. (and J A. Nelson): *End-results of Decompression of Intestinal Tract with and without Operation*, 73
Whitaker's Almanack, 1943, note on, 192
Whitfield, C. A.: A wheeled stretcher or equipment carrier, 648
White, Clifford (and others): *Midwifery*, by Ten Teachers, 7th ed, 13
—— William Charles (and others): *Modern Aspects of the Anti-tuberculosis Program*, 255
Whittaker, C. R: *Anatomy*: Part V of Edinburgh Catechism Series, 255
Whittington, G: Gastro-duodenal surgery in the aged, 714
Whooping-cough: High flying for whoopers, 54—Lederle's pertussis antigen in treatment of: report of an investigation (Richard S. W. Baker), 562 (O); correspondence, 678—Immunization against, 622
Whyte, Brig. Hedley: Non-specific epididymitis, 296
Widdess, J D. H (and E. Solomons): Action of drugs on the uterus, 643
Wigfield, Maurice E.: B M.A. and Beveridge Report, 330—Proposals and discussions, 801
Wilcocks, Charles: Health units in the Colonies, 709
Wilde, O G: Treatment of malignant tertian malaria, 678
Wilkie, O Hamilton: Health education and venereal diseases, 290
Wilkinson, J F (and others): Withdrawal of blood for transfusion, 707
—— William J, obituary notice of, 553
Willard, John H: *Digestive Diseases in General Practice*, 758
Willcox, J. W. J.: Cramp in arteriosclerosis: a cure, 622
Williams, E Rohan: Radiological diagnosis of disproportion, 142
Williams, E Roland: *Jetsam*, 569
—— E. W. Meurig: The Government's proposals, 679
—— H. C. Maurice: Reaction to typhus vaccine, 734
—— H G: Pasteurization of milk, 112, 276
Williamson, D A J. (and H V. Morgan): Jaundice following administration of human blood products, 750 (O)
Willox, Leonard S.: A new syndrome? 654
Wills, Lucy: Is anaemia prevalent? 612
Wilson, Sir Charles, the Prime Minister's physician (annotation), 78—Now Baron Moran of Manton in the County of Wiltshire, 357
—— G F., obituary notice of, 741
—— H. Ellis C.: Effect of acid, alkali, and meals on blood level and excretion of sulphapyridine in children, 507 (O)
—— Hugh: Tetanus, 55
—— J. V.: Pathology of closed injuries of chest, 470 (O)
—— S P: Venereal diseases, 522
Windsor-McLean, L. A.: Sedimentation rate, 370
Winfield, R B.: Private practice, 578
Wingfield, Alec: Treatment of malaria in England, 476 (O), 770
Winster, Lord: Health education and venereal disease, 290
Wirtschafter, Zolton T. (and M Korenberg): *Diabetes Mellitus*, 383
Woman, heaviest (annotation), 108
Women: In war factories, health and welfare of, 164—Of India, medical aid to, 390—In medicine, future of, 329, 392, 428, 460—Medical inspection by women doctors, 586
Womersley, Sir Walter: After-care of war neurotics, 422
Wood, J. A: Selecting the medical student, 800
—— Lieut.-Col. John Lawrence, death of, 239
—— Orby Russell Morgan, obituary notice of, 205
—— Paul (and D. Denham Pinnock): Blast injury to abdomen by depth charge, 537 (O); correspondence, 648
Woodman, Musgrave: Allergic rhinitus, 674
Woods, R. S.: Orbicularis in facial paralysis, 170
Woolmer, Surg. Lieut.-Cmdr. Ronald: *Anaesthetics Afloat*, 221
Workmen's compensation: Medical aspects of (book review), 13—Bill, 27; correspondence, 208
Worms, unusual case of obstruction by (A D. Courtney), 725
Wotzilka, H (and A Grant): Treatment of fulminating meningococcal septicaemia, 521
Wound, gunshot, in 1814 (Nova et Vetera), 733
—— penetrating, surgical treatment of osteomyelitis due to (G. Perkins), 441 (O)
Wounds, abdominal, in war: treatment of individual lesions (Sir James Walton), 61 (O)
—— —— severe gunshot (W P. Griffin), 352
—— antiseptic treatment of (annotation), 106
—— and fractures, review of book on treatment of, 73
—— and inflammation, treatment by x rays and radium rays (N. S. Finzi and F. Freund), 34 (O)
—— open, and ulcers, transparent wrapping material for dressing (M. Ellis), 697
Wright, Dickson, Hypertension and renal disease, 799
—— Martin (and R V. Christie): A substitute for the flowmeter in oxygen therapy, 287
—— M. D. (and others): Dietetics of pregnancy, 231
Wyllie, W G (and others): A standardized plan of treatment for gastro-enteritis in infants, 371 (O); correspondence, 458, 486
Wynn, W. H. (and others): Minimum human requirements, 460

X

X-ray department in health centre, 23, 83, 146, 234
—— equipment, miniature, 26—Shortage of, 274
—— investigation of stridor in a child (Ruth M. Stevenson), 221
X rays and radium rays, treatment of wounds and inflammation by (N. S. Finzi and F Freund), 34 (O)

Y

Yater, Wallace Mason: *Symptom Diagnosis: Regional and General*, 4th ed., 667
Yates, Surg. Lieut.-Cmdr. A. C. K: Iron lung improvised in a warship, 256
—— F.: Dietetics of pregnancy, 363
Yeast, food (annotation), 294
Yellowlees, Henry: *Out of Working Hours: Medical Psychology on Special Occasions*, 222
Yorke, Warrington, obituary notice of, 585
Young, F. H.: Atypical pneumonia, 516
—— James: Maternal nutrition during wartime, 199—Starvation in Europe, 270—Correlation between birth weight and parity, 297—Dietetics of pregnancy, 363
—— Miss: Analgesia and anaesthesia in obstetrical practice, 577
Yudkin, John (and Andrew Ferguson): A critique of the Bishop Harman test for night vision, 633 (O)
Yule, Col.: Official Medical History of the War, 456

KEY TO DATES AND PAGES

The following table, giving a key to the dates of issue and the page numbers of the BRITISH MEDICAL JOURNAL and SUPPLEMENT in the first volume for 1943, may prove convenient to readers in search of a reference.

Serial No.	Date of Issue	Journal Pages	Supplement Pages
4278	Jan. 2	1 - 30	1 - 4
4279	„ 9	31 - 60	5 - 8
4280	„ 16	61 - 90	9 - 12
4281	„ 23	91 - 120	13 - 14
4282	„ 30	121 - 150	15 - 16
4283	Feb. 6	151 - 178	17 - 22
4284	„ 13	179 - 208	23 - 26
4285	„ 20	209 - 242	27 - 28
4286	„ 27	243 - 276	29 - 30
4287	Mar. 6	277 - 308	31 - 32
4288	„ 13	309 - 340	33 - 34
4289	„ 20	341 - 370	35 - 38
4290	„ 27	371 - 402	39 - 40
4291	Apr. 3	403 - 434	41 - 42
4292	„ 10	435 - 466	43 - 48
4293	„ 17	467 - 496	49 - 52
4294	„ 24	497 - 528	53 - 54
4295	May 1	529 - 556	55 - 56
4296	„ 8	557 - 590	57 - 58
4297	„ 15	591 - 622	59 - 60
4298	„ 22	623 - 654	61 - 62
4299	„ 29	655 - 684	63 - 66
4300	June 5	685 - 714	67 - 70
4301	„ 12	715 - 446	71 - 72
4302	„ 19	747 - 776	73 - 74
4303	„ 26	777 - 808	75 - 76

LIST OF ILLUSTRATIONS

PAGE

SPECIAL PLATE

Lung Tumours in Mice and Man (J. Argyll Campbell) Inset between 182 and 183

ILLUSTRATIONS IN TEXT

Abortus Fever (D. G. Leys) 187
Anaemia, Macrocytic, of Pregnancy and Puerperium (H. W. Fullerton) .. 158
—— Pernicious, treated with Pyloro-duodenal Extract and Liver in Tablet Form (J. Stewart Lawrence) 567
Anaesthesia, Peroral Intratracheal, Universal Apparatus for (G. Humby and M. Hawksley) 317
Armstrong-Jones, Sir Robert 175
Bandage, Barrel 589
Biliary Pain, Some Observations on (Alastair A. Douglas) 10
Blood for Transfusion, Safety Device for Suction Pump used for obtaining (E. M. Watson) 321
—— Transfusion: Army Service 610
—— —— Haemolytic Reactions, Investigation of (P. L. Mollison) .. 559
—— —— in Nocturnal Haemoglobinuria (J. V. Dacie and Douglas Firth) 626
Bullets, Explosive, German (J. R. F. Popplewell) 111
—— —— —— (Norman P. Henderson) 170
Burns, Treatment of (J. M. Barnes) 408
Carbon Dioxide Absorption: Absorber Improvised at Sea from Respirator Parts (H. Parry-Price) 569
—— —— —— Modification for, with the Field-pattern Boyle's Apparatus (J. Montgomerie) 129
—— —— —— New Cycle-type Absorber (W. J. Mushin) 130
Carcinoma (Primary Bronchial) at Age of 4 years 4 months (C. E. Field and J. P. Quilliam) 691
Cerebrospinal Fever (Paul B. Beeson and Ethel Westerman) 497
Child Health, Bridgeheads of (Charles McNeil) 715
Clamps for Abdominal Surgery 13
Cotton-wool Sandwich (R. Fawcitt) 352
Desoxycorticosterone in Addison's Disease (D. M. Dunlop) 557
Diaphragm, a Case of Eventration of (A. J. E. Mills) 97
Dilator, Rectal, a New St. Mark's Hospital 636
Dressing, Transparent Wrapping Material for Open Wounds and Ulcers (M. Ellis) 697
Drowned, Complacency in Resuscitation of (F. C. Eve) 535
Endotracheal Union, Suction (W. A. Cobb) 667
Epilepsy, Idiopathic, Pitressin Diagnosis of (William Blyth) 100
Exercise Therapy, Principles of (Ernest A. Nicoll) 747
"Fabrica" of Andreas Vesalius (F. A. Underwood) 795
Fever, Glandular (R. J. Lumsden) 567
Fistula, Faecal, following Operation for Appendicitis (P. T. Crymble) .. 532
Gag for Dysfunction of the Temporo-mandibular Joint following Mandibular Injury (John W. Hallam) 569
—— Mouth, for Laryngoscopy (H. Parry-Price) 605
Gas Gangrene, Specific Identification of Clostridia in (G. F. Petrie and D. Steabben) 377
Gastro-enteritis, Neonatal Epidemic, Sulphaguanidine in (J. L. Henderson) 410
Glaucoma, Atropine (J. E. Martin) 631
Grafting, a New Method (P. Gabarro) 723
Haemorrhage, Gastro-intestinal, a Rare Cause of (G. Gordon-Taylor) .. 504
Head Injuries in Motor-cyclists (Hugh Cairns and H. Holbourn) 591
Hernia through the Foramen of Winslow (H. Edwards and W. Stewart) .. 343
Herniae, Multiple Muscle (Ian D. Kitchin and David A. Richmond) .. 602
Inflammation, Membranous, due to Sulphathiazole Administration (I. M. Schnee) 506
Insufflation, Transuterine, and Salpingography (A. Leech-Wilkinson) .. 100
Iron Lung Improvised in a Warship (A. C. K. Yates) 256
Lane, Sir William Arbuthnot 115
Leucocytes, Centrifuge Tube for Collection of (M. A. Gohar) 542
Liver, Proteolysed, for Pernicious Anaemia (L. J. Davis and others) .. 655
Lung Tumours in Mice and Man (J. Argyll Campbell) 181
Methedrine, Use of (H. Dodd and F. Prescott) 345
Nausea and Vomiting, Epidemic (W. H. Bradley) 309
Newsholme, Sir Arthur 680
Out-patient Organization (F. S. A. Doran) 420
Pathology of Closed Chest Injuries (J. V. Wilson) 470
Pelvic Binder (Paul F. McGoey) 667
Psychiatry, Military, Three Years of (J. R. Rees) 1
Radiant-heat Cradles, the Action of (G. Malcolm Brown and others) .. 66
Radiographic Postero-medial Border of the Lung (James F. Brailsford) .. 219
Respiratory Complications (Post-operative) in Service Cases (H. M. Bird and others) 754
Resuscitation by Rocking (N. H. Mummery) 759
Serum Transfusion in the Field, Simple Method of (J. C. McC. Browne) 384
Sigmoidoscope, New Form of (C. P. G. Wakeley) 222
Splint, Universal First-aid (F. O'Sullivan) 448
Stretcher, Wheeled, or Equipment Carrier (K. V. Bailey) 542
—— —— (C. A. Whitfield) 648
Suction Apparatus, Portable and Non-electric (N. F. Saher and R. Salt) 790
Syringe, Ampoule (Roche Products, Ltd.) 727
Thomson, Sir StClair 173
Varicose Veins, Subcutaneous Ligature of (B. W. Goldstone) 753
Vision, Night, a Critique of the Bishop Harman Test (John Yudkin and Andrew Ferguson) 633
Vitamins and Physical Fitness (A. A. Harper and others) 244
Wounds and Inflammation, Treatment of, by X Rays and Radium Rays 34
Yorke, Warrington 585

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THREE YEARS OF MILITARY PSYCHIATRY IN THE UNITED KINGDOM

BY

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The remark of Napoleon that "war is three-fourths a matter of morale; physical force only makes up the remaining quarter,"[*] if applied to modern warfare, might have seemed far-fetched to many of us in 1939. Now, however, we have lived through the day-to-day stresses and rituals of total war; we have watched and felt the successes and the failures of our own Forces and of our Allies; and, having dealt with men and women of all types under strain, none of us can doubt the general truth of this dictum. Probably it would be equally true if we said something similar about civil life in peacetime.

Certainly the sample of ordinary men and women who compose the Army in wartime have presented issues which have challenged psychiatric thought and practice. The Army doctor, perhaps more obviously than the civilian physician, concerns himself primarily with health and efficiency, and only secondarily with what one may call "salvage." The psychiatrist finds that in Army work his contribution to the total war effort is made far more effectively by varying prophylactic procedures than it could possibly be were he solely concerned with diagnosis and therapy. It may therefore be useful to present a general survey of the work of Army psychiatry, setting out its developments and present tendencies. Many excellent reports on clinical matters have been published from Army and E.M.S. hospitals, but no effort has as yet been made to give an inclusive picture of the work that is being undertaken in this country. Clearly, any attempt to do this in the space of an article for the *Journal* will leave out much that should be said, and there will be scope for separate reports on almost every topic when it is possible for these to be produced.

Pre-war Planning

The psychiatric problems of this war have, most fortunately, not presented themselves in the form that we had anticipated. Our pre-war planning, both for the Army and for the civil population, was based fundamentally on our 1914-18 experience, and we conceived that the stresses we knew then would be "hotted up" by incessant, relentless air attack on the civilians and the Army in this country. Reference will be made later to the incidence of acute war neurosis, but this has, in fact, been one of our minor problems.

We had at our disposal before the war the Report of the 1922 War Office Committee on Shell Shock, and the even more valuable Vol. X of the U.S. Army Medical History of the last war. Throughout the 1922 Committee report there is emphasis on the need for better recruitment and better selection of personnel. It stresses also that unstable and neurotic types do badly under any war conditions, and it emphasizes the need for early effective treatment and for medical training in the psychiatric handling of these men. The American Vol. X on Neuropsychiatry provided us with a complete textbook on both the clinical and administrative sides of Army work, and much of the history of our allies contained in that volume has repeated itself in the British Army in this war. There was therefore a considerable amount of material to aid us in making plans before the outbreak of war, and we were faced with one inescapable fact—that after 1918 there were over 100,000 pensioners with overt psychiatric disorders, quite apart from those men who drew pensions for psychosomatic illnesses which were given "organic" diagnoses.

Shortly before the outbreak of war a conference called by the Ministry of Pensions expressed the intention of providing treatment but not giving pensions, save in exceptional cases, to men who broke down with neurotic symptoms. This policy has to a considerable extent materialized, although up to date the moral situation which it was hoped to combat by this decision has hardly arisen, since there has been no epidemic of true war neurosis.

It was clear enough, however, that even before the outbreak of war the prophylactic approach to the problem was by far the more important, and that scientific selection and placing of men would do more than anything else to avoid the development of a large-scale problem. Unfortunately, it was not till much later that adequate measures could be instituted.

Two psychiatric consultants were designated for the Army before the outbreak of war, one for this country and one for the B.E.F. What concerns us in this account is the development of psychiatric work at home. This has been gradual and progressive, keeping pace with the numerical growth of the Army though influenced by the need for developing new techniques to meet changing situations. The Consultant, by himself in the first few months of the war, could do little more than see certain patients, lecture to the staffs of hospitals which were mobilizing and to groups of medical officers in training, make contact with the medical administrative services throughout the country, and begin to lay plans and develop the conviction necessary for them to be carried out.

Early War Measures

Early in 1940 specialists in psychological medicine were appointed to each command in this country. They very quickly found it impossible to get round their large areas, dealing with all the out-patients and with the other problems that they were asked to solve. Gradually more psychiatrists were added, either full specialists with the rank of major or "graded" specialists who had had rather shorter experience in the specialty, so that eventually there came to be in each command from three to ten area psychiatrists whose work was co-ordinated by the command psychiatrist at command headquarters. Their main task has been to provide an out-patient service for every area where there are troops or military hospitals. They visit units to discuss with regimental officers the military value of men who are referred to them, and to advise about a great many of the problems put up by units. They help in the selection procedure (this will be referred to later) and give a good deal of advice and teaching to unit medical officers over the handling of difficult men. More than any other group in Army psychiatry, area psychiatrists have succeeded in getting "inside the Army." They need to understand something of all the jobs, the training methods, and the intimate lives of soldiers. They have also to be very much *au fait* with all the administrative procedures and the techniques for disposal of the various cases that they meet from day to day.

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[*] *Correspondance de Napoléon*, **18**, 14276: 1808.

Alongside the growth of this out-patient service came the growth of in-patient treatment. With the encouragement and help of the Boards of Control—help which has always been given most unstintingly to the Army—military hospitals were opened up for psychotic patients. In 1914-18 many difficult situations arose in which serving soldiers had to be taken to civilian mental hospitals; further, a large number of men in such hospitals were granted pensions which would probably never have been given had it been possible to make a closer investigation of the origin and constitutional nature of their illnesses. A mental hospital which is military as opposed to civilian can detain a patient without any need for certification, and a procedure has grown up in the Army by which officers or other ranks of either sex suffering from a recoverable psychosis can be kept in a military mental hospital before discharge for three or six or, in exceptional cases, nine months. This has the great advantage of allowing for effective treatment to be carried out while there can be thorough investigation of questions of attributability. The policy of the Army in this matter seems to have justified itself.

Most of the hospital treatment of psychoneurotic disorders has been provided by the special neurosis centres of the Emergency Medical Service, which have co-operated well with the Army. Inevitably, however, there had to be special wards in military hospitals. At first these functioned largely as observation wards or collecting centres, and gradually there have been developed special Army hospitals for neurotic disorders, which have the advantage over the E.M.S. hospitals of being military in their organization and atmosphere.

After the first eighteen months of the war it was becoming increasingly obvious that administrative procedures were fully as important as clinical or purely professional questions in Army psychiatry, and eventually early in 1942 a Directorate of Army Psychiatry was set up as part of the Army Medical Services, with a senior Regular R.A.M.C. officer as Director and three psychiatrists working with him. The Directorate is responsible for the development and control of the psychiatric services in this country and with the Over-seas Forces, and for the ever-increasing number of questions which are brought up for psychiatric help or opinion.

The Consulting Psychiatrist works with the Directorate, but is now freer to get round to commands and to undertake the various exploratory and co-ordinating jobs which come his way. He, like the other consultants to the Army, is an adviser to the Director-General, who has very wisely given his consultants much freedom of action.

Psychiatric Problems of the Army

The problems that have faced the Army have, from a psychiatric angle, been numerous. If continuous military action had been nearer to this country the problems might have appeared different, though they would fundamentally have been the same. Some may be puzzled as to why the Army should contain such a large proportion of men who have psychiatric problems; but the reason for this is not difficult to explain. Partly, there has existed for very many years a tradition that men who were immature or unsatisfactory, or whose social records were not above suspicion, could under Army discipline be made into "men." The Army in peacetime has always had a good many backward otherwise unemployable men, and in the majority of cases in the past they have turned out pretty well. Modern war, unfortunately, demands a different quality of man. A more important reason, however, for the accumulation within the Army of men whose mental background is questionable is that the man-power situation of this country has been so arranged that very large numbers of intelligent and able men are reserved in industry. The Royal Navy and the Royal Air Force have a priority of choice; and the Civil Defence Services have claimed a great many men. The Army comes last in the list, and consequently a large proportion of what has been called "the psychopathic tenth" of the country's man-power finds its way into the Army if the mesh of the recruiting boards is too wide. The Army has therefore to deal with very considerable numbers of dull, neurotic, and unstable men who have got on reasonably well in civil life, whenever employment was plentiful: thrust into the stresses of Army life, they become difficult in various ways. These no doubt are the men who, when times are hard, become a problem to the National Health Insurance scheme and to the Ministry of Labour; and very many in the same group would after the last war have found themselves on the books of the Ministry of Pensions. One of our aims has been to avoid repetition of the pension situation which arose after 1918.

Recruitment

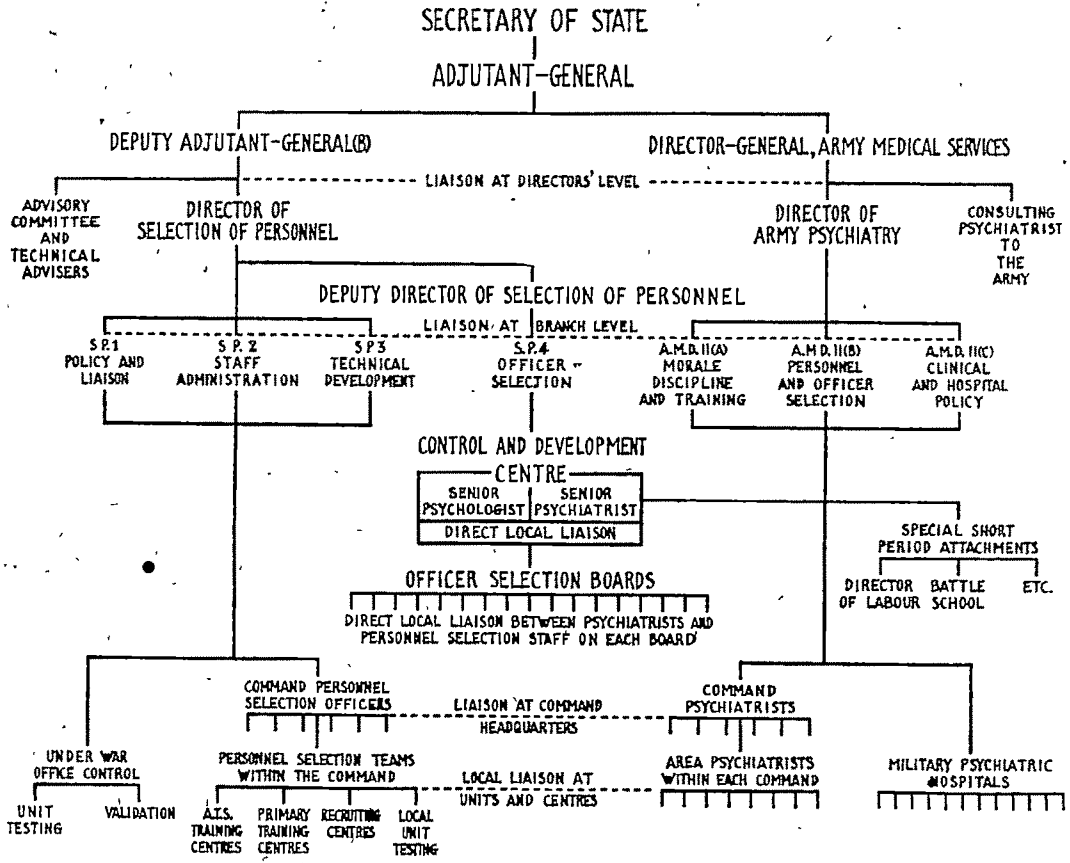
It is possible that there has been insufficient understanding and inadequate co-operation between the medical officers who have given so much good service on the recruiting boards and medical officers in the Army. At times there has certainly been a feeling in the minds of some of the medical officers in the Ministry of National Service that the Army's standards were too high and that in consequence too many of the men they had passed in were being boarded out and sent back to civilian life: and here we are concerned, of course, only with the cases in which there is some psychiatric disability. It is perhaps more important, however, to record the great difficulty in recognizing and assessing the neurotic constitution and the intellectual status of men in the short time that they are before the boards, even for board members with a specialist training, and still more for those who have not had special experience. The introduction of intelligence testing at the time when men are called up for their medical board examinations appears to have been of help to the boards in the detection of some of the men whose dullness was hidden by a good façade. Better liaison between the boards, private doctors, and the School Medical Service would probably have been valuable. On the whole the neurotic man, more than his defective fellow, tends to give a reasonably truthful account of himself and his disabilities to a doctor. There is, of course, the obvious difficulty that such a man, fearing military service, may exaggerate or even make quite untruthful statements about himself in order to prevent his calling up. The other danger is that men wishing to join up may give too rosy a picture of themselves, and later on, finding themselves in difficulty, may then take the opposite line and "tell the tale" in order to get out of the Army. These are universal tendencies that nothing is likely to eradicate. If we had no shortage of man-power it would clearly be better rigidly to exclude any men who were not cheerfully prepared to give their services; in this country, however, we have never been in that happy position. Only improved understanding and better investigation can meet the problem of decision about the less willing and the relatively rare instances of the unwilling soldier. It is certain that, in recruiting, a penal attitude, such as occasionally has emerged in the statement that "no one must be allowed to get away with it," is not likely to produce the Army we should all like to see.

At the present juncture it is inadvisable to give exact figures or percentages of the psychiatric disabilities, apart from the classified figures which have already been published of limited groups in hospitals in this country. It is permissible, however, to say that the invaliding or discharge from the Army from all psychiatric causes has been approximately one-third of the total invaliding, a figure which is comparable to the incidence of psychiatric illness in civil life in this and other countries.

Intellectual Defect

There are many fallacies which creep into the assessment of defect by intelligence testing, and the estimation of mental age is by no means a straightforward matter save in the hands of very skilled workers. Broadly speaking, it has turned out during this war that few men whose mental age is below 10½ are fit for Army life except in special unarmed labour sections. It would be folly to attempt the placing or rejection of men simply on the basis of an intelligence test, whatever the safeguards; and, in fact, no one in the Army ever has been recommended for discharge solely for this reason. Investigation of the social and employment histories of all men is essential, and a general psychiatric assessment is made in each case. In the modern Army there are far fewer simple routine jobs than there were in the old Army with its "horse lines" and its slower tempo. There still are plenty of vacancies for the not-so-bright man in the modern mechanized Army if he is properly placed; but unless he is recognized and fitted to an appropriate role he is likely to become a consumer of man-power rather than a strength to the Army. The dull man is a drag on training and rarely becomes efficient in any technical task. He feels himself out of things and hence inferior; he gets anxious and breaks down far more easily than a man of normal intelligence, and, through difficulty in morale-development and failure to understand regulations and the reasons for them, he is extremely liable to Army crime. The United States Army demonstrated in the last war that the worst soldiers were often the best diggers, a fact once more convincingly demonstrated in the British Army in this war.

Whatever the exact incidence in the ordinary population of the country of those groups who have a low capacity to learn—the dull and backward, the feeble-minded, the imbeciles, or idiots whom Prof. Burt in one inquiry totalled at 25.1% of the population—it is clear that they are numerous. The men with the greatest degrees of defect are for the most part recognized and excluded from the Service by recruiting boards. There remain, however, some 8 or 10% of the whole Army intake who need special consideration in their employment; approximately 2% of these are men who, after a short trial period in the Service, may well turn out to be impossible of employment in any combatant or operational role. The dullards, with whom the Army has had so much concern, might many of them well be called "one-job" men. They have very often found niches for themselves in civil life where they have been able to give first-class service on one particular routine job. If a similar or an equally appropriate niche can be found for them within the Army, then their work can be of great value to the war effort. Experience has shown that where they go unrecognized and are put in units of ordinary men they quickly begin to present problems.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LIAISON AT BRANCH LEVEL
S.P.1 POLICY AND LIAISON
S.P.2 STAFF ADMINISTRATION
S.P.3 TECHNICAL DEVELOPMENT
S.P.4 OFFICER SELECTION
A.M.D.11(A) MORALE DISCIPLINE AND TRAINING
A.M.D.11(B) PERSONNEL AND OFFICER SELECTION
A.M.D.11(C) CLINICAL AND HOSPITAL POLICY
CONTROL AND DEVELOPMENT CENTRE
SENIOR PSYCHOLOGIST
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DIRECT LOCAL LIAISON
SPECIAL SHORT PERIOD ATTACHMENTS
DIRECTOR OF LABOUR
BATTLE SCHOOL
ETC.
OFFICER SELECTION BOARDS
DIRECT LOCAL LIAISON BETWEEN PSYCHIATRISTS AND PERSONNEL SELECTION STAFF ON EACH BOARD
COMMAND PERSONNEL SELECTION OFFICERS
LIAISON AT COMMAND HEADQUARTERS
COMMAND PSYCHIATRISTS
UNDER WAR OFFICE CONTROL
UNIT TESTING
VALIDATION
PERSONNEL SELECTION TEAMS WITHIN THE COMMAND
A.T.S. TRAINING CENTRES
PRIMARY TRAINING CENTRES
RECRUITING CENTRES
LOCAL UNIT TESTING
LOCAL LIAISON AT UNITS AND CENTRES
AREA PSYCHIATRISTS WITHIN EACH COMMAND
MILITARY PSYCHIATRIC HOSPITALS

The employment of those men who have a very low capacity to learn but who can be expected to remain emotionally stable in unarmed labour sections has been notably successful. Without this provision the majority of them would have been lost to the Army, and some would have been unemployable in civilian life even in the present time of labour shortage. In these special groups, with wise officers and N.C.O.s, they give splendid service in a variety of occupations, relieving more intelligent men for other tasks and in many cases doing the jobs very much better than they are normally done by the more intelligent type of individual. These men are proud to be in the Army, and they are happy because they have found friends on their own level. Disciplinary troubles are almost entirely absent, and these units provide a striking indication of what can be done in the way of employment of a group in society which in pre-war years had certainly been a problem from many angles.

The women with an equally low capacity to learn seem on the whole to be rather more stable and to be less inclined to break down; but they too present a problem in Service employment, and, in fact, for some time past those who on preliminary intelligence tests fell into the lowest 10% of the population were not taken for service in the A.T.S.

Illiteracy by itself does not prove a bar to military service, though clearly so long as it persists it would exclude men from many units in which they might find themselves in a responsible position that demanded literacy. Approximately 50% of the illiterates are intellectually defective, while the other 50% come from specialized groups such as barge-workers and gipsies.

Selection

After the failure of a pre-war attempt (March, 1939) to get selection-testing introduced into the Army, it was clear that the psychiatrists would have to begin weeding out unsuitable men, and in the first year of the war a good many were transferred to labouring jobs, though after Dunkirk this was stopped for a time. After much discussion it was decided to start special groups for men who were not fit to bear arms, and consequently the number of those who have to be discharged from the Army on grounds of intellectual defect has fallen as the facilities for their employment within the Army's structure have improved. In 1940 the psychiatrists who were then at work in the Army began to employ such familiar methods of testing as the modified Binet-Simon test and the Herring revision. Kent's oral norms, Koh's blocks, and a number of other tests were brought into use, and the Penrose-Raven matrices were employed on an experimental basis. The matrix test proved to be particularly valuable, being a non-verbal method. In 1940, with Dr. Raven's help, it was introduced as a group intelligence test at one of the R.A.M.C. depots, and its careful standardization and validation was begun. As a group test it proved to be extremely useful. It was possible to squad men for training according to intelligence, and the lower group on the intelligence scale were very properly referred for psychiatric interview, as also were those who made unreliable scores, often for some reason connected with instability. A little later on, through the Director of Military Training and the Army Education Corps, a series of verbal tests was introduced under the guidance of Mr. Farmer of the Cambridge Psychological Laboratory; these were widely employed, and when properly used proved valuable. In June, 1941, after much preliminary work, a Directorate for the Selection of Personnel was set up under the Adjutant-General, and its work, guided by industrial psychologists of experience, has accomplished a great deal for the efficiency of the Army and for safeguarding mental health. The matrix test was introduced at all recruiting boards. Large groups of men whose work in the Army was being changed were put through group tests and given a percentile rating in relation to the whole population. Recently, since conviction of the value of this work had grown sufficiently, the administrative difficulties were overcome and the General Service selection procedure was introduced into the Army at the beginning of July, 1942. All men are now taken into the General Service Corps, where alongside their basic training they are put through a battery of intelligence and aptitude tests, interviewed by specially trained officers, and posted to the most appropriate possible duties in the Army.

The Directorate for Selection of Personnel had undertaken a complete job-analysis of the multitudinous tasks in the different arms of the Service, and as a result was able to lay down the standards of intelligence and other aptitudes necessary for each job, thus providing a basis for the correct posting of men in certain proportions to each type of unit. The accomplishment of this work produced a revolutionary change in the Army's utilization of man-power and has set a standard which will certainly be applied in industry and in social life in the post-war world. The matching of men to suitable work is as valuable a means of psychiatric prophylaxis as anything that could well be devised.

In this mass selection of men psychiatry is perhaps the handmaid of industrial psychology, whereas in other fields—e.g., officer selection and with other groups in which temperamental factors must be assessed—psychology is the handmaid of psychiatry. In fact, in the Army the psychologists and the psychiatrists work together as a team in the best possible way, and their interdependence is fully demonstrated. The accompanying diagram showing the lay-out will be of some interest. In dealing with large groups of men who are put through the General Service selection procedure, in which a battery of intelligence and aptitude tests are employed, the psychiatrist sees all those men who are low scorers, and in addition all whom the trained personnel selection officers regard as unreliable or puzzling, whatever their intelligence. In this way many of the potential psychiatric problems are brought to light at the very beginning of Army life, and it is possible to ensure the wisest employment of these men within the Army machine.

Table showing Details of Disposal Recommended by Area Psychiatrists for All Cases Examined as Out-patients during the Six Months preceding April 30, 1942

Recommendations	Referred through Personnel Selection	Referred through Unit Medical Officers				
		Neurosis and Psy. Pers.	Dullness and Defect	Psychosis	Other Diagnosis	Total
Return to unit: no action ..	14,374	1,844	2,127	9	1,485	19,839
Observation in unit ..	1,040	1,701	48	21	374	3,184
Out-patient treatment	883	375	9	6	52	1,325
E.M.S. neurosis centres ..	68	3,291	28	59	108	3,554
Army neurosis centres ..	16	1,502	7	27	19	1,571
Army mental hospitals ..	47	529	6	742	81	1,405
Other hospitals ..	28	350	5	58	270	711
Reduced category	213	1,788	81	17	106	2,205
Pioneer Corps, including unarmed sections ..	12,504	563	3,365	8	83	16,523
Other corps ..	3,832	786	853	1	208	5,680
Other disposals ..	1,579	1,123	401	46	811	3,960
Discharge ..	1,180	3,786	1,108	114	260	6,448
Total ..	35,764	17,638	8,038	1,108	3,857	66,405

The figures set out in the accompanying Table, of work done by area psychiatrists in the period just before the introduction of the General Service scheme, give an idea of the types of disposal recommended or advice given in these psychiatric interviews. A detailed discussion of these figures will be the subject of a further paper.

Psychosis

Reference has already been made to the organization of special mental hospitals within the Army. There are ten of these. For the most part they are in separate blocks of civilian mental hospitals, taken over by the Army and renamed. The superintendent of the mental hospital and his deputy are given honorary rank for disciplinary purposes, and the superintendent is O.C. the military hospital. The number of beds in these units varies from 74 to 400. Medical staffing is, so far as possible, on the basis of one Army psychiatrist to 50 patients. Fortunately these beds have never been completely filled, although certain units have worked under great pressure with a very big turn-over. The incidence of psychosis has been less than was anticipated, and constitutes a small though important part of the psychiatric work of the Army. The R.A.F., our various allies, and the prisoners of war have to be accommodated, and one hospital is entirely devoted to officers and other ranks of the Women's Services. The average duration of stay in hospital for psychotic cases is about 75 days, and the results obtained by active treatment—continuous narcosis, shock therapy, insulin, P.T., and occupational therapy—are good. As in the Middle East, there seems at home to be some evidence that psychotic breakdown in the Services clears up rather more quickly and satisfactorily than in the equivalent age groups in civilian life. Some 95% of the psychotic patients in military mental hospitals are returned to the care of relatives as recovered or to public assistance institutions, while the remaining 5% are discharged to civilian mental hospitals. In this way it is clear that one purpose of these hospitals has been realized and that the civilian mental hospitals have been saved an additional burden. A follow-up scheme is at present being devised so that we may learn the after-histories of these patients in so far as further breakdown is concerned. Three of these hospitals are staffed entirely by mental nursing orderlies (male). There has been some difficulty in getting for this type of work enough nursing sisters of the Q.A.I.M.N.S. with a double qualification.

A new classification of mental disorders is now about to be adopted by the Army after much deliberation, and it should help in clarification of statistical returns when these come to be made at the end of the war.

Neurosis

The "psychopathic tenth" of the population, who, as was said above, so largely find their way into the Army, provide us with a very considerable number of men and women who are constitutionally predisposed to neurosis and whose histories reveal evidence of chronic neurotic tendencies from childhood. In active warfare some of these men might have carried on and given good service, as some such men no doubt did in the last war. The inaction and relative monotony that have been forced on so many units of the Army in this country have tended to bring out neurotic tendencies which already existed, and much of our work in Army psychiatry has been concerned with such cases. Only a small proportion of these men are likely to benefit by hospital or out-patient treatment sufficiently to warrant their being kept in the Army. In civilian life they were able to carry on in their own particular niches, going to the doctor when they felt it necessary. The very fact of giving up their individuality and becoming cogs on a large wheel appears to weaken resistance to their own emotional difficulties. Separation anxieties affect most men in the Army to some extent; while boredom, which is at times almost inevitable, produces an immediate increase in sickness rates, neuroses, and disciplinary troubles, which are, indeed, indices of bad personal and group morale.

The special neurosis centres of the E.M.S. and the hospitals devoted to these cases in the Army have all of them found that one of the main difficulties centred round the problem of individual morale. It has recently been decided to attempt a rough classification of these men according to the probability of their return to the Army, and to devote particular hospitals to them, while those who are more likely to need rehabilitation and discharge to civil life go to other hospitals. The constitutional neurotic certainly reacts badly to the close proximity of a medical board with a steady trickle of discharged men leaving the hospital in metaphorical bowler hats.

A good deal has been written, particularly from E.M.S. hospitals, about the clinical work with these cases, but little that is new has emerged save a modified insulin treatment which helps on the physical side, and some experimental work in occupation which seems likely to prove valuable in wartime. In a hospital for neurotics the ordinary methods of occupational therapy are less appropriate than military occupations. There are Army physical training instructors in each of these hospitals, including the E.M.S., and military training with various modifications is being used with considerable advantage in certain of them. The principle behind this is that to learn to strip a Bren gun properly may be more valuable than to learn carpentry or rug-making, since it is obvious that a patient who recovers is in a stronger position if he can go back to his unit direct from hospital as a fit man who has had further military training than if he needed a convalescent depot for hardening before his return to duty. Whenever it has been possible, spare-time occupations that have some relation to the war effort have been tried, such as making toys for children in day nurseries and the use of simple machines which assist in such work as is admissible in a hospital under the Geneva Convention.

So far as concerns the men who return to duty in the Army, there is a follow-up system which makes periodic inquiry regarding the men's military efficiency and their fitness, and the figures thus provided form some guide to the accuracy of the clinical judgments made in the various hospitals.

Unfortunately as yet there is no means of following up the progress of those men who have been discharged and gone back to civilian life. Despite all the difficulties in the way, after visiting the various hospitals one is always left with the impression that something of value is done even for this group of men who cannot fit into the Army, and that in consequence they may, as a socio-medical group, be rather less of a problem in the future.

An extremely useful experiment in the placing of men occupationally has been carried out for the past eighteen months. Those patients who after treatment in hospital are considered unfit to go back to the units from which they came, but who in the opinion of the doctors have a good chance (75%) of giving efficient service to the Army in some special trade or in some special job which is in line with their pre-war interests or abilities, can be appropriately posted. Each of the neurosis centres and special Army hospitals has direct access to the War Office about these men, and the follow-up inquiry carried out by the administrative branch concerned shows that only 9% of the men so dealt with have turned out failures, while over 70% have been very successful. This figure deserves, and is to have, a more careful check made in the near future. This large-scale individual employment agency is certainly providing a very valuable method of rehabilitation as well as maintaining the man-power of the Army.

As would be expected, the tale of the acute war neuroses resulting from enemy action is very much more cheerful. Since a large number of these men have a good constitution and good medical records the results have been very satisfactory wherever treatment has been undertaken early. Men from Norway and Dunkirk who broke down as a result of prolonged stress have for the most part been got back to duty satisfactorily, many of them to full combatant status. It is a matter for much regret that many men were invalided back either with wounds or with physical diagnoses, and consequently in general hospitals their anxiety tended to go unrecognized, with the result that no specific treatment was provided until the condition had become almost ineradicable. The physical and psychological methods employed, which have proved necessary and valuable in this country, have been fully described in the medical press. In the Middle East Forces the results of treatment seem to have been still better, as one hoped.

Education

The first psychiatrists selected for work in the Army were chosen partly on the grounds that they were experienced teachers who could when necessary give formal instruction and could more often teach without any special appearance of so doing. A satisfactory proportion of the large number of men and women psychiatrists who have later been appointed have shown themselves well able to carry out the same important functions.

The numerous contacts of Army psychiatrists give them day-to-day opportunities of discussing with regimental, legal, and administrative officers problems of morale, discipline, training, "man management," and other topics bearing on mental health. A great number of formal lectures have been delivered to small and large groups in Divisions, Army Schools, H.Q. Conferences, etc. Lectures on psychiatric work in the Army are given to M.O.s in the depots when they are beginning their Army career and on various other occasions later on. Some short systematic groups of lectures have been given and regular tuition has been provided at some E.M.S. and Army hospitals. Further attempts are being made to keep every M.O. of the Field Force *au fait* with the latest methods of dealing with true battle neuroses.

The shortage of medical man-power emphasizes in every branch of the profession the need for specialist training, and in none more than in psychiatry. At one of the Army's special hospitals for neurosis the sixth course (now of three months' duration) is just being completed. Courses of this length cannot produce specialists; but they can widen a previous experience in psychiatry, and they can make a well-balanced M.O. of good general experience a better Army doctor or even start him on a most useful career as a "psychiatric assistant" so that he may ultimately become a specialist. All Army psychiatric hospitals at home and abroad are approved for resident experience for the D.P.M.

Every type of psychiatric experience and approach is of value in the Army once it has been broadened or deepened where necessary and the essential military orientation has been developed.

Medico-Legal Work

It is most satisfactory that the relationship between psychiatrists and the Judge Advocate-General's Department is increasingly one of understanding and co-operation. Medicine and the Law have often been at cross-purposes, and such a situation would be disastrous in the Army. Military crimes are easy to commit, and especially is this so for the dullards and the neurotics. We have aimed at avoiding conflicts of opinion, waste of psychiatric time through appearance at courts martial, and the undertaking of legal procedures in psychiatric cases, where no good purpose was likely to be served either for the group or for the guilty individual.

Much discussion has resulted in an agreed pro-forma (here reproduced) for use by the psychiatrist in reporting. This is

FORM OF REPORT BY PSYCHIATRISTS IN DISCIPLINARY CASES

This report is intended as a guide for the Commanding Officer in considering disciplinary action where the question of the accused's fitness to plead, sanity, and responsibility has been raised. Where in the opinion of the psychiatrist a man is clearly fit to plead and clearly responsible for his actions at material times, a brief report to this effect may replace parts B and C of this report. If the accused is remanded for court martial this report must accompany the application for court martial. The Convening Officer should submit the papers including this report to an officer of the Judge Advocate-General's Branch before ordering trial.

To: *C.O.*

Man's number. Surname. Initials. Rank Age. Service.

A. The above-mentioned, who is charged with ....,
has been referred for psychiatric examination
He complains that:
He states that:
On examination I noted that:
In my opinion he is suffering from (Official nomenclature)
i.e. (Translation into everyday language)

(When answering in detail questions in B, C, D, and E below, a clear distinction should be drawn between (i) facts observed by the officer making the report; (ii) statements made by the man himself; and (iii) alleged facts communicated by others.)

B. *Unfitness to Plead due to Insanity.*
(i) Is he able to understand the nature of the proceedings at a court martial?
(ii) Is he able to object to any member of the court?
(iii) Is he able to instruct his defending officer?
(iv) Is he able to understand the details of evidence?

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C *Criminal Responsibility.*
(i) Was he at the time of the alleged offence suffering from a defect of reason from disease of the mind?
(ii) Did such defect of reason prevent him from knowing the nature and quality of the act he was doing?
(iii) Or, if he did know, did he know that what he was doing was wrong?

D *Evidence as to Character.*
(i) Was the accused suffering at the time of the offence from any illness which might have affected his behaviour?
(ii) Is punishment likely to diminish the chances that he will repeat this or similar offences?
(iii) Is punishment likely to increase or diminish his efficiency as a soldier?

E. *Medical Disposal.*
(i) Is any treatment required immediately, during detention, or after release?
(ii) Is any other action (e g , transfer after sentence) recommended?
(iii) Any other relevant information:

sent to the convening officer, whose responsibility it is to decide whether a court martial shall be held. The psychiatrist is thus in every case playing his proper part as expert for the Crown—briefed neither by prosecution nor by defence. This scheme works well. The J.A.G.s often attend and take part in psychiatric meetings in commands. The close contact thus established makes it possible to discuss difficult cases, to the benefit of both professions.

Arrangements exist whereby dull men in need of psychiatric care or disposal after the court martial are notified, and the detention-barrack problems are thereby eased.

Social Psychiatry

Very largely because of the excellent and close co-operation with industrial psychologists it has been possible to achieve a number of advances in social medicine and prophylaxis in the Army. The efficiency of the Army for the primary purpose of winning the war is the concern of everyone, and from this angle prophylactic measures are infinitely more important than the provision of treatment, valuable and interesting as that is. If any demonstration were needed that the neurotic tendencies of men can be best controlled when they are doing suitable work, that proof has certainly been provided by the scheme for misfits mentioned above. The personnel-selection work of the Army is a major contribution to its mental and physical health as well as to its fighting efficiency and out of the present General Service procedure it seems probable that there will develop a method for use in industrial selection in the future and for the sorting of any large groups of men or women.

Army psychiatry took the initiative in investigating and applying tests for personality and character studies. From this work has developed the specialized technique of the War Office Selection Boards for choosing officer candidates. Here selection is made after two days of observation by a team reminiscent of a child guidance clinic! The team consists of the president and military testing officers (regimental soldiers), psychologists, and psychiatrists. It is not surprising that the character assessment made as a result of the psychiatric interview is in many cases the most valuable of all the various opinions which are presented to the final board before its verdict is given. At present these boards are aiming to discover certain qualities which are particularly necessary for a good officer in different arms of the Army. Follow-up work has been undertaken, and this it is hoped will be carried on right through the Army service of each of these men. It seems as though there had been established a valuable principle for the selection of specialists for various professions and occupations, though for each particular group special techniques will have to be scientifically designed. There has been, and will still be in the future, much resistance to be overcome before the principle of selection by scientific procedure is accepted. Selection pays, but it also carries a threat; for the more accurate it becomes the more it explodes the pleasant and universal fantasy that each of us has a Field-Marshal's baton in his knapsack.

War aims are necessary for us all, and psychiatry has certainly some visions of what can be brought about after the war and where it can slowly but surely make a very considerable contribution to the national life.

Psychiatrists in the Army have not been content to stop short either at clinical psychiatry or at selection, and fortunately they have increasingly been asked to give help and advice with a large number of other problems, such as the multitudinous aspects of morale. In nearly all of these problems there is some way in which the psychiatrist, thinking in terms of the emotional life, can give useful help; later he has the satisfaction of realizing that once his plan has been grasped and carried out it is regarded as "just common sense." In military training there are many problems which concern the industrial and educational psychologist and many in which the psychiatrist also can assist. Accustoming or "inoculation" of men to those battle stresses that menace morale has been one main way in which psychiatrists have helped. To give guidance on questions of the stirring up and effects of hate, on "debunking" battle noise, the tank, and the morale-destroying aspects of the dive-bomber and other alarming techniques of war, makes a very sure contribution to the mental stability and the battleworthiness of men under training. In these and many other ways psychiatry is concerning itself with the task of the Army just as it is concerned with the health of individuals and groups through wiser disposal and posting and through its experiments with the constitutional neurotic and the dullard.

From all these lines of work there open up further possibilities for help to the Army during this war and to the community after it.

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OBSERVATIONS ON INJURIES TO THE SEMILUNAR CARTILAGES IN SERVICE PATIENTS*

BY

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The object of this paper is to analyse the facts obtained as a result of treating injuries to the semilunar cartilage and to see whether any useful information can be drawn from them. The observations are the results of the combined work of the staff of the Harlow Wood Orthopaedic Hospital.

From the beginning of the war until April, 1942, there were admitted and discharged from the hospital 185 patients suffering from injuries in the region of the knee-joint (excluding wounds and fractures). These were diagnosed as follows:

Synovitis	9
Strain (various types)	16
Pre-patellar bursitis .. .	1
Semimembranosus bursitis ..	2
Subsartorial bursitis	1
Loose bodies	3
Dislocation of patella ..	3
Osteo-arthritis	7
Post-operative cases (I D.K)	8
Injuries to semilunar cartilages	135

In times of peace some men, as a result of athletic activities, injure their knee-joints, and, unless they are professionals, give up the game in which they have been injured and may be able to carry on without very serious disability. It is probable, therefore, that only a small proportion of these cases are ever seen by surgeons and have surgical treatment. In wartime, however, those who are unfit to do what is required of them in the Services must necessarily report sick, and sooner or later they are referred to an orthopaedic centre for advice and treatment. It may therefore well be that the incidence of the various lesions in injured cartilages in Service practice differs widely from that in civilian life.

An inquiry into the position in wartime has been made possible by the establishment of these special orthopaedic centres, in which relatively large numbers of certain types of case, including injuries to the knee-joint, have been segregated. With uniformity of hospital records and notes which this segregation makes possible, it is easier to analyse cases than it would be in peacetime, when notes covering many years, written by different individuals, have to be examined.

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* Read at the autumn meeting of the British Orthopaedic Association at Nottingham, September, 1942.

The number of cartilage cases here reviewed is relatively large, as all have been seen in a comparatively short period. Many are still fresh in our minds, and can therefore be compared and analysed with reasonable accuracy. The cases actually treated by operation numbered 131, and 136 cartilages were removed. The types of lesion found were as follows:

Internal Cartilages	99	External Cartilages	31
Bucket-handle	38	Bucket-handle	5
Posterior tear	28	Posterior tear	5
Anterior tear	11	Anterior tear	8
Intermediate	15	Intermediate	4
Hypermobile	6	Cysts	7
Cysts	1	Disks	2

No demonstrable lesion, 6 (3 internal, 3 external)

It is interesting to note that the internal cartilages were to the external as 3 is to 1, and that there was one cyst in an internal cartilage and in external cartilages there were seven. These figures roughly correspond to those expected in civil practice, although the number of external cartilage lesions is much higher than was formerly thought to be the case. In only four instances were two cartilages removed from the same knee-joint, and in only two of these were two lesions found: the one point of interest here is the comparative rarity.

Eight patients had had operative treatment elsewhere and were brought into hospital because they had not subsequently made good progress. In six of these the main disability was due to quadriceps insufficiency.

Diagnosis

The first essential is an accurate history, the chief points of which should be the type of injury, the immediate effect of the injury, the length of time taken in recovery and, if this is complete, the number of recurrences, and finally the sensation of the patient regarding the stability or otherwise of his knee.

The second essential is an accurate clinical examination. Here the facts to note are the points of tenderness; the existence of a click which may be elicited at different positions in the range of movement of the knee-joint, the presence or otherwise of locking, and pain at the extremes of movement. The diagnosis depends, therefore, on a combination of the clinical findings and the history, and a negative radiograph. Some patients come with their diagnosis ready-made; they give a definite history of locking; but it is sometimes not easy to realize that their ideas of locking and ours are totally different.

Using these methods, in 6 out of 136 cartilage operations no demonstrable lesion was found. Why was this so? In most cases the history was definite but the clinical findings indefinite. In one case an effusion prevented an adequate examination. In another, arthritic changes were present in the joint. In practically all instances the diagnosis might have been cleared up by a period of intensive and controlled physiotherapy. In doubtful cases we therefore now subject the knee to intensive work so that its reaction may be noted. Six cartilages were thought to be hypermobile at the time of operation. In all of these cases the diagnosis and clinical examination seemed quite definite, and we consider that a mobile cartilage should be recognized as a clinical entity. These patients made normal progress after the cartilages had been removed, and those treated to a conclusion at the rehabilitation centre were quite satisfactory. All were internal cartilages.

In the first part of the period under review we were not able to treat cases to a conclusion. The patients left the hospital after three or four weeks and were lost to us. Our experience with cases from other areas made us feel that possibly our own, too, might not be making the progress we expected. We felt very dissatisfied with the position, and because of this we decided to establish for ourselves a rehabilitation centre at our Lound Hall Annexe. When this was established, patients, instead of being sent away with instructions about post-operative treatment, went to the rehabilitation centre and remained there until their treatment was completed. This centre is able to take 50 patients. The staff consists of an Army P.T. instructor and a fully trained masseuse, and visits are made at regular intervals by a member of the surgical staff of Harlow Wood Hospital. The cases can therefore be divided into two series; the first consists of those treated before the rehabilitation centre was opened, the second series comprises those treated after it had been opened. (In discussing the results of treatment only those in the second series will be referred to.)

Treatment

There are certain points in the operative treatment which we consider important: (1) A small incision about 1¼ in. into the joint. (2) The removal of the whole cartilage—i.e., not merely the detached part. (3) Immediate post-operative treatment, consisting of active contraction of the quadriceps (quadriceps exercises should be learnt before the operation). (4) Continuous physiotherapy, consisting in the main of active exercises, which should not be too strenuous to start with. These should conclude with cross-country runs, long walks, and ordinary games.

It has been interesting to observe that patients whose treatment was discontinued on account of their going home on leave on compassionate grounds sometimes came back with the quadriceps less efficient than when they left. We believe this was because they ceased to do their regular exercises. They are now instructed to put half a brick in their tin hats and hang these over their ankles, and so do resistance exercises while on leave. The result of this simple instruction has been a decided improvement.

Results of Treatment

Since the opening of the rehabilitation centre, during the period under review, 86 cases have been treated to a conclusion. In 70 of these (81%) the time varied from 6 to 9 weeks, with an average of about 8 weeks. This probably errs on the long side, as some were certainly fit to leave the hospital a few days or more before they were discharged, but had to wait for posting orders. Sixteen patients took 12 weeks or longer. There were various reasons for this. Six had a persistent post-operative effusion. Most of these were in the rehabilitation centre about the same time, and we are inclined to think that they may have had too much treatment in the early stages and were straining their knee-joints. We have accordingly given up the use of weights and pulleys except as a weekly test to show the progress that has been made in the re-education of the quadriceps. In three cases two cartilages were removed, and there was an interval between the two operations. One patient had a partially calcified cartilage, one a semimembranosus bursitis, one tonsillitis, and one a generalized skin infection; and in three there were arthritic changes in the joint. There was therefore at least a partial explanation of the delay in each instance.

Long-standing Cases.—In 12 cases there was a history of the disability having extended over five years or more. It was interesting to see whether, in these cases, any one particular lesion was usually present. The lesions found, however, were varied. Four were of the bucket-handle type, two were posterior tears, one was a cyst in the internal cartilage, three were anterior, and two were intermediate. While, of course, it is impossible to say whether these patients had suffered from a lesion of the internal cartilage during the whole of the period for which they gave a history of disability, it is worth noting that in only three were there signs of arthritic changes in the joint. These patients were aged 24, 39, and 40 years.

Osteo-arthritis.—This was seen radiologically or at the time of operation in 11 cases. The average duration of treatment in these cases was 10 weeks. This, however, was increased by two cases of the previous series. If these cases are excluded the average duration of treatment was 8¼ weeks. It appears that arthritis in a mild degree does not seriously interfere with post-operative recovery.

End-results

Of the patients included in the second series 4 had medical board examinations and were placed in Category C. The remaining 82 returned to duty in their original categories, so far as we are aware. As a check on these results inquiries were sent to the Regimental Records regarding the whole of the patients (Series I and Series II), and definite replies were received in respect to 78 patients. These were divided as follows:

Series I (Pre-rehabilitation)		
Definite replies to letters of inquiry		31
Graded A1	14 (45%)	
Discharged from Services	6 (19%)	

Series II (Post-rehabilitation)	
Definite replies to letters of inquiry	47
Graded A1	36 (77%)
Discharged from Services	2* (4%)

* One aged 45 and one non-cooperative when in hospital.

These figures do not, in themselves, prove anything, but they are an indication that the cases treated to a conclusion (Series II) have done much better than those discharged without this extension of treatment.

Conclusions

The policy of the Emergency Medical Service in segregating cases of certain types in special centres has made it possible to survey a large number of Service cases in a short period, and from them certain observations have been made:

(*a*) That a major cause of disability following removal of semilunar cartilages may be quadriceps insufficiency.

(*b*) That in long-standing cases no one particular type of lesion was found, nor was there any definite relation between the development of arthritis and the length of the disability.

(*c*) That arthritis of a mild degree has little effect on the length of post-operative treatment.

(*d*) That post-operative rehabilitation at a special centre is of the utmost value in ensuring the satisfactory recovery of Service patients.

(*e*) That operative treatment for lesions of semilunar cartilages in Service patients is well justified.

MITRAL SYSTOLIC MURMURS

BY

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Disagreement on the significance of certain systolic murmurs in the mitral area has imparted to these an ambiguity which has caused them to hinder as often as help in the diagnosis of heart disease. When electrocardiography and cardioscopy (radiological examination of the heart) were first enlisted as accessory methods to implement physical signs in the recognition of cardiac disorders, there was born a tendency to regard them as the principal tests and not as useful aids. This view gained a fillip from the uncertainty identified with the interpretation of added heart sounds and murmurs. Correlation of physical signs and radiological findings through the intervening years, however, has given to murmurs their true significance in terms of altered heart structure, and it is now possible to recognize, by clinical examination alone, most of the conditions which produce abnormal auscultatory signs. Of course, cardioscopy will continue to have great value in confirming the clinical impression, sometimes modifying or correcting it, and always showing the extent to which the disease alters the size and shape of the individual heart cavities.

Special Features of Mitral Murmurs

The need to recount the special features which characterize mitral murmurs receives emphasis in several departments of medicine to-day. Thus, in children the incidence of an innocent systolic murmur is high, and a faulty interpretation of this auscultatory sign is commonplace, condemning many of them unnecessarily to a life of semi-invalidism; routine medical examination of school children has inevitably subscribed to this episode. It should be a rule that no child is denied games and the healthy activities inseparable from a happy school life on account of a heart murmur of doubtful significance. Directly this suspicion has rested on a child arrangements for a special examination at a cardiac centre should operate automatically. Only in this way can unwarranted cardiac invalidism in children be avoided. Again, a young subject during convalescence from acute rheumatism is often confined to bed for several months because an innocent systolic murmur has been regarded as evidence of endocarditis or as a sign of mitral disease.

Medical examination of recruits before admission into the Services provides another circumstance in which the mitral systolic murmur is frequently misinterpreted. Thus, a subject with an innocent murmur may be rejected and classified as Grade IV, and another with a murmur signifying organic disease accepted into Grade I. The same problem may present in the case of young adults in civilian occupation during the medical examination admitting them to a life insurance: in none should the premium be "loaded" on the grounds that a murmur is present, unless it can be shown that it stands for a structural change in the heart. Again, a systolic murmur in the mitral area may loom prominently in older adults involved in a claim for compensation in respect of an accident, when the significance of the murmur will be debated in relation to the injury incurred. Then it is time to issue the warning that during the demobilization of members of the Services at the conclusion of hostilities none shall be awarded disability pension on the flimsy evidence of a murmur in the heart or in respect of the mischievous caption of "V.D.H."

For these reasons it is clear that there is need for an evaluation of this auscultatory sign in the diagnosis of heart disease and for examining the distinctive features which may identify a murmur with some precise cardiac disorder. A discussion of the subject is facilitated by assembling the several murmurs in three groups.

The Irrelevant Mitral Murmurs

The murmurs included in this group are easily recognized as a rule, and, since they usually display their main characteristics in some other auscultatory site, in relation to the mitral area at least they may be classed as irrelevant. A detailed description of these murmurs is therefore unnecessary, and little more than their mention will be made here. The *conducted* murmurs of congenital pulmonary stenosis and patent ductus arteriosus are best heard in the pulmonary area, and that of ventricular septum defect at a point internal to the mitral area. The *haemic* murmur in anaemia is associated with one in the pulmonary area; it is seldom so loud in the upright as in the reclining posture, and as a rule it is soft in character, although sometimes it may be rough and resemble the characteristic late diastolic murmur of mitral stenosis; successful treatment of the anaemia annuls the murmur. A systolic murmur may often arise from the cardiac *displacement* witnessed in pulmonary fibrosis, considerable pleural effusion, pneumothorax, and conspicuous depression of the sternum. In *tachycardia* from any cause, especially if accompanied by pyrexia, a mitral systolic murmur may appear, and disappear when the pyrexia subsides and the heart slows.

The Innocent Murmur

Misinterpretation of this murmur, which is commonplace, may be avoided by a close regard of its characteristic clinical features, which will now be considered.

The innocent murmur is not a significant or noteworthy murmur; some length of clinical experience may be necessary to judge its peculiar intensity, but it is enough to remember that it is neither a loud nor a long murmur. There is one notable exception to this rule—namely, that when the murmur is *late* in systole and placed as near to the second heart sound as the first, it can be loud (and usually it is loud), and yet it is an innocent murmur: the importance of recognizing this fact lies in the common incidence of the auscultatory finding.

Most organic murmurs are better heard with the patient in the reclining posture, and this may sometimes be true of the innocent murmur; but when the murmur is decidedly louder in the upright posture it is the innocent kind.

In instances in which a trivial systolic mitral murmur becomes louder in the reclining posture, and in which a murmur develops at the base of the heart and particularly in the pulmonary area, the innocent nature of the murmur can be presumed.

Any murmur or heart sound is loudest at the end of expiration, but if during the inspiratory phase a murmur disappears it belongs to the innocent type.

A systolic murmur attendant on organic heart disease invariably gains in intensity with tachycardia, but the innocent murmur often weakens as the heart rate increases.

Naturally when a murmur has been judged to be the innocent kind no heart disease can be made out by further examination, including cardioscopy. Recourse to this test should be had whenever the identity of the murmur remains in doubt from clinical examination alone. At all events when the test is readily available it should be used to endorse the clinical impression which has been gained. This test, reliable as it obviously is, should not, however, be allowed to displace our trust in these simple auscultatory signs, which seldom miscarry in the evaluation of this murmur.

Nothing is gained by debating the mechanism of the innocent mitral systolic murmur; for in such a debate, which cannot muster facts and must naturally resort to theories and fancies, lies the danger of allowing this murmur to continue to mystify clinicians. Let us instead adhere to actual clinical findings, and allot to them their proper values in terms of structural changes in the heart as told later by cardioscopy or even necropsy.

The Murmur of "Mitral Incompetence"

As often as we diagnose mitral incompetence, can we prove that the blood regurgitates from the left ventricle into the left auricle during systole? What is the evidence of mitral incompetence when the heart is examined at cardioscopy or necropsy? Certainly when the analogy between this condition and the standard effects of other cardiac abnormalities is considered, enlargement of the left auricle should be a constant finding; but this sign is absent unless some cause other than mitral incompetence is operating, notably mitral stenosis and, less often, prolonged hypertension. The diagnosis of aortic incompetence has a significant meaning because precise signs (clinical, radiological, and pathological) are identified with the lesion. We have no such clear impression of mitral incompetence. It is time, then, to be rid of the term; if preserved it will continue to frustrate the precise diagnosis of heart disease. Instead, when a systolic murmur in the mitral area has not been identified with the irrelevant mitral murmurs in the first group, or the innocent murmur in the second, it should be regarded as standing for mitral stenosis, aortic stenosis, aortic incompetence, or prolonged hypertension; and, less frequently, cardiac aneurysm and cardiac enlargement in heart-block.

The murmur is moderately loud, and is usually best heard with the patient in the reclining posture, although assuming the upright position does not annul it. It is sometimes soft, but as a rule it is roughish or even rough. It is unaffected by respiration, and may become louder when tachycardia is induced.

These clinical states which are common causes of a mitral systolic murmur need only be discussed briefly.

Mitral Stenosis.—Whenever a systolic murmur in the mitral area is considered to indicate mitral disease the term "mitral stenosis" should be used in the diagnosis and not "mitral incompetence." This is in keeping with changes in the heart, for both at cardioscopy and at necropsy the findings are those resulting from the stenotic effect.

It is necessary to assemble other clinical signs to confirm the presence of mitral stenosis in addition to the systolic murmur, which is moderately loud and is best heard in the reclining position, with the patient turning on to the left side after tachycardia has been induced by exercise. A past history of acute rheumatism is small supporting evidence, since not all cases of acute rheumatism develop mitral stenosis and not all cases of mitral stenosis provide a past history of the infection. A thrill in the mitral area is strong evidence of mitral stenosis. A diastolic murmur (always rough) in the position of the third heart sound (mid-diastolic) also stands for mitral stenosis, although it is not an early sign. In fact, when the lesion is young the clinical deduction that a systolic murmur in the mitral area indicates the presence of mitral stenosis may be drawn from finding a significant systolic mitral murmur in the absence of aortic valvular disease, hypertension, and conspicuous cardiac enlargement: cardioscopy should come into regular use here to confirm a well-considered clinical opinion.

In *aortic stenosis* it is unusual to find the mitral area without a systolic murmur. As a rule this murmur is less loud than in the aortic area, but it can be as loud; should it be much louder in the mitral area the added diagnosis of mitral stenosis should be entertained.

A mitral systolic murmur is present in all but early cases of *aortic incompetence*. It should become the custom to expect this murmur in both aortic stenosis and aortic incompetence when there is no need to seek any other explanation of the auscultatory sign.

A systolic mitral murmur is hardly ever absent in *prolonged hypertension* when considerable cardiac enlargement is also a common association. It is not denied that in cases of gross left ventricular hypertrophy some degree of mitral regurgitation takes place; but the view held here is that this diagnosis alone, devoid as it is of a radiological or pathological pattern, does not usefully add to a precise diagnosis of the cause—namely, hypertension.

Cardiac aneurysm following cardiac infarction, and the enlarged heart associated with some instances of *heart-block*, are two rarer causes of a systolic murmur in the mitral area, but the characteristic ancillary data will readily explain the significance of the auscultatory sign.

Conclusion

So long as auscultatory signs in the heart remain unidentified with characteristic features, so long will they miscarry in diagnosis and frustrate the proper management of patients presenting them. The time is overdue to unify our views on the commonest of them all, the systolic murmur in the mitral area.

TREATMENT OF CHRONIC ULCERATIVE COLITIS BY PNEUMOPERITONEUM

BY

H. NEUMANN, M.D.

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In many cases of chronic ulcerative colitis conservative medical treatment is ineffective. A considerable number of drugs are usually tried, and patients are kept in bed for months under strict diet and daily irrigations. Some recover after prolonged treatment, others find temporary relief; but there are always cases which seem intractable. Sufferers from this not rare disease frequently belong to the intelligentsia between the ages of 20 and 30, and as even milder forms with 8 or 10 daily bowel motions make them unsociable and unfit for work, drastic therapeutic methods have been employed.

Many writers are in favour of extensive colon resection, and H. W. Cave of New York proposes subtotal colectomy as the method of choice. He believes that the percentage of lasting cures is so small that colectomy is a measure of necessity. On the contrary, we have obtained excellent results in chronic, apparently intractable, cases with a far less drastic and dangerous method—the establishment of a therapeutic pneumoperitoneum and its maintenance over several months. With this measure the patient is not confined to bed except for the first few days, and his sojourn at the hospital can be limited to a short time. Indications for pneumoperitoneum were made on clinical grounds—perchronicity, diarrhoea, pus, mucus, blood in stools, intractability—and little weight was put on bacteriological findings, as various organisms caused clinically indistinguishable forms.

Technique of Pneumoperitoneum

The technique is simple, and can be carried out by any practitioner. The therapeutic pneumoperitoneum may be installed with any model of the usual pneumothorax apparatus and with the same needles as are used for the pneumothorax—the most suitable being fairly thin ones with closed, wedge-shaped, not very pointed end and lateral opening, and a diameter of about 1/25 in. or less. Using such needles, local anaesthesia is not required. The best place to puncture is about an inch to the left of and below the umbilicus. After painting the skin with iodine, and examining the needle for free passage of air, the skin is well stretched between two fingers to give resistance to the needle, which, still in connexion with the manometer of the pneumothorax apparatus, is pushed through skin and abdominal wall. After short practice it is not difficult to distinguish, from the resistance to the needle, the layers of the abdominal wall, and particularly the piercing of the peritoneum. This moment is rather more painful than when the pleura is pierced, but with sufficiently thin needles I have never found it necessary to use novocain, which would make it more difficult to distinguish the abdominal strata. It also seems that the patient soon becomes accustomed to the pain of the piercing of the peritoneum, and after several refillings it is felt but little.

It is more important than with pneumothorax to feel the strata at the progress of the needle, as of course the manometer gives no indication whether the needle has passed the peritoneum. The danger of piercing the bowels seems very remote: the smooth intestines escape the needle if they are not too tympanitic and if the needle is not too pointed. Also, with the finer needle there would be no danger if the bowels were pierced.

Before passing air through the needle it is advisable to test with a stylet whether blood or any liquid is present. The amount of gas introduced averages 500 c.cm.—oxygen or air being used. The reading at the manometer is round about zero, rising slightly after the filling of each fraction and dropping again quickly, eventually remaining at 2 or 3 cm. H_2O. Sometimes slight oscillations corresponding to the respiration are noticeable. If the needle has not yet reached the peritoneal cavity the manometric pressure of course rises rapidly, even after introducing the smallest amount of gas. The manometer serves in this sense as a control.

Another control is the reduction and the disappearance of the dull liver sound on percussion. During or soon after the filling, the patient usually complains about the sudden appearance of pain in one or both shoulders; this is of so regular occurrence that it is advisable to tell the patient beforehand about it and to reassure him. The appearance of this phenomenon and the projection of pain to the shoulder region are obviously due to the phrenic nerve, and can also be used as a control; the effectiveness of the filling can further be checked by means of radiographs.

Refilling can be done once or twice weekly; when pure oxygen is used the intervals are 3 or 4 days because of more rapid absorption. When air is used the intervals are from 6 to 8 days. Because of its calming effect oxygen is preferable for the first fillings for cases with major abdominal discomfort and frequent colics, and for cases with a higher grade of secondary anaemia and dyspnoea. The number of fillings required varies greatly, and it may be necessary to continue treatment for three months or more.

Results

Of the 7 cases in the series only one was treated for more than 3 months.

Case 1.—A woman aged 28 had been suffering for 3 years from severe diarrhoea. She had from 15 to 25 bowel motions daily—in better periods and under the influence of opium 10 to 12 motions—always with an admixture of mucus and blood, occasionally pus. Loss of weight was 46 lb. in 3 years. During three months' treatment with pneumoperitoneum the number of bowel motions was steadily reduced and she regained 17 lb. Her general condition improved, and finally the stool was free from mucus and blood. The diagnosis of ulcerative colitis had been confirmed by sigmoidoscopy. Investigation after one year showed that she was free from complaints and had further gained in weight.

In one case only two fillings were required. Particulars of this case are as follows:

Case 2.—A man, part Polynesian, aged 42, had been suffering from symptoms of chronic colitis for several years. His loss of weight was over 30 lb. and there was incapacity for work and general debility. After pneumoperitoneum and one refilling he felt well. No sigmoidoscopy had been carried out; the presence of a tumour in the colon suggested by severe secondary anaemia had been excluded by radiological examination. Re-examination after 7 months showed that the patient had gained 14 lb. He was still feeling well and was able to work.

In some cases a moderate amount of peritoneal effusion developed; this liquid was sooner or later reabsorbed spontaneously. In such cases it is advisable to give 10 c.cm. of calcium chloride intravenously 3 times weekly. It appeared also that patients who developed temporary ascites responded more quickly to treatment.

Summary

The therapeutic action of pneumoperitoneum is probably due partly to activating the visceral peritoneum and "tuning it to a higher pitch" by the setting up of a permanent bland irritation to the vast peritoneal surface, and partly to mechanical action and indirect influence on the autonomic nervous system.

Pneumoperitoneum may be described as a simple and effective therapeutic procedure in apparently intractable cases of chronic ulcerative colitis. It is easily performed, and is free enough from danger for it to be introduced, and for refillings to be made, by any practitioner, even without the facilities of a clinic or a hospital.

SOME OBSERVATIONS ON BILIARY PAIN

BY

ALASTAIR A. DOUGLAS, M.D., F.R.C.S.Ed.

The recent article by Mr. F. R. Brown (1942) in the *Journal* has prompted me to record some clinical observations on biliary pain. The classical "pain" of what is loosely termed biliary colic is really, of course, a pain complex, which has been split into components and explained by Morley (1931). My hope is only to add a very little to what he and others have already said.

Components of the Biliary Pain Complex

I think that in a fully developed case five components of the complex can be recognized, though more commonly only two or three are met with.

1. In most cases of biliary colic the pain is first felt by the patient as a violent if dull ache in the central epigastrium, coming in waves. Like other visceral pains it is absorbing, so that the sufferer for the time being is as if paralysed, and almost identified with his own pain. If he can divert his attention from it for long enough he will pass his hand from side to side across his epigastrium, from one costal margin to the other, to indicate its position, which he still cannot describe with any accuracy. I should be inclined in the case of biliary colic to convert the vertical oval in Fig. 5 of Brown's article to a horizontal one (Fig. 1). In some cases, more particularly when the attack is short and infection slight or absent (as evidenced by freedom from pyrexia and leucocytosis), this component is the only one felt, and there may be no tenderness over the gall-bladder. I have also been able to observe one of the cases in which an idiosyncrasy to morphine has developed after cholecystectomy, and which Smyth (1941) quotes Walters (1938) as ascribing to spasm of the sphincter of Oddi. In this case the pain provoked by morphine was

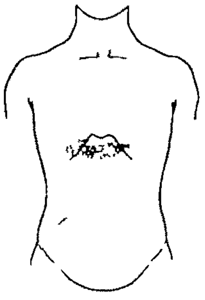
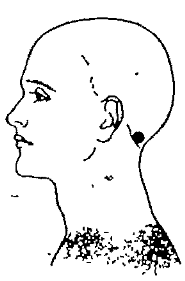


FIG I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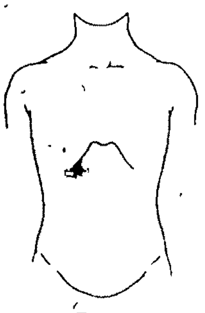
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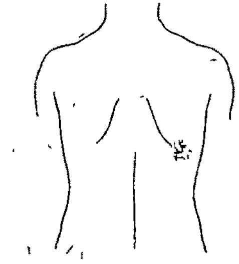
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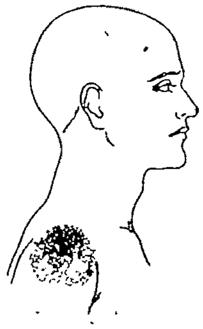
FIG 5

of the nature described above—a severe but not definitely localized transverse pain in the epigastrium.

2. The second component is certainly inconstant, but I am surprised that I cannot find any direct reference to it in the works I have consulted. Moynihan (1905) mentions that pain (during the acute colicky phase) may be felt in the chest, and Cope (1925) recorded pain in the back of the neck in a patient found to have a stone in the common bile duct. He also quotes Reynolds's *System of Medicine* as mentioning pain radiating to the clavicles; but I cannot find a suggestion that there is a second type of visceral pain occurring in biliary disorders. I feel satisfied that there is. It is a severe dull ache, said by the patient to be in the neck—most severe in the back of the neck, but also radiating in front to the clavicular regions. It is symmetrical, and one patient described it as "like a necklace of pain" (Fig. 2). It may be so severe as to overshadow the epigastric pain, which is also present. It occurs early in the attack, accompanying the first component.

3. As is well known, rather later in the attack a third component appears—pain in the right side below the costal margin, and accurately located by the patient. At the same time local tenderness develops, elicited by very light tapping with the tip of a finger (Fig. 3).

4. The fourth component often arises about the same time, is met with in severe attacks, and is said by the patient to "go through to the back"—to the region of the angle of the right scapula. In character it is similar to component 3, and different from the paralysing waves of pain of components 1 and 2 (Fig. 4).

5. According to Morley (1931) shoulder-tip pain is present in only 5% of cases. In my experience it is not remarked on by the patient during the colic, though it may be present; but the information can at times be elicited from him that it preceded or followed the attack. It resembles components 3 and 4 in nature, and is often thought by the patient to be an intercurrent rheumatic pain (Fig. 5).

Explanation of the Various "Pains"

The explanation is an interesting exercise in the light of current theories. According to Brown's theory of primary position, the first component is related to the derivation of elements of the bile passages from an outgrowth of the foregut caudal to the stomach, and thus innervated by the 8th and 9th thoracic nerves, which is the segmental distribution of the pain. I submit that there are also good embryological grounds for an explanation of the situation of the second component, which to my mind is also a visceral pain. Mesodermal elements of the bile passages derive from the septum transversum, like the central part of the diaphragm, and, also like it, are innervated from the primary positional nerves C3, 4, and 5. The visceral pain connected with these elements would, according to Brown's hypothesis, be felt in the region of the neck supplied by these nerves, and this accords exactly with my observations.

It seems hardly necessary to repeat Morley's explanation of the third component. The inflamed or congested peritoneal coat of the gall-bladder irritates an area of the parietal peritoneum and sets up "peritoneo-cutaneous radiation" from the nerves of the anterior parietal peritoneum to the more superficial branches. I would add two observations in support of this view. First, in cases in which the inflammation of the gall-bladder has practically subsided pain can be reproduced by the patient's actively protruding and retracting the abdominal wall for a few seconds, or it may be provoked by walking—both of which movements can be taken to increase friction between the gall-bladder wall and the anterior parietal peritoneum. Furthermore, in one case of chronic cholecystitis, later confirmed by operation, the localized pain below the right costal margin came on before the main meal of the day, was aggravated by walking, and was at once relieved by taking the meal. The clinico-pathological interpretation is as follows. When the inflamed gall-bladder was distended with bile it was in contact with the anterior parietal peritoneum, and pain was set up which was relieved by the shrinking of the gall-bladder and its retraction after the meal.

The fourth component is explained in a similar way by cutaneous radiation occurring from the posterior parietal peritoneum, which later in the attack becomes inflamed. That considerable disturbance does take place in this region is shown by the frequent occurrence of crepitations, and by other evidence of congestion at the base of the right lung.

Morley (1931, p. 28) remarks that while gall-stones do not at all commonly give rise to shoulder-tip pain they are responsible for almost the only reference to it in the surgical textbooks. He adds: "The reason of this is to be found in the confusion that has arisen between the 'shoulder pain' or pain radiating to the angle of the right scapula, which is an almost constant feature of biliary colic, and true shoulder-tip pain due to phrenic stimulation."

I suggest that the pain in the back of the neck and clavicular regions, which I have described as the second component and which has all the features of visceral pain, is an equally likely cause of the confusion. Shoulder-tip pain properly so called does of course arise in biliary disease. Hurst (1934), for example, mentions it as occurring in hepatitis or "bilious attacks." A very interesting light on this problem was shed by a case I observed a few months ago.

The patient, a healthy man aged 36, had a severe attack of epidemic catarrhal jaundice, the source of infection being known, and he also in his turn infected a third person. On the tenth day of his illness, the jaundice being very deep, I casually asked him if he had shoulder-tip pain, and he agreed that he had. On local examination, a striking appearance of the right shoulder presented itself. There was an area of erythema, slightly raised above the surface and dotted with small closely set papules. It was almost circular in outline, and was five inches in diameter, with its centre over the tip of the acromion process (Fig. 5). It corresponded exactly with the area outlined in an illustration in Morley's book (p. 37) showing the area of pain and hyperalgesia in a case of traumatic laceration of the spleen.

It seems justifiable to assume that in the case described a corresponding area of stimulation on the right side was the cause of the pain and its accompanying phenomena—namely, the contact of the inflamed surface of the liver with the central part of the diaphragm. This leads me to the conjecture that shoulder-tip pain in biliary disease is commonly due to concomitant hepatitis. The cutaneous eruption faded in a few days, and I was unable to elicit any marked hyperalgesia over it. Whatever the explanation of the process which had given rise to it, there can be no doubt as to its objectivity, and it seems to me to give support to Morley's views.

It is to be noted that the five components may follow one another in varying order. Thus in one case the first complaint was of pain below the right costal margin of several weeks' duration (third component), and probably attributable to commencing metastatic infection of the gall-bladder. This was followed by slight jaundice and shoulder-tip pain (fifth component), presumably due to hepatitis; and then a few days later by the first and second components, which coincided with attempts by the gall-bladder to expel solid or semi-solid matter which had precipitated by this time.

Summary

The biliary pain complex is split up into five components and explained in the light of current theories. Special reference is made to a variety of visceral pain arising in the bile passages which is not well recognized. Reference is also made to a case of epidemic jaundice in which shoulder-tip pain was associated with a cutaneous eruption.

I am indebted to Mrs. J. M. D. Young for the figures

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The name of the Federal Council of Australian Aerial Medical Services has recently been changed to "Flying Doctor Service." The service has six bases in remote parts of Australia, which keep in touch with about 250 outposts by two-way radio. The cost of upkeep is £21,000, partly financed by the Federal and State Governments and partly by private contributions. The service is at present suffering from shortage of staff because many doctors, pilots, and wireless operators have enlisted.

Medical Memoranda

A Case of Adenocarcinoma of Jejunum

Malignant tumours of the jejunum are not common. Stein (1937) finds that they comprise only 1.3% of all malignant bowel tumours—including the stomach—over a five-year period. A study of 108 cases of malignancy in the small intestine by Chas. W. Mayo (1940) showed that the average age of patients was 52 years. These cases formed 0.7% of all malignant bowel tumours over a period of 33 years. He finds that only 42.4% are resectable and the mortality is 30%. The case here recorded is of interest because of the age of the patient, the lack of bowel symptoms, and the size of the tumour.

CASE RECORD

An Army patient aged 29 was admitted to a medical ward in this hospital in Jan., 1942. He gave a history of pain in the back. It was of an aching character, almost always present, made worse by marching, and relieved by taking a deep breath. The pain had been present for five or six weeks. He had been treated elsewhere four weeks before admission, and had been given tablets, which afforded relief. There was no history of cough or night sweats. He did not know if he had lost weight, but realized he had lost colour. He had vomited twice, but there were no other abdominal symptoms whatever. A mass was discovered in the abdomen, and I was asked to see him on Jan. 20.

Examination showed a very pale man with a slight cyanotic tinge to his mucous membranes. There was a mass to the left of the umbilicus; it was as big as a grapefruit, hard, somewhat irregular, not tender, and could be pushed up until the upper edge was hidden behind the left costal margin. The essentials of the blood picture were: R.B.C. 2,100,000; haemoglobin 45%. I advised transfusion and laparotomy, the provisional diagnosis being malignancy of colon or greater curvature of stomach. A transfusion of 750 c.cm. of blood was given that afternoon (Jan. 20), and the man was transferred to the surgical unit.

Next day a second drip transfusion was given, during operation, which was carried out under gas, oxygen, and ether. A left paramedian incision disclosed a large tumour of the upper jejunum, involving the mesentery to a much greater extent than the bowel. The proximal edge of the tumour was only a few inches from the duodeno-jejunal junction. The mesenteric involvement demanded a wide bowel resection (30 in.): to do this the duodeno-jejunal flexure and part of the third portion of the duodenum were mobilized. Resection and side-to-side anastomosis were performed. On Jan. 23 the red cells numbered 4,600,000, with haemoglobin 80%. The patient was very well despite a productive cough. On Feb. 6 he was up and about.

The pathological report reads: "Sections show an adenocarcinoma, apparently primary in the jejunum, invading deeply into the mesenteric tissues and local lymph glands."

I am indebted to the Department of Health for Scotland for permission to publish this case.

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E M S. Hospital in Scotland.

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Gynaecomastia produced by Desoxycorticosterone Acetate (Doca)

Enlargement of the male breasts during treatment of Addison's disease with "doca" seems to be unrecorded, but it occurred recently in a patient under my care.

A diabetic man of 32, who had lived on insulin for 20 years, developed typical Addison's disease in the autumn of 1941 and a severe crisis in 1942, from which he was rescued by large doses of eschatin salt, etc. Later an unsuccessful attempt was made to substitute doca, and large doses were given. After 15 mg. daily for a week the breasts were perceptibly enlarged, and after 20 mg. for another week much more so. They began to subside 3 days after stopping doca and resuming eschatin, but did not become normal until 2 weeks later. *Pari passu* with this enlargement the patient experienced intense libido, including erections, in spite of extreme debility and the feminine breast manifestations. The latter consisted in considerable general glandular enlargement and slight tenderness, without nipple changes or any sign of lactation. I did not try to reproduce the effect by another course of doca as it caused general oedema. The maintenance dose of cortical extract is 30 c.cm eschatin a day.

Doca has been shown to cause gynaecomastia in mice (*Proc. Soc. exp. Biol.*, N.Y., 1939, **41**, 389), and eschatin (6 c.cm. daily) in one male patient with Addison's disease (*J. Amer. med. Ass.*. 1938, **111**, 412). In my case, however, eschatin alone had no such effect, for when doca was stopped the mammary enlargement disappeared in spite of continuous large doses of eschatin.

R. D. LAWRENCE, M.D., F.R.C.P.

Reviews

ACUTE HEAD INJURIES

Acute Injuries of the Head: Their Diagnosis, Treatment, Complications, and Sequels. By G. F. Rowbotham, B.Sc., F.R.C.S. With a foreword by Norman M. Dott, M B., F R C.S.Ed. (Pp. 288; illustrated. 25s., plus 7d. postage) Edinburgh: E. and S. Livingstone. 1942.

This book should rank high among monographs on head injury. It is written in a direct and practical way, primarily for those responsible for the early treatment of head injuries—that is to say, for surgeons and general practitioners who have had no special training in neurology or neurosurgery; and thus, in an attempt to supply the necessary background, the author has included much information of a general kind on such subjects as cerebral localization, radiographic methods, and neurosurgical technique. The main sections of the book deal with pathology, diagnosis, and treatment of head injuries, but there are also chapters on the dynamics and on the sequels of head injury. Mr. Rowbotham was well qualified to write this book: first with Prof. Geoffrey Jefferson, to whom the book is appropriately dedicated, and then in his own clinic at Newcastle, he has personally dealt with over 1,000 cases of head injury. That his experience has been comprehensive may be judged from the fact that he reports observations on 200 patients unconscious after head injury, and 500 cases of the post-concussional syndrome, as well as on gunshot wounds and air-raid casualties.

Of the need for a book of this kind at the present time there can be no possible doubt. From the figures which Mr. Rowbotham gives it is not improbable that head injuries in this country amount to well over 100,000 a year. The majority of these are, and must continue to be, treated from first to last by general practitioners and general surgeons, and, as the war has revealed, the treatment provided has been not infrequently at fault, especially the manner of repair of open wounds and the management of convalescence. This book provides sound and detailed instruction in the diagnosis and treatment of acute head injury, with admirable hints on the nursing problems; and the picture is not obscured, as so often it was in the past, by attempts on the part of the writer to link the symptoms with hypothetical pathological events. The instructions for treating shock, and examining for injuries in other parts of the body before attempting to treat the head wound, are just what the surgeon dealing with accidents requires. For severe head injuries, with certain reservations, the author favours moderate dehydration, though the figures he quotes to support active surgical measures—such as dehydration, spinal drainage, or decompression—are without statistical significance. Apart from repair of head wounds, operation is only required in a very small proportion of the cases, and the detailed description of the operation of subtemporal decompression seems rather unnecessary in view of the fact that Mr. Rowbotham performed it only 5 times in his 1,000 acute cases. It is also open to question whether the general surgeon is qualified or equipped to perform the operation.

In the section devoted to the sequels of head injury there is a comprehensive and sympathetic account of the factors which interfere with the patient's adjustment to his accident. The author has very definite ideas about the causes of post-traumatic headache and dizziness: he believes that they are mostly organic in origin, but he recognizes also that they are subject to psychological influences, and that in each case there is an interplay of the functional and the organic. There is much useful information on the compensation aspect of head injuries, but the reader is perhaps left with an unduly gloomy view of the late results of head injury. There is too little indication of the fact that by far the most common sequel of head injury is early return to work and, in spite of occasional headaches, a fairly rapid recovery of previous working capacity. Failure to recognize this fact handicaps the doctor considerably in the after-treatment of head injuries.

The subject of head injuries is a complicated one, and Mr. Rowbotham has not sought to over-simplify. He has produced a well-printed and well-illustrated book which will act as a guide and stimulus to all who deal with the immediate and remote effects of head injury. In the words of Mr. Norman Dott, who writes a foreword, Mr. Rowbotham shows "a wide grasp of the problems raised by brain injury—neurological, psychiatric, and social, as well as surgical."

MEDICAL ASPECTS OF WORKMEN'S COMPENSATION

Workmen's Compensation and the Physician. A Manual for the Use of General Practitioners and Insurance Carriers. By Henry H. Jordan, M.D. With a Discussion of Traumatic Neuroses by Paul H. Hoch, M.D. (Pp 180. 16s.) London, New York, and Toronto: Oxford University Press. 1941.

No volume similar to this has yet been written in the United Kingdom, probably because the medical profession have not hitherto regarded workmen's compensation as the important branch of medicine which it is. Dr. Jordan has spent twenty years at this work, partly in charge of a clinic for injured workmen and partly as a medical referee, and has drawn upon an experience of over 30,000 compensation cases. He felt the need in the United States for a small book which would tell the general practitioner and the insurance carrier the basic principles of the treatment of "compensable injuries." It stresses the peculiar problems which arise when a workman, as distinct from an ordinary patient, suffers from an injury. The author therefore deals, concisely but most usefully, with such questions as causal relation between injury and disability, the aggravation of pre-existing disease, expert opinion, and the evaluation of disability. After some sound practical advice on the first examination of the injured employee, he discusses treatment in the consulting room and the home, admission to hospital, and treatment by specialists. He devotes a special section to *x*-ray examination, the interpretation of findings and expert opinion, common causes of diagnostic errors, and the postulates which should protect the doctor against them. Other chapters deal with physical therapy and orthopaedic appliances, and Dr. Hoch's section on traumatic neuroses is a useful introduction to this difficult subject.

The book is short, and does not purport to be more than a condensed guide. As such it may be warmly recommended to every practitioner who is called upon to act in these cases. The reader may, however, hope that Dr. Jordan will some day write a far fuller treatise on the subjects which he here outlines so ably.

A MIDWIFERY TEXTBOOK

Midwifery. By Ten Teachers. Under the direction of Clifford White, M.D., M.S. Edited by Sir Comyns Berkeley, Clifford White, and William Gilliatt. Seventh edition. (Pp. 562; illustrated. 18s.) London: Edward Arnold. 1942.

Time and the war have brought changes to the distinguished list of contributors to this excellent little textbook. One of the original ten, Dr. Barris, has been replaced by Mr. John Beattie, and Major (now Colonel) Frank Cook has been temporarily replaced on the editorial staff by Mr. Gilliatt. The book has been thoroughly revised and greatly improved, but reduced in size. From cover to cover it is full of concise and sound obstetrical teaching. Emphasis is placed on the value of Caesarean section in the treatment of placenta praevia, but the student is reminded that good results can be obtained only if adequate facilities and skilled assistance are available. In discussing abnormal uterine action the authors now use the phrase "tonic retraction" in place of "tonic contraction"—a useful change, but one that will be disputed by some teachers. The suggestion that 5 to 10 units of pitocin should be injected into the uterus before the delivery of the child in lower-segment Caesarean section has little to commend it: the practice can make an easy operation difficult and even result in foetal death. The new edition will maintain the popularity of its predecessor.

Notes on Books

For years past Dr. T. WILSON PARRY has pleased his friends by sending them at Christmas a copy of his latest verse, usually in sonnet form. He has now published some of these, with additional pieces, in a pamphlet, *The Spirit of "This England"* (The Mitre Press, Mitre Street, E.C.3), which well represents his feeling for beauty and for metre.

The appearance of a third edition of Dr. BRADFORD HILL'S *Principles of Medical Statistics* (published by the Lancet Limited at 7s. 6d.) is evidence that, even in wartime, scientific education continues. The present does not differ substantially from the second edition, and we need not repeat in detail what was said in an earlier notice. We congratulate both Dr. Hill and his readers on a notable success.

Science and World Order is the title of a 9d. Penguin Special in which J. G. Crowther, O. J. R. Howarth, and D. P. Riley use as their raw material the communications made by a number of speakers at the conference on that subject held under the auspices of the British Association in September, 1941. The text has been prepared with the authority of the Council of the Association, and it includes chapters on science and government, world resources, health and food, post-war relief, and science and world planning. The chapter on health and food quotes in particular from Sir John Orr's address to the conference.

The *Fifth Supplement to the British Pharmaceutical Codex, 1934,* contains a number of additions and amendments to monographs and a cumulative index to the five Supplements. The amendments include changes in the formulae for preparations in which quinine is not regarded as an essential constituent, in accordance with recommendations of the Therapeutic Requirements Committee of the Medical Research Council. This Supplement like its predecessors, is published by the Pharmaceutical Press, for the Council of the Pharmaceutical Society of Great Britain, and the price is 2s. 6d.

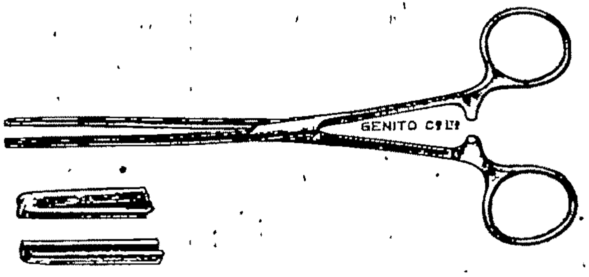
Preparations and Appliances

CLAMPS FOR ABDOMINAL SURGERY

Mr. D. LANG STEVENSON, F.R.C.S., surgeon to the Oldchurch County Hospital, writes:

As I have found a pair of small clamps made for me by Mr. Schranz of the Genito-Urinary Manufacturing Company to be of considerable value in gastro-intestinal surgery, a brief description of their use may be of interest to other surgeons.

The clamp, which is here illustrated, is 8 in. long with a blade length of 3½ in. The closed blades on the flat taper from 1/4 in. to 1/8 in. at the tips, whilst on the opposite aspect they have a uniform width of about 1/8 in.



The clamp combines to an unusual degree the advantages of lightness, slenderness, and strength. Gut is held securely in the bite of the narrow blades by means of a single deep longitudinal groove in one of them and a corresponding ridge on the other. In these respects this clamp excels any other that I have seen designed for the same purpose. With the extreme cut edge of stomach or intestine in the control of the clamp a clean and bloodless closure or anastomosis is greatly facilitated.

Some of the numerous instances in which these instruments have proved their usefulness in simplifying and perfecting technical procedures in gastro-intestinal surgery are closure of the duodenal stump in gastrectomy; aseptic anastomosis after resection of bowel, or for the accomplishment of cholecystenterostomy; and closure of colostomies or intestinal fistulae.

SULPHANILAMIDE FOR LOCAL APPLICATION

Attention has been drawn recently to the risk of anaerobic infection from locally applied sulphonamides. To obviate this risk a sterile preparation of sulphanilamide is now issued by Burroughs Wellcome & Co. as "Wellcome" brand sterilized sulphanilamide compound, a free-flowing mobile powder consisting of finely divided sulphanilamide with 5% of zinc oxide; the latter is to facilitate complete sterilization without aggregation of the sulphanilamide particles, and also to retard absorption of the compound from the site of application and thus prolong the local chemotherapeutic action. The product is issued in bottles of 15 grammes.

BRITISH STANDARD HAEMOGLOBINOMETER

A new British Standard specification for haemoglobinometers (Haldane type), No. 1079/1942, has been published, and copies are obtainable from the British Standards Institution, Publications Department, 28, Victoria Street, London, S.W.1, price 2s. (2s. 3d. post free).

Hitherto there have been inconsistencies between colour tubes. Further, in the Haldane method as practised an inconvenience is that neither colour tubes nor graduated tubes are fully interchangeable but have to be matched up so that colour tubes are only used with graduated tubes of the same internal diameter. The new standard defines the colour tubes on the trichromatic scheme adopted by the International Commission on Illumination in 1931. This provides a permanent definition of the tubes and makes possible the rapid verification of any individual tube. Further, all colour tubes complying with the specification are interchangeable with each other There are provisions which ensure the interchangeability of the graduated tubes, so that any graduated tube complying with the specification may be used in conjunction with any standard colour tube.

There is evidence that the new standard colour tubes are in close agreement with Haldane's original standard; the use of the new standard does not call for any change in technique in testing a sample of blood; and the manufacture of tubes to comply with the specification does not complicate, but in some ways simplifies, the method of production Hence with the minimum departure from current practice the new standard will enable different workers to obtain results on a more strictly comparable basis than has hitherto been possible.

The National Physical Laboratory is prepared to accept haemoglobinometer colour tubes and graduated tubes for examination for conformity with the British Standard specification. Besides examining tubes definitely made to comply with the specification, the N.P.L. will accept from users tubes which have already been employed in the examination of blood samples and report how far they depart from the new standard. Full particulars of the tests and the fees charged may be had from the Director, National Physical Laboratory, Teddington, Middlesex

CANCER RESEARCH IN SOUTH AMERICA

A detailed account of the activities of the Institute of Experimental Medicine (for the study and treatment of cancer), Buenos Aires, is given in a recently published volume[1] of 921 pages. The *Boletin* is issued periodically and is devoted primarily to the work carried out under the direction of Prof. Angel H. Roffo, whose contributions to the study of the cancer problem are widely known. It includes several original papers and notes by Prof. Roffo and his colleagues, and also contributions from other S. American workers, and gives an impressive picture of the work being developed in this field in the S. American countries, particularly Argentina. That the clinical and social aspects of cancer are not neglected is clearly demonstrated by the statistics and other data in this volume.

Prof. Roffo's own paper on "experimental gastric carcinoma induced by ingestion of fuel-oil distillates" is a suggestive contribution to the theory that the products of combustion of petrol may be a factor in the production of cancer in town-dwellers. The paper is illustrated by 19 photographs and 44 photomicrographs, all of which are excellently reproduced. Two notes by Prof. Roffo's son—"CO in Patients with Carcinomata" and "Induced Radio-activity"—are followed by another work on maxillary tumours by Prof. Roffo and Dr. del Giudice, and an account is given of the surgical treatment of carcinoma of the penis, based on 350 cases admitted to the Institute from 1936 to 1940. Dr. A. Carini from São Paulo (Brazil) contributes a note on a spontaneous carcinoma in the skin of a rabbit with metastasis in the lungs, and Drs. G. Gonzalez and J. Boggino from the Faculty of Medicine of Asunción (Paraguay) describe a case of plasmocytoma or plasmocytosarcoma of the ribs, diagnosed by biopsy. Several other interesting contributions by Paraguayan doctors are also included. All papers are well illustrated. Rather more than 100 pages at the end of the volume are devoted to the affairs of the Institute, in which 1,780 patients were seen during the second quarter of 1941, while during the same period 237 surgical operations were performed and no fewer than 11,760 treatments with radiation were given. Books, reports, and papers received from several countries by the Institute are also briefly reviewed, and include the *Annual Reports* of the British Empire Cancer Campaign and the Imperial Cancer Research Fund.

OPHTHALMOLOGY AND SOCIOLOGY

In a suggestive paper[1] Prof. Arnold Loewenstein of Prague, now working at the Tennent Institute of Ophthalmology of Glasgow University, says it is often asked: "how to prevent blindness"; he would rather put the question thus: "how to preserve the eyesight." Everywhere in modern medicine prophylaxis is more highly valued than healing—the path of medical development runs clearly on these lines. Discussing the main causes of blindness, he then suggests means of prevention. It is not easy to prevent hereditary disease or defects. He suggests that districts might have advisory offices for engaged couples, where they could get guidance. He thinks a good film on hereditary diseases might be more interesting than the best detective thriller. With regard to blindness caused by venereal disease the statistics for the whole world prove that this is rapidly decreasing; parental treatment is now well established, and the treatment is distinctly successful. Injuries, especially in industrial countries, are the greatest modern problem; prevention of such damage is not only humane but profitable. Prof. Loewenstein writes: "A great number of the eye injuries in the workshops are due to defective illumination, and at least 15% of all eye injuries are caused by insufficient lighting. One firm installed modern and expensive light fittings and reduced the frequency of the accidents by 7%. Further, industrial efficiency depends upon good vision. Three protective techniques are required: (1) control of toxic materials, gases, dusts, and vapours; (2) use of protective goggles against flying objects and radiant energy; (3) provision of adequate illumination." In his final section he stresses the need for more being done to provide careful teaching of ophthalmology in the medical schools. The nation cannot allow such a training to depend on chance. With a good scheme in operation the nation would soon have a great stock of good eye surgeons to combat blindness and fight the battle for the sight of the rising generation

PATHOLOGICAL SERVICE OF THE L.C.C.

A series of lectures and demonstrations were given on Dec. 2 at the L.C.C. Group Laboratory at Lambeth Hospital to pathologists and consultants of the Royal Canadian Army Medical Corps and the United States Army Medical Corps. Among the visitors were Col. J. A. Macfarlane and Col. L. C. Montgomery, *M.C.*, respectively consulting surgeon and consulting physician to the Canadian Forces, and Lieut.-Col. M. H. Brown, Assistant Director of Hygiene, Canadian Forces; with the American pathologists was Major Ralph Muckenfuss, now in charge of the U.S.A. General Medical Laboratory "A." The visitors were welcomed by Dr. Andrew Topping, deputy medical officer of health, and in the morning short papers were read by Major J. E. McCartney, R.A.M.C., Drs. Robert Cruickshank, W. W. Kay, and R. F. L. Hewlett. The work of the council's hospital service with 35,000 beds for acute and chronic sick and 30,000 for mental diseases, and of its pathological service with its 28 pathologists and assistant pathologists and 105 laboratory technicians, was described. At lunch the visitors were joined by the clerk of the L.C.C., Mr. E. C. H. Salmon, and the medical officer of health, Dr. W. Allen Daley, both of whom welcomed the guests. In the afternoon the council's pathologists and their staffs demonstrated their work, including culture media, leptospiral and salmonella infections, liver function tests, blast and crush injuries, malignant cells in sputum, sternal puncture, estimation of sulphonamides, Neisseria and haemophilus infections, typing of streptococci, diagnosis of intestinal infections and use of desoxycholate medium, diphtheria diagnosis, antistreptolysin titration, etc. The object of the meeting was not only to demonstrate pathological work in Britain to Canadian and American colleagues but to bring the pathologists together and obtain the understanding and co-operation that can only be acquired by personal contact and discussion. From the remarks of the visitors it was evident the meeting was a great success, and it is to be hoped that this is only the first of its kind between British pathologists and those of the Dominions and our Allies.

The Famine Relief Committee (Drayton House, Gordon Street, W.C.1) has issued under the title "Food Conditions in Europe" a leaflet (price 3d.) on the effect of war and blockade on people in German-controlled countries, with a foreword by the Bishop of Chichester. The objects of the committee are to obtain authentic information as to food conditions, and to promote schemes for sending food, vitamins, and medical aid into German-controlled or invaded countries, wherever control is possible in co-operation with existing organizations.

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[1] *Bol. Inst. Med. exp.* (para el estudio y tratamiento de cancer), 1941 18, No. 57. Buenos Aires.

[1] *Bulletin of the Czechoslovak Medical Association in Great Britain*, No. 3, 1942

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THE CONTROL OF DIPHTHERIA

One of the best-established facts in applied immunology is the usefulness of antitoxic serum in the treatment of diphtheria. The main, if not the only, reason for failure in certain clinical cases is that serum is not given early enough to be effective. This may be because the patient's relatives summon the doctor, too late. Sometimes there is a delay in diagnosis. This is not always the fault of the medical man, for membrane formation in early cases of *gravis* diphtheria may be inconspicuous or absent, leading to a diagnosis of tonsillitis or quinsy. This is particularly unfortunate, because *gravis* and *intermedius* cases sometimes progress rapidly to a fatal end; promptness in giving serum makes all the difference between early recovery and prolonged illness or death.

Modern enzyme-treated sera are of higher unitage per c.cm. and of greater purity than the older unconcentrated and sulphate-precipitated ("concentrated") sera, and larger doses can be given without much risk of serum sickness. There has, however, been no striking improvement in clinical efficacy; indeed, it is sometimes stated that the sera now marketed lack some essential constituent. Although it has been suggested that the newer process of enzyme treatment might eliminate something of value that was formerly retained, the consensus is that these sera are satisfactory.[1] In view of the doubts expressed, however, it is right to ask whether antitoxic serum can be improved and, if so, along what lines. There is evidence that avid sera might be more useful than non-avid, and, although manufacturers may avoid issuing definitely non-avid sera, it is not at present practicable for them to issue sera of uniformly high avidity. Few horses now contain much "natural" antitoxin, and this appears to be correlated with the finding that only a minority produce exceptionally avid antitoxin; these avid sera are blended with many others of average avidity and are then concentrated. If the best sera were excluded from the pool and issued separately their cost would be prohibitive and the level of avidity of all other sera issued commercially would fall.

Is the antigen used for the immunization of horses the best attainable? We know that the content of specific toxin or toxoid in the filtrates commonly injected is higher than it was some years ago, but high potency and specific antigenicity are not necessarily correlated, and competing antigens (broth constituents, etc.) may "crowd out" the required response and affect some quality of the antigen or suppress the formation of some other antibody. Is sufficient attention paid to the "antibacterial" property of serum? Let us admit at the outset that little is known about the use and testing of antibacterial serum, and that even definitions are nebulous, for the word "antibacterial" still provokes discussion among immunologists. The presence of agglutinins and precipitins in a serum might lead some authorities to claim that it is antibacterial, whereas others would restrict the term to serum capable of destroying organisms *in vivo*. Huang[2] of Peking has recently directed attention to an antibacterial property in diphtheria antitoxic serum, which is universally prepared from the Park 8 strain. Organisms of the same serological type as Park 8 disappeared rapidly from the throats of patients during the first two weeks of treatment; organisms of all other types disappeared more slowly. The death rate of patients infected with strains of the same serological type as Park 8, who were of course treated with homologous serum, was not any lower than that of other patients. The author attempts to explain this finding on the basis that practically all the deaths in his series were from laryngeal involvement, and that the antibacterial property of the serum might also be masked by the absence of bacteriaemia, and by the important part the toxin plays in the causation of the disease. There are many other points of interest in Huang's papers which await investigation by other workers. Agglutinins were passively transferred by antitoxic treatment, but these were of the Park 8 serological type, tended to disappear rapidly, and did not interfere with the recognition of agglutinins due to active immunity to the infecting type which developed later. It is not always possible to obtain positive cultures from cases of clinical diphtheria, and Huang records a laryngeal case with only one positive culture during convalescence in which agglutination tests clinched the diagnosis. No agglutinins were found in the acute stage, but the specific agglutinins which appeared during convalescence were of the same type as the organism isolated at this period. Altogether cultures from 268 cases of clinical diphtheria were investigated, among which 8 main serological types of organism were identified. Unlike Okell,[3] Huang could find no evidence for the transformation of virulent into avirulent organisms of the same type in the throat. With the exception of one type, which comprised *gravis* and *intermedius* strains, all of Huang's 8 main types were *mitis*. Thus, *gravis* and *intermedius* types, which are mainly responsible for severe diphtheria in this country, did not come within the scope of Huang's research on antibacterial serum. Be that as it may, we cannot feel confident that this work will have practical clinical application, because it would be necessary to prepare antisera for many serological types of *C. diphtheriae* and have these products available for early use in conjunction with some rapid typing method not yet devised. Again, in the treatment of carriers local chemotherapy should be more generally useful than type-specific serum.

In the safeguarding of contacts Phair and Root[4] recommend simultaneous injection of prophylactic antitoxin and alum-precipitated toxoid. Their work, which was entirely with guinea-pigs, supports the careful studies of Downie and his colleagues[5] on human subjects in this country. Phair[6] also explored the use of an extremely delicate biological method for the further investigation of strains of doubtful virulence. When guinea-pigs were prepared beforehand by a "priming" stimulus, the subcutaneous injection of a minute amount of toxin, toxoid, or culture filtrate of a virulent diphtheria strain led to a definite increase in circulating antitoxin ("secondary stimulus response"). The filtrate of one strain which was regarded as avirulent gave a suggestive increase in titre which may have been due to a minute amount of toxin in the filtrate; in this instance it was impossible to conclude definitely that the strain was really one of low virulence. Another American contribution to the control of diphtheria is the use of chicks in testing for virulence. Frobisher, Parsons, and T'ung[7] injected Plymouth Rock chicks from 7 to 20 days old with 0.5 c.cm. to 1 c.cm. subcutaneous doses of 48-hour broth cultures of strains of *C. diphtheriae* and found excellent agreement (99.7%) with the results previously obtained in rabbits. Perhaps the method might find some application in this country, where the quality of guinea-pigs and other laboratory animals for virulence and other tests is poor; it is unfortunate that there is no national scheme for the large-scale breeding of healthy stocks.

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[1] *British Medical Journal*, 1942, 1, 733.

[2] *Amer J Hyg.*, 1942, **35**, 317 325.

[3] *J. Hyg.*, Camb., 1930, **29**, 309.

[4] *Amer. J Hyg.*, 1942, **35**, 377.

[5] *British Medical Journal*, 1941, **2**, 717, 759.

[6] *Amer. J. Hyg.*, 1942, **35**, 386.

[7] Ibid., p. 381.

No review of recent work on diphtheria control would be complete without emphasizing the clinical application of laboratory experience of administration of biological products. In treating an acute infection like diphtheria, where time is valuable, the intravenous route has the great advantage that a given dose of serum is made instantly effective, whereas many times this dose injected intramuscularly is followed by a useful blood concentration only after the lapse of some time. Even 48 hours after intramuscular injection the level of demonstrable circulating antitoxin, which is usually the peak level, is only half the concentration attained at the outset by intravenous injection of the same dose. The conclusion of the laboratory worker is that there would be fewer failures in serum therapy if clinicians would decide quickly on the number of units the acute case is likely to require and give as much as possible intravenously. With regard to diphtheria prophylaxis, the first dose should contain a useful amount of antigen; 0.2 c.cm. (10 Lf. units) of the A.P.T. now available in this country would meet this requirement. The second dose may be very small (Glenny[8]) if the first dose has paved the way for a "secondary stimulus response." As only a limited number of persons are sufficiently "primed" by the first dose, it is advisable to give a relatively large second dose—namely, 0.5 c.cm. The interval between doses of A.P.T. should be long, preferably four weeks, a recommendation adopted by the Ministry of Health. A third dose after a long interval, say one year, usually produces an even more rapid and extensive rise in circulating antibody. Indeed, the advantages of periodic restimulation by "re-call" or "boosting" doses should never be overlooked in active immunization, not only against diphtheria but also against other bacterial diseases, such as the enteric fevers and tetanus.

DIETETICS OF PREGNANCY

At a time when millions of the world's adults are concentrating their efforts on killing as many other adults as possible, it is a curious paradox that medical and nutritional attention should be directed more intently than usual to the insistent problem of saving neonatal and infant lives. Yet the comprehensive review by Huggett[9] on the nutrition of the foetus, the subject of "Diet in Pregnancy" chosen by W. C. W. Nixon for the Blair-Bell Memorial Lecture,[10] and recent highly significant "field" experiments all point to an awakened interest in those processes of nutrition that bear on the health of the human organism during the period of six months to twenty months after the act of fertilization. Huggett's survey of the profound and rapid changes that take place during the last three months of gestation makes a sound physiological background for the demand, now almost universally supported, that these months of foetal life should be regarded for rationing purposes as those of an independent organism. The close connexion between diet and the hazards of pregnancy is further emphasized in the recent paper by Nixon, Wright, and Fieller,[11] who find a highly probable correlation between sub-optimal intakes of aneurin and the incidence of oedema and pregnancy toxaemia. A recent study by Williams and Fralin[12] has confirmed for the pregnant women of Philadelphia what Orr, M'Gonigle, and many others have shown for non-pregnant adults in this country and in the U.S.A.—that there is a progressively increasing intake of certain nutrients, specifically those found in the protective foods, as income rises. Their subjects, according to their own statement, failed to demonstrate "any positive relationship between dietary adequacy and the occurrence of certain complications of pregnancy and childbirth"; yet this is not altogether consistent with their observation that "84% of a group who presented a history of nausea and vomiting in early pregnancy had an intake below the pregnancy standard of 600 units of vitamin B_1." It must be noted, moreover, that of their 514 cases only 10 were receiving diets that "could be termed good," so that positive controls were largely lacking in this investigation.

A different and clearer picture is shown by the study made in Toronto by Ebbs, Tisdall, Scott, Moyle, and Bell,[13 14 15] who set out to "determine the effect of poor and good pre-natal diets upon the outcome of pregnancy and condition of infant during the first months of life." The investigation comprised only those patients who had not completed six months of pregnancy, and who agreed to be confined in the Toronto General Hospital They were divided into three groups. 120 women formed the "poor-diet group." The second group was made up of 90 women "who had been on an equally poor diet as the first group until the 4th or 5th month of pregnancy, and whose diet was then specially supplemented," the fund for this being provided by a Toronto business man. The third group, of 170 women, were found to be on "moderately good" diets, and to have enough money to provide a "good diet" if given advice. The Toronto workers aimed at giving daily the following amounts of essential foods: 40 oz. milk, 1 oz. cheese, 1 egg, "an average serving" of butter and meat, two servings of vegetables in addition to potato, 1 orange or half a grapefruit or 5 oz. of tomato juice, one half of the cereals and bread consumed to be in whole-grain form, and 2 teaspoonfuls of cod-liver oil or equivalent in concentrate; liver once a week; salt to be iodized, and medicinal iron to be used if indicated; 2 tablespoonfuls of wheat-germ daily were also advised. "Past history" showed that those patients on a poor diet had a much higher incidence of previous obstetrical complications than those on a good diet. Some of the end-results of the Toronto experiment were as follows: In the poor-diet group there was threatened miscarriage in 8.4%, in 1.1% of the group receiving a supplementary ration, and in 2.4% of the good-diet group; there was actual miscarriage in 6% on a poor diet, none in the group receiving supplementary ration, and 1.2% in those on the good diet. For the three groups in the same order there was premature birth in 8%, 2.2%, and 3%; stillbirth in 3.4%, 0%, and 0.6%; and toxaemia in 7.6%, 3.4%, and 3%. The average haemoglobin values at term were: in the poor-diet group 11.5 g., in the group receiving supplementary ration 12.1 g., and in the good-diet group 11.9 g. The average birth weight of the babies born to mothers of the poor-diet group, the supplementary group, and the good-diet group, respectively, were 7 lb. 10 oz., 7 lb. 7 oz., and 7 lb. 6½ oz. The authors intend to follow the progress of the babies in these three different groups in order to determine whether the pre-natal diet has any effect on their development. They give a brief summary of their observation on the first 250 babies up to the age of 6 months. Breast-feeding whilst in hospital was carried out by 81% in the poor-diet group, 95% in the supplementary diet group, and 88% in the good-diet group; 6 weeks after birth these figures had changed to 59, 86, and 71 respectively. In the first 6 months 3 babies from the poor-diet group had died, and none had died in the other two. In the poor-diet group 21% had frequent colds, the percentage being 4.7 in each of the other two; the corresponding figures for pneumonia were 5.5, 0.5, and 0.9. Rickets was observed in 5.5% of the infants in the poor-diet group, none of the supplementary diet group, and 0.9% of the good-diet group. Anaemia was present in 25% of the poor-diet group, 9.4% of the supplementary diet group, and 17.1% of the good-diet group. The authors' conclusion that mothers on a good or supplemented diet had better health and fewer complications and were better obstetrical risks than those left on the poor pre-natal diets seems to be fully justified, as does their observation that the health of infants was poorer in the poor-diet group. They observe that "in a large proportion one could tell the diet group of the mother by looking at her baby."

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[8] Verbal communication, Section of Comparative Medicine, Royal Society of Medicine, so far unpublished.

[9] *Physiol. Rev.*, 1941, **21**, 438.

[10] *British Medical Journal*, 1941, **2**, 703

[11] *British Medical Journal*, 1942, **1**, 605.

[12] *Amer. J Obstet. Gynec*, 1942, **43**, 1.

[13] *J. Nutrit.*, 1941, **22**, 515

[14] *Canad med. Ass J.*, 1942, **46**, 1.

[15] Ibid., p. 6.

The Toronto experiment receives support from the results of an investigation carried out under the auspices of the People's League of Health[16] from March, 1938, to the end of 1939. The matter investigated was the effect on the course of pregnancy and labour and on the newborn child of a vitamin and mineral supplement to the daily diet. Out of 5,022 women, 1,000 gave a record of food normally eaten in one week. From this evidence it appeared that 70% were not taking enough calcium and 98% not enough iron. Vitamin A deficiency was common, and some 50% were not taking enough vitamin C. The women were given supplements of iron, calcium, iodine, manganese, and copper, and of vitamins A, B complex, C, and D. The toxaemia rate among 1,530 primigravidae on the supplemented diet was 27.1%, as against 31.7% among 1,512 primigravidae in a control group. On this basis, and with an average of 600,000 births yearly in England and Wales, the saving of 10,000 cases of toxaemia could be effected yearly by dietetic means alone. It was also found that premature birth was less frequent among primigravidae on the supplemented diet than in the control group.

Many of those who are interested in these problems—and probably some who have taken part in the work outlined above—will doubtless be present at a symposium that bears very closely on the matter and is being arranged by the Nutrition Society on "Diet in Pregnancy" for an early date in the New Year, when we may expect further light to be shed on some of the many still obscure points.

INFLUENZA PREVENTION

If the concerted attack now being made on air as a vehicle of infection succeeds in its aim, perhaps the greatest benefit achieved will be the prevention of acute catarrhal infections of the air passages. Although other air-borne infections may be more serious, none causes more inconvenience and disability, for no other produces illness on such a scale or recurs with such frequency. That some of the methods recently evolved can actually disinfect an atmosphere laden with the virus of influenza and so prevent its spread is proved by the experiments of J. Stokes and W. Henle.[17] These were conducted in an infants' ward divided into sixteen cubicles, where the patients were replaced by mice. Suspensions of highly mouse-virulent influenza A virus were atomized in this room, and in a control experiment every one of 70 mice exposed in different parts of the ward died with influenzal lesions. Atomization of virus was carried out for the same period with ultra-violet light irradiating the whole of the upper air of the ward and directed as a barrier across the entrance to each cubicle: the only mice dying in this experiment were three of those in the cubicle containing the atomizer, some of the mice in adjoining cubicles having non-fatal influenzal lung lesions. In a third experiment propylene glycol was vaporized to give an air concentration of between 1 in 2,000,000 and 1 in 4,000,000: all the mice survived, and only 3 which had been in the same cubicle as the atomizer showed influenzal lesions when killed. Although it is well recognized that ultra-violet light will destroy influenza virus, this is the first evidence, so far as we know, that propylene glycol will do so, and the evidence has been obtained in a highly significant form, under conditions which enable this conclusion to be translated directly into practice. The authors have also been able to test the efficacy of propylene glycol in practice: a concentration of about 1 in 30,000,000 was maintained in the air of a children's ward for seven weeks in mid-winter, and during this time the incidence of respiratory infections fell almost to *nil*. It should be recollected that propylene glycol vapour is imperceptible and presumably quite harmless, since the liquid itself can be swallowed in quantity without ill effects. The very encouraging observations reported by these authors include an experiment in which human volunteers, some of whom had been given influenza virus vaccine, inhaled through aviation oxygen masks an atomized suspension of influenza virus recently isolated from a fatal case. Of the controls 35% and of the vaccinated only 3% developed clinical influenza. The longest interval between vaccination and exposure was only 18 weeks, and this may perhaps explain the efficacy of the protection afforded; the balance of evidence, as we pointed out recently,[18] is unfavourable to this method. Of the three proceedings studied, aerial disinfection by means of propylene glycol appears to be the simplest and perhaps the most successful; unless it should prove to have unexpected drawbacks it should have a wide field of application, particularly in hospitals and possibly elsewhere.

LYMPHOPATHIA VENEREUM

The diagnosis of this disease, often known in this country as lymphogranuloma inguinale (synonyms—climatic bubo, poradenitis, Nicholas-Favre disease), presents considerable difficulties, because the initial lesion is evanescent and, in fact, usually overlooked, while inguinal adenitis may be due to a variety of conditions. There can be little doubt that lymphopathia venereum is far commoner than has been realized, more especially in tropical and sub-tropical countries and in parts of the U.S.A., where it is particularly frequent among negroes. Hitherto most venereologists have relied on the intracutaneous test of Frei[19]: Frei's antigen, made from human bubo pus, has proved highly specific, but the supply, for obvious reasons, is difficult to obtain and maintain. Recently antigens have been made from the brains of infected mice, but these have not proved entirely satisfactory. More recently still it has been found that the virus of lymphopathia venereum can be grown on the chorio-allantoic membrane of the developing chick embryo, and from this source an antigen known as "lygranum" has been obtained which is free from many of the objections raised against the other two.

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[16] *British Medical Journal*, 1942, **2**, 77.
[17] *J. Amer. med. Ass.*, 1942, **120**, 16
[18] *British Medical Journal*, 1942, **2**, 547.
[19] *Klin. Wschr.*, 1925, **4**, 2148.

Lygranum is essentially a saline suspension rich in virus elementary bodies prepared from chick embryos; it is freed from most of the tissue constituents by differential centrifugation and is formalinized to inactivate the virus. It can be used either for the skin test or for serum complement-fixation. For use in both it is standardized by dilution to a strength which is found to give a positive reaction in known cases of lymphopathia venereum and a negative one in normal persons. Control material is prepared from normal chick embryos. The skin test is performed by injecting 0.1 c.cm. of lygranum into the skin. Readings are taken at 48 and 72 hours, and, if necessary, again at the end of a week; a positive result is indicated by a papule not less than 7×7 mm., and a negative by one less than 5×5 mm. A papule intermediate between these two is considered doubtfully positive. Shaffer, Rake, and Grace,[20] and Axelrod[21] found lygranum to be both highly sensitive and specific for skin tests; it was at least equal to human pus antigen and superior to that prepared from infected mouse-brain.

Results with the three forms of antigen were as follows: In 106 persons diagnosed as having lymphopathia venereum lygranum gave 96 positive, 3 doubtful, and 7 negative results; with mouse-brain antigen there were 78 positive, 9 doubtful, and 19 negative reactions. In 42 of the above cases human pus antigen gave 38 positive, 1 doubtful, and 3 negative reactions. Shaffer and his colleagues also found lygranum to be most satisfactory in the complement-fixation test; in 115 persons diagnosed as having lymphopathia venereum the sera of 113 gave definite positive reactions; the two failures occurred in cases of rectal stricture which were also Frei-negative. The interesting observation is made that skin sensitivity often disappears after sulphanilamide therapy and that apparently the disease is not passed from mother to child *in utero*. Another interesting observation is that in 70 persons, either normal or suffering from diseases other than venereal, positive results were obtained by complement-fixation tests in 6 and negative ones in 64, while of 60 persons suffering from venereal disease 31 gave positive and 29 negative results. From this it is concluded that infection with the virus of lymphopathia venereum is often acquired at the same time as other forms of venereal disease.

There can be little doubt that lygranum possesses many advantages over other forms of antigen for skin tests. It is both highly sensitive and specific; it is obtainable in bulk and is not dependent on supplies of human pus; moreover, it constitutes an antigen for use in skin and complement-fixation tests more efficient than any hitherto produced. The intravenous use of chick-embryo antigen is said to give unsatisfactory results as compared with mouse-brain antigen,[22] but few venereologists employ this route.

SUPPLIES FOR PATHOLOGICAL LABORATORIES

One of the many ways in which the health services of the London County Council are assisting the war effort is the subject of a recent report. The comprehensive pathological service provided by the L.C.C. for several years past has greatly extended since the war began and has become the basis of a national system for the supply of material essential to the maintenance of the laboratories of the Ministry of Health and of the Army. The Council quite early adopted a centralized system for the purchase of laboratory requisites and the manufacture of culture media, vaccines, stains, and so on. The laboratory materials are prepared at a "media establishment" attached to one of the group laboratories, with branch accommodation at a mental hospital. In the early part of the war, when the Ministry of Health found it difficult, if not impossible, to meet the needs of the new laboratories in connexion with the Emergency Hospital Service and general public health investigations, the L.C.C. agreed to supply all the emergency laboratories in the London region with culture media and other materials. Recently the Ministry asked the Council to extend the provision to the whole of the Ministry's laboratories which have been set up in the Provinces, and this has been done. Some years ago the Army authorities adopted the L.C.C.'s system of supplying media in screw-capped bottles for use in the event of hostilities, and on the outbreak of war it seemed to all concerned that the simplest and most economical method of obtaining Army culture media would be to use the resources of the L.C.C., which had the plant, the trained personnel, and stocks of material available. The request of the War Office was acceded to, and Dr. J. E. McCartney, director of the Council's group laboratory, who had been mobilized in the Territorial Army with the rank of major, R.A.M.C., and appointed officer commanding media manufacturing centre for the British Army, was allowed to remain attached to the group laboratory, undertaking not only his peacetime work but the large extensions which have since occurred. It is estimated that the additional requirements (which include the supply of culture media from the Council's resources to allied nations) will be equal to 75% of the total quantity produced. All this is in addition to other special work of national importance undertaken at the group laboratory and the antitoxin establishment, such as the supply of certain antitoxins and measles serum to local authorities in some reception areas. diphtheria prophylactics to metropolitan borough councils. and a large quantity of tetanus antitoxin to the Medical Research Council for a national pool. Gas-gangrene antitoxin has also been prepared in case of need.

LUNG-DUSTING EXPERIMENTS

Barclay, Franklin, and Macbeth have already reported[1] [2] on x-ray studies of excretion of dusts from the lungs. In a more recent paper[3] Barclay, Franklin, and Prichard describe further experiments which correct an erroneous conclusion previously formed, and increase our knowledge of dust inhalation and excretion, phenomena of importance to both clinician and industrial hygienist. Cats were used, and both insufflation and inhalation methods were carried out. Various dusts opaque to x rays were employed, from finely powdered lead glass with particles up to 45 μ in size to uncompressed gas-flame carbon with particles about 0.5 μ in size. Control radiographs were taken before and immediately after the dustings. The lungs and trachea were immediately excised and x-rayed, and additional radiographs were taken after fixation of the lungs and the removal of portions for histological examination. In discussing their results the authors consider certain points established beyond dispute. In all the subjects there was some introduced dust in the alveoli; this corrects an earlier conclusion when delayed histological examinations gave negative results. Although the amount of alveolar dusting varied greatly from subject to subject, it was never so great as to be detectable with certainty in the radiographs, even of excised lungs. This was in strong contrast to the obvious bronchiolar dusting. Finally, the amount of alveolar dusting did not run parallel with the amount of bronchiolar dusting as seen on histological examination. Almost identical quantities of a particular dust could be present in the alveoli of two subjects, while the bronchioles and bronchi of one were loaded and of the other practically clear. Therefore the condition of the tubular system, readily assessed when radio-opaque dusts are used, is no guide to the alveolar condition in any particular case. These observations indicate the apparent existence of a defence mechanism preventing the entry of large quantities of dust into the alveoli. The experiments suggested, but did not prove, that the average amount of dust entering the alveoli is the same in insufflation and in quiet and gasping respiration. Apparently, also, introduced dusts collected in relatively greater amount in inflamed areas of the lung. This has a highly important bearing on problems of industrial pulmonary disease.

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[20] *Amer. J. Syph.*, 1942, 26, 271.
[21] Ibid., p. 474.
[22] *Arch. Derm. Syph.*, Chicago, 1942, 45, 953.

[1] *Amer. J. Roentgen.*, 1938, 39, 673.
[2] *Brit. J. Radiol.*, 1938, 11, 405.
[3] *Amer. J. Roentgen.*, 1942, 47, 362.

In healthy subjects the total elimination of small amounts of dust from the alveoli can be a rapid process (Seemann,[4] Carleton[5]). Barclay, Franklin, and Prichard found that in some cases the alveolar dust-cells were found to have ingested dust particles within a few minutes of their penetration into the alveoli. They found no evidence of dust deposition in the bronchial lymph glands. It appeared that normally the loaded alveolar cells moved towards the ciliated epithelium of the bronchioles, were caught up on the layer of viscid mucus, and carried up with it by the action of the cilia. The dust is thus brought back to the pharynx. When the insufflated dusts were washed down into the alveoli by subsequent intratracheal injections of a few c.cm. of fluid the excretion of dusts from them was very much delayed. In this case the delay was presumably due to overwhelming of the protective mechanism by the actual quantity of dust carried down by fluid. In man, chronic irritation of the air passages leads to replacement of the ciliated epithelium by cells of the goblet type, and in addition there is a greatly increased production of mucus by the buried glands. Thus the above excretory mechanism would be interfered with in two ways, and coughing becomes necessary to clear the bronchial tree. This explanation throws much light on the effects of upper respiratory infection on the lungs—effects commonly observed by the clinician. Finally, it will not be without interest to refer here to some recent experiments of Campbell.[6] He showed that in mice the inhalation of a precipitated silica produced nodules in the tracheo-bronchial glands in 50% of the animals. These nodules resembled the classical fibrotic silica nodule in man. The nodules were, however, not produced in the lungs of the mice, and this was considered to be due to the fact that most of the dust had been removed to the lymph glands and the degree of dusting was not enough to affect the lungs also. These results gave support to the specificity theory for silicosis.

THE CAUSES OF INFANTILE MORTALITY

As C. McNeil pointed out recently in these columns[7] the infantile death rate in Great Britain is still nearly twice as high as in certain other countries—notably Holland and New Zealand. The first step towards a reduction is a clear understanding of the cause, and paediatricians have long been dissatisfied with statistics based upon death certification. In 1939 a study was undertaken in Newcastle-upon-Tyne, and an investigator[8] with modern clinical experience of disease in infancy made a personal and detailed inquiry into the circumstances of the death of every child below the age of 1 year. In this investigation J. C. Spence and F. J. W. Miller secured the co-operation of practitioners who were ready and anxious to impart full information—information which showed that in one-third of the cases the recorded cause of death gave an inaccurate or inadequate description of the actual cause. An arrangement was made whereby the name and address of each child dying in the first year of life and the name of the doctor signing the certificate were sent to the investigators within twenty-four hours of the registration of the death. Contact was made at once with the doctor, the object of the investigation explained, and a personal interview arranged at which the history of the final illness and the events leading up to it were discussed and recorded on a special form. Wherever possible, additional information was obtained from antenatal records, infant welfare charts, hospital notes, and, in about 20% of cases, by the result of a post-mortem examination. Altogether 272 deaths were investigated, and in 231 it was possible to express an opinion upon the cause of death. In the neonatal period the most important causes were prematurity (47 cases), birth-death (infants so subjected to adverse conditions during birth that they failed to survive—38 cases), and neonatal infection (15 cases), though it is thought that the actual incidence of neonatal infection was greater than the apparent. Actually, if the accepted standard of 5½ lb. or less birth weight for prematurity is taken, there were 78 deaths, or more than a quarter of all the infant deaths. In the period after the first month the chief causes of death were infective conditions, which caused death in 90 out of 112 cases in which an opinion could be given. It was not possible to assess with accuracy the exact type of infection responsible for death in every case, and there is clearly great scope here for future and valuable research. Roughly, three groups were recognized: illnesses with respiratory symptoms 33 cases, with alimentary symptoms 12 cases, and infections of unknown origin 32 cases. The relatively small number of infant deaths directly attributable to gastro-enteritis may be surprising to those accustomed to assume that diarrhoea and vomiting mean primary infection of the alimentary tract. That infection of the respiratory tract is nowadays—i.e., with the disappearance of "summer diarrhoea"—the more serious problem needs repeated emphasis, but this must not detract from the fact that, in the opinion of the Newcastle investigators, an increased incidence of breast-feeding would assist materially in a reduction in the number of infant deaths. Only 17 out of 98 infants dying from infections of various types had been breast-fed until 6 months of age or to the time of death.

Although Spence and Miller apologize in their conclusion for failing to find the predisposing and immediate cause of death in a large group of their cases, they have performed a most valuable task in providing exact knowledge upon which to base future work. It is clear that the problem of deaths in the first month of life is quite different from that after the first month, but at both periods it is essential to get rid of what they term "a spirit of resignation" towards the whole problem of infantile mortality. A conscious and united effort on the part of medical practitioners, medical officers of health, and hospitals working in conjunction with trained paediatricians would go far to achieve those lower rates in other countries which C. McNeil has pictured as a goal for preventive paediatrics in its future development.

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[4] *Histobiologie der Lungenalveole*, 1931, Jena.

[5] *Proc. roy. Soc.*, B, 1934, **114**, 513.

[6] *Brit. J. exp. Path.*, 1941, **22**, 76.

[7] *British Medical Journal*, 1942, 1, 429.

[8] See *Report of an Investigation into the Causes of Infantile Mortality in Newcastle-upon-Tyne*, 1939. Published by the City and County of Newcastle-upon-Tyne.

Nova et Vetera

NICHOLAS ALCOCKE, SURGEON TO HENRY VIII AND EDWARD VI

I should assume that Nicholas Alcocke was born about the year 1500. The first notice that we have of him at Barbers' Hall is his admission to the Freedom of the Company in 1523. The usual period of apprenticeship was seven years, and the apprentice was generally between 14 and 16 years of age at the date of the signing of his indentures. It is rather an odd thing that Alcocke seems to have taken no further interest in the company after his admission to the freedom. He never served the office of Warden. He appears in the Holbein picture and is one of the kneeling figures, being placed immediately behind Pen and in front of Ferris. As he was not holding office in the company at that time I assume that he owed his inclusion to the fact that he was one of Henry the Eighth's surgeons. This indicates that the picture was painted after the year 1539, for his warrant of payment as King's surgeon is dated in that year, as I shall presently show.

Sir D'Arcy Power, in *The Craft of Surgery*, says that the picture was probably painted in 1542. Vicary, who is receiving the deed, was Master in that year, and the fact is noted that Holbein died of the plague in 1543. Only two of the figures standing to the left of the King can be identified. They are William Tilley, who was Middle Warden in 1540, and Christopher Salmon, who was Junior Warden in 1543. It should be remembered that the elections to office at the Hall were made in the late summer of each year.

To return to Alcocke's warrant. This ran: "Nicholas Alcoke, Surgeon, by the Kingis warraunt dated XX day of November anno XXXJ (1539) for the yerely payment to him of X li. by yere, quarterly by even porcions from Mychaelmas dicto anno XXXJ during his lyf; the somm of L s. for one quarter fully ronne ultimo Decembris dicto anno XXXJ." Payments of fifty shillings a quarter are recorded in the public records during the years 1540, 1541, 1543, 1544, and 1547.

In 1542 Alcocke had a grant in fee, as one of the King's surgeons, for £173 5s. of the Rectory of Kirby, Lincs (late Elsham priory), with tithe-barn and stable, in the tenure of William Turwytt; also the advowson of Kirby. This grant is dated 5 May 34, Henry VIII. In 1544, in a list of retinues for France, Alcocke is allowed one billman; and in the same year is an order to pay Nicholas Alcocke 2s. a day from July 1 and sixpence for two servants, for the war. In 1545 he was granted the lease of a tenement at Freshe Wharffe, in St. Botolph, Billingsgate (late St. Mary Graces). This is dated May 25. In the same year he had a licence to export 300 cloths, "unbartred, unwrought and unshorn," dated October 18; and on February 20, 1545/46, he was appointed Bailiff and collector of rents of Merevale, Mon. He also asks for leave for Arnolde Kyrkman of Cologne to bring into England an English version of *Magnus Herbarius*. Between 1547 and 1551, in *Early Chancery Proceedings* is the record of "the case of Nicholas Alcocke *versus* Thomas Pyke, of London, Skinner, *re* a messuage in Freshe Wharfe, late of St. Mary Graces." As Alcocke dealt with this property in his will I suppose that he proved his title.

According to Young, in the *Annals of the Barber-Surgeons' Company*, Alcocke died in 1550. Young gives a very good abstract of his will, which was dated 15 Feb., 1549/50, and proved 6 May, 1550. Alcocke desired to be buried in St. Stephen, Coleman Street, near the graves of his children. He bequeathed his goods in three parts: one part for the purposes of his will; one part for his wife, Margaret; and one part for his daughter, Elizabeth, when she should reach the age of 21 or be married. This custom of tripartite division into wife's part, bairns' part, and the dead's part is a very ancient one. A celebrated example can be found in the works of the Venerable Bede.

Alcocke ordered six sermons to be preached at St. Stephen, Coleman Street, and left to the poor of Swyneshed, Lincs, £5; for poor maids' marriages, £4; to St. Bartholomew's Hospital, £2; to George Brykesworth, of Glastonbury, Surgeon, his best lute; and to his daughter, Elizabeth, his virginalls. He left clothes, boots, and "a paire of spurres" to his servant, Richard Sygans, and a bedstead, mattress, and coverlet to his maidservant, Ann. To Robert Balthrope,* "late my apprentice, my booke *Guido*, in Englysshe." There are bequests of pewter dishes and saucers to his godchildren, the daughters of Robert Wilson and John Stocks; "to John Mason, late my apprentice, Lanfrank, John Arden, an other olde booke with a bare woodden cover in Englysshe and the practice of Ypocrates." To his wife's father, Thomas Turnor, various clothes, and a similar bequest to the eldest son, his brother-in-law. To Robert Balthrope my "Russett woorsted gowne faced with calaber and garded with velvett." The great house called "ffreshe Wharff," of annual value £24, to his daughter. If she died before coming of age this wharf to be sold and divided in certain proportions between St. Bartholomew's Hospital, his father-in-law, Thomas Turnor, and Richard his son, the poor of Coleman Street, poor maids' marriages, and the mending of highways. He left certain pastures and meadows at Enfield to his wife; Kirby parsonage with tithes and profits to be sold and 100 marks given to Roger Alcocke, his brother's son; 20 marks to godson Nicholas Spencer, and the residue in works of charity at the discretion of his executors, Thomas Archer, gentleman, and Randolph Atkinson, Merchant-Taylor. He made John Wysdome, Painter-Staynor, and John Shireff, Barber-Surgeon, overseers of his will. On consulting the will of Robert Balthrop, which is also given in Young's *Annals*, I find that "*Guido* in Englysshe" was left to his former servant (i.e., apprentice) John Edwards, but I cannot trace the "Russett gowne"; perhaps it was worn out. The calaber with which it was faced was probably squirrel's fur. Bequests of wearing apparel of this sort are very common in mediaeval wills. It must be remembered that the clothing of the upper classes at this date was costly. The gown of a gentleman was a voluminous affair, and would take several yards of cloth in the making, not to mention the fur.

R. R. J

CURIOSITIES OF CAESAREAN SECTION

I have come across an account of a remarkable case of Caesarean section performed some 150 years ago, which I think will be of interest to your readers.

It is related by Mr. Duncan Stewart, surgeon, in Dungannon, who saw the patient some days after the operation; and the account is confirmed by Dr. Gabriel King of Armagh, who says that he drew out the needles which the midwife had left to keep the lips of the wound together. The patient's name was Alice O'Neil, and the operator was an illiterate midwife, one Mary Dunally; the instrument used was a razor, with which she first cut through the containing parts of the abdomen, and then the uterus. "She held the lips of the wound together with her hand, till someone went a mile and returned with silk and the common needles which tailors use; with these she joined the lips in the manner of the stitch employed ordinarily for the hare-lip, and dressed the wound with whites of eggs." The woman recovered in twenty-seven days.

It is also of interest to note that at this time foreign jurists doubted whether a child extricated by the Caesarean operation was properly born or capable of succession. "Illud autem valde controversum est inter jurisconsultos, an is qui editus est execto matris ventre reputetur partus naturalis et legitimus et successionis capex" (*Caranza de partu naturli et legitimo* p. 427).

Shakespeare, in *Macbeth* (Act IV, Scene 1), utilizes this quibble in an ingenious form:

> *Second App*: Macbeth! Macbeth! Macbeth!
> Be bloody, bold, and resolute; laugh to scorn
> The power of man, for none of woman born
> Shall harm Macbeth.

And again, in Act V, Scene 8:

> *Macduff*: And let the angel whom thou still hast serv'd
> Tell thee, Macduff was from his mother's womb
> Untimely ripp'd.

The child born by the Caesarean operation, I need hardly say, does not suffer any legal disabilities.

Hove. L. A. PARRY, M.D., F.R.C.S.

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*Later Serjeant-Surgeon.

Correspondence

Notification of Venereal Disease

SIR,—I agree with Dr. Edith Summerskill that Defence Regulation 33B is a great disappointment. Frankly, it appears to me that the Ministry of Health has "missed the bus." Here was an opportunity to deal with the problem of venereal diseases in a comprehensive way, and instead we get a miserable regulation that will result in the rounding up of a prostitute here and there. Perhaps now and again a couple of soldiers may be found who are willing to testify to infection from the same source—a man loses his individuality in the Army—but it is most exceptional to find two civilians who are able or willing to do so. As regards civil life, therefore, in my experience the regulation will remain a dead letter.

I am not, however, prepared to go the whole way with Dr. Summerskill in advocating compulsory notification of all venereal disease. The risk that it would result in concealment is too great. In my humble opinion what is needed is a limited form of notification. Congenital syphilis should be notifiable, just as ophthalmia neonatorum is, and the parents as well as the child should be compelled to have treatment. It is a duty we owe to the children and to the nation. Ophthalmia neonatorum is already notifiable, but the parents are not compelled to have treatment. The public would be horrified if it knew how many syphilitic children are born every year, and what a large proportion of these receive no treatment until various disabilities, many of them developing at school age, affect them. But prevention is better than cure, and I am heartily in agreement with Dr. Summerskill when she advocates a compulsory blood test for all pregnant women. For years now I have advocated that this should be carried out in the maternity and welfare clinics of our local authority. I have no hesitation in saying that congenital syphilis can be reduced to negligible proportions if a blood test, followed by treatment in positive cases, is carried out. "If preventable, why not prevented?" At my ante-natal session blood is taken as a matter of course, and no questions asked.

To come back to notification, a doctor who undertakes the treatment of venereal diseases in an official capacity should have the power to report the case to the medical officer of health only if the patient refuses to continue treatment while still infectious. Simply to render it an offence not to obtain treatment, as suggested by one speaker in the House of Commons, would not meet the case. Nowadays people, even prostitutes, come up for treatment and are extremely anxious to receive it. The trouble is that, having obtained a certain measure of relief, a large proportion default while still infectious, and no almoners, no personal appeals, and no reminders by post have any effect whatever. It is these callous and selfish people who go around spreading infection that we want to get at.—I am, etc.,

Treatment Centre, Royal Infirmary,
Sunderland

NOEL F. ROWSTRON

Paying for V.D. Treatment in Mental Hospital

SIR,—A patient of mine with central nervous system symptoms and a positive Wassermann reaction was referred by me for treatment to a clinic for venereal diseases under the local authority. While undergoing treatment there he was, by arrangement with the M.O. in charge and on his advice, referred to a mental hospital for malarial therapy. In this area—and probably in others—assessments for mental hospital treatment are made by the public assistance committee and not by the health committee of the local authority. In due course this patient received an account for his stay in the mental hospital. He has drawn my attention to the well-known proviso that treatment for venereal diseases is widely advertised as free and confidential. The resulting dilemma would appear to be in such cases that if a patient resists the demand for payment by claiming that his treatment should be "free," then *ipso facto* he has to divulge to a lay assessment committee the nature of his complaint. If, on the other hand, he "pays up" to avoid disclosure and trouble, then the provisions of the free treatment promised are not fulfilled.

The dilemma is not quite as simple of solution as might be imagined. It is obvious that many of the patients of public mental institutions are there because of tertiary syphilis, and local authorities may be reluctant to forgo the right they claim to make assessments in cases like that outlined above because of the far-reaching implications, especially as regards expense. In short, I ask those more in a position to know, What is the general policy pursued by local authorities about the treatment in mental institutions of tertiary syphilis as regards its "free and confidential" aspects?—I am, etc.,

Southampton

GEOFFREY H. BARENDT

Myasthenia Gravis

SIR,—The article on drugs for myasthenia gravis (Dec. 19, p. 730) prompts me to record the following case. In June, 1935, I was asked to see a dental surgeon, male, aged 50 years, who complained that recently he had experienced increasing difficulty in masticating and swallowing solid food. Examination elicited the fact that there had been during previous months some loss of muscular power generally, ptosis, weakness of the orbicularis and soft palate, with tendency to nasal regurgitation of food. Exercise resulted in undue fatigue. He was, in fact, a typical case of early myasthenia gravis.

He was at once put on to injections of prostigmin commencing with ♏ 5 t.d.s. together with ephedrine by the mouth. This treatment was continued for some months, but in spite of increased doses of prostigmin up to ♏ 20 t.d.s. the patient's condition rapidly deteriorated. Muscle weakness increased until he was unable to stand for any length of time. He was unable to hold his head up, and the typical attitude adopted was to sit, resting his elbows on a table and supporting his chin in his cupped hands. Ptosis became very pronounced and no solid food could be taken. Everything had to be fluid or semi-solid or minced. Throughout the whole time there was no muscle wasting. He had become dull and apathetic, taking little interest in things generally. By this time he had been obliged to give up practice completely. The prostigmin and ephedrine had no effect whatever on the progress of the disease. The only advantage had been that, if administered about half an hour before meals, there was a temporary muscle stimulation or recovery sufficient to enable him to deal with his food rather more satisfactorily than otherwise. Urine examination showed the creatinine output to be very low, approximately 0.15 g. per diem.

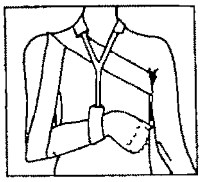
Some three months after the above treatment was started the possibility of glycine (amino-acetic acid) being of benefit was considered. Treatment with ℥ss doses t.d.s. was begun with startling and spectacular results. There was an almost immediate improvement. Within a very few weeks my patient was able to masticate his food much more easily. The ptosis improved, as also did the neck muscles; in fact there was a steady improvement in every direction. He began to take more interest in life, urine examinations at intervals revealed a steady increase in the creatinine output until the normal of about 1.2 g. daily was reached. The dosage mentioned above was maintained for about 1½ years, by which time he had made such considerable improvement that he was able to take a substantial share in the conduct of his practice. The dose of glycine was then gradually reduced, a careful watch on the creatinine output being kept to ensure that it did not fall below normal. At the slightest sign of such a fall the dose was increased accordingly. All went well until, early in 1938, the patient began to show symptoms of bladder disease—i.e., frequency, haematuria, etc. An investigation showed the presence of a papillomatosis of the bladder, from which he died a few months later.

Myasthenia gravis is generally regarded as a disease of the central nervous system, although no definite recognizable lesions have been noted in the brain or spinal cord. My observations from this case suggest that the disease is rather a condition brought about by some alteration in the body metabolic process, which results either in the storing up of creatinine, possibly in the muscle tissues, where it acts as a muscle poison, or in a decreased creatinine (or creatine) metabolism resulting in the muscles being deprived of the element required to stimulate contraction. My grateful thanks are due to the British Drug Houses Ltd., who generously provided the glycine required throughout the whole period of treatment.—I am, etc.,

London, N 22 S. CHAPLIN.

Treatment of Dislocated Acromio-clavicular Joint

SIR,—Necessity is often the mother of innovation as well as invention, and especially is this so in the realms of medicine and surgery when a new use is found for an old appliance. The treatment of the dislocated acromio-clavicular joint with its associated tearing of ligaments is notoriously difficult, and one occasionally sees considerable disability due to an old injury of this type. These injuries, if recent, are now being treated by a new method in the orthopaedic department of this hospital.



It was decided that any form of treatment which did not obtain and maintain constant full reduction should be discarded. The following lines of treatment, though standard, were weighed in the balance and found wanting: (1) Adhesive strapping of various types, including "elastoplast" extension strapping applied as recommended by Watson-Jones, in conjunction with a sling. Even if several layers thick, this works loose and needs renewing—i.e., reduction is not constant. (2) Tight flannel bandages extending under the elbow, over the shoulder, and round the opposite axilla. (3) Tight "cellona" bandages applied in the place of the flannel.

Constant full reduction *can* be obtained and maintained for a considerable period of time without readjusting by using an Esmarck tourniquet as a bandage, in conjunction with a sling. This method gives and maintains full reduction and a perfect functional result, and would justify more widespread use.—I am, etc.,

V. F. MASTERS,
Berkhamsted. Orthopaedic Registrar, Ashridge Hospital

Fulminating Purpura and Adrenal Haemorrhage

SIR,—The following history of a case of fulminating purpura and adrenal haemorrhage, occurring in a remote settlement in North-Western Canada, may be of interest.

The child, a healthy half-breed Indian boy of 23 months, was well until the day of death, Jan. 20, 1933. He suddenly became pale, and his mother noticed a rash developing on his face and arms. Shortly afterwards he went into convulsions, and was dead before a dog team could be harnessed to come to get me. The time from the onset of symptoms till death was less than three hours.

I obtained permission to do a necropsy but not to open the skull. The body was well developed and weighed 27 lb. There were scattered purpuric spots all over the skin, particularly marked on the head and arms. There was no excess of fluid in pleurae, pericardium, or peritoneum. The heart appeared normal. There was slight bronchitis, but no consolidation in the lungs. The stomach and intestines were empty, and there was no evidence of inflammation. The liver and spleen appeared normal. The thymus was not abnormally large, and there was no excess of lymphoid tissue. The kidneys were pale. The suprarenal glands were both deep red and necrotic.

This would appear to have been a case of Waterhouse-Friderichsen syndrome. My reason for reporting it after this lapse of time is that Dr. I. S. Fox in your issue of Aug. 22, 1942, and also Dr. James Hughes in the *Journal* of Sept. 14, 1940, state that this syndrome is usually associated with infection by the meningococcus. It seems extremely unlikely that the meningococcus could have been concerned in this case, for the following reasons.

In a remote and sparsely settled district such as this, it is possible to know with certainty who has been in contact with a patient. The case described occurred in one of four houses separated by 25 miles of forest from the small settlement at Keg River, and by 200 miles from the nearest railroad or large village. I made careful inquiries at the time into possible sources of infection, as I thought I might be dealing with a fulminating case of haemorrhagic measles, scarlet fever, or small-pox. There was no other illness whatever in the same household, none in either of the three houses near by. The only infection prevalent at Keg River was a mild type of influenza, and there had been no recent contact between these cases and the household concerned. It is impossible for a stranger to pass through unnoticed, or unremembered, in a place like this. Air-borne or insect-borne infection can also be safely ruled out where the distance is so great and the temperature 40° below zero.

I can offer no suggestion as to any possible source of infection. It is difficult to imagine that an organism of sufficient virulence to cause a fulminating bacteriaemia could have shown so little sign of its presence in any other member of this tiny community.—I am, etc.,

MARY PERCY JACKSON,
Keg River, Alberta. M.B., Ch.B., M.R.C.S., L.R.C.P.

Haemorrhagic Measles

SIR,—Dr. J. J. Linehan's interesting account of a case of haemorrhagic measles (Dec. 19, p. 725) prompts me to report a somewhat similar case.

A healthy girl of 6 years developed coryzal symptoms on March 21 and a morbilliform rash on March 23. On March 29, after the rash had faded and the symptoms had abated, the temperature rose suddenly and a purpuric eruption appeared on the face. Next day she was admitted to Kendray Isolation Hospital, Barnsley, with large haemorrhagic areas covering most of the face and patches of ecchymoses on the left arm and left thigh. The mucous membranes were not affected: the spleen was not enlarged; there were no joint pains; the temperature was 102° F., with pulse and respiration proportionately increased; scanty albumin was the only abnormal constituent of the urine; blood examination revealed a leucocytosis of 27,300 per c.mm. (polymorphs 80%) but no abnormality of platelets, red cells, or haemoglobin.

For some 48 hours after admission to hospital fresh haemorrhages appeared under the skin of the face and limbs, and haemostatic serum, calcium gluconate, vitamin C, and intramuscular injection of parental blood did not seem to benefit the condition. From April 1, however, no new haemorrhages developed, and the child improved steadily until April 6, when she developed a meningo-encephalitis. By the time she had recovered from this severe complication of measles, all that remained of the ecchymoses was two ulcers on the face and one superficial ulcer on each arm. By June 28, when the girl was discharged from hospital, the ulcers had healed, leaving scars on the cheeks that may later require treatment by plastic surgery.—I am, etc.,

Barnsley I. A. G. MACQUEEN.

Pasteurization of Milk

SIR,—The publicity accorded to the views of Dr. A. H Macdonald, late chief medical officer of Dr. Barnardo's Homes, in your leading article (Dec. 19, p. 727) makes it incumbent upon me to point out that the council of Dr. Barnardo's Homes did not share these views. At their meeting on Dec. 21, 1938, while Dr. Macdonald was still chief medical officer, the council ordered the general use of pasteurized milk throughout the Homes; any departure from this practice would be viewed with grave disquiet.—I am, etc.,

H. CARSON GILMORE,
Dr Barnardo's Homes, London, E 1. Chief Medical Officer

Haemorrhagic Suprarenal Infarction

SIR,—I wonder if this syndrome ever results from disease of the suprarenal arteries? I have in mind the possibility of periarteritis nodosa presenting itself as an acute abdominal emergency demanding surgical measures. Under such conditions, if the vascular changes are not generalized and are obscured by a destructive haemorrhage, the true nature of the condition might conceivably escape recognition. But while the presence of an eosinophilia in any such case would be suggestive, only the verdict of histological examination could be accepted as final. It is nevertheless tempting to question whether the pulmonary, pancreatic, and renal symptoms which sometimes seem to occur in cases of suprarenal infarction may not ever be due to arterial disease of this kind.

I raise this possibility because I have knowledge of one case of periarteritis nodosa presenting itself in the guise of a mesenteric thrombosis (the presence of an eosinophilia in all such cases is therefore worth ascertaining). If, then, periarteritis nodosa can give rise to a mesenteric infarction, may it not also occasionally result in a suprarenal infarction and so produce the syndrome to which Major K. D. Keele has drawn attention in the *Journal* of Dec. 12 (p. 687).—I am, etc.,

Birmingham. GILBERT S. HALL.

X-ray Department at Health Centre

SIR,—I am grateful to Dr. J. F. Brailsford for his letter (Nov. 28, p. 647) amplifying the limitations of the small-powered *x*-ray unit, but I would consider that the 30 mA unit, efficient though it may be for certain types of routine examination in the average size of patient, is less likely to permit accurate interpretation in patients of heavier build in certain types of examination which cannot be considered as other than routine. Furthermore, one must appreciate that the health centre may be the first contact between the patient and his doctor, and that the radiographic findings may have a far-reaching effect on the patient's subsequent treatment; also it is in the centre that one will hope to achieve that earlier diagnosis which may be of such importance.

While agreeing that the expert can decide whether the examination has been adequate, the fact that the patient would be referred to another centre for a routine examination would not instil an air of confidence in the patient or his doctor. The doctor who prefers to have his patient radiographed locally would want to know why his area had not been equipped with an apparatus of adequate power.

With regard to the apparent inconsistency of advocating miniature mass radiography, this method has now passed beyond the experimental stage and beyond the critical scrutiny of committees, and there is little doubt that it would have been adopted at an earlier date had it not been for the fact that suitable apparatus and organization could not be provided without impeding the war effort.

Many favourable comparisons have already been made between miniature and large films, and in a short time I shall hope to be studying a comparison of selected inconspicuous lesions found in the large film and recorded by the miniature method.

The care with which the suspect cases were clinically assessed formed a striking feature of the report recently made by Surg. Captain Brooks on the abnormalities found by the miniature method in 240,000 sailors, and if a similar method is adopted for the examination of the civilian population the success of miniature radiography will be assured.—I am, etc.,

London, S.W.3 J. V. SPARKS.

Rationed Distribution of Doctors?

SIR,—I have read with interest the letter from Dr. Duncan Leys (Dec. 12, p. 708) under the heading of "Rationed Distribution of Doctors?" There is so much controversial matter in this letter that it is perhaps permissible to refer to only a part of its contents. Rationalization is a difficult term to define, whether applied to industry or to medicine, but it should certainly include a due regard for the human element. No evidence that can be accepted has been advanced by Dr. Leys that the plan he proposes would effect a significant economy of medical personnel, and the regimentation of doctors and of the people, with the consequent denial of the freedom of choice which is implicit in the plan, would almost certainly arouse deep resentment. In short, with this plan we should embark on a social experiment of a very doubtful nature at a time when we can ill afford to do so.

Dr. Leys cites his own immediate area and gives, as an example of the effect of putting his plan into operation, an estimate, based on a population of 30,000, of the number of doctors who could be released for service with the Forces. This estimate will not do. The medical specialists centred in Inverness, or most of them, are concerned with a population, which varies with individual specialists, of from 90,000 to 200,000, and there are in some instances additional factors that further invalidate Dr. Leys's estimate. Of the doctors in general practice in this immediate area the majority (perhaps all) are, as part of a very useful form of rationalization, serving the State in different ways as well as attending to their own practices, and two of them are part-time anaesthetists.

There is, of course, a considerable amount of rationalization of the medical services to-day. We see it in the utilization by the State of the services of medical practitioners on recruitment boards, in the War Emergency Hospitals, and in the War Emergency Laboratory Organization. It seems to me that an extension of this rationalization is possible, which would result in closer co-ordination on a regional basis of existing medical facilities with the requirements of the Services, and by increasing the mobility of their medical personnel would go some way towards meeting the growing needs of the Forces.—I am, etc.,

Inverness. H. J. KIRKPATRICK.

Reporting of Deaths to Coroner

SIR,—I have read with interest Dr. W. B. Purchase's letter (Dec. 5, p. 677). It appears to me very retrogressive for any coroner to take steps for private reports to be made to him. Usually the coroner is a legal man (or the perhaps unfortunate combination of legal man with a long ante-dated medical qualification, out of touch with modern medicine and surgery) and in no manner capable of forming an opinion whether inquiry as to death is necessary like an actively practising doctor is (whether private or hospital). Judges frequently refer to communications sent to them or to information already known to a jury, and advise a jury to forget such, and I suggest this is a proper course for any coroner. Dependence on such overtly communicated information must undoubtedly induce a bias in favour of "official" reports, and hence the frequent clash between hospital and private practitioner evidence, which is well shown by Dr. Purchase's own statement: "It may well be that a patient should be sent in much earlier, or that the prior treatment has been inadequate." In a case reported some time ago the evidence of a doctor was rejected in favour of that of a "popular" medico-legal expert, and events showed the doctor to be correct. Equally one often sees protests of general practitioners that their evidence is ignored in favour of hospital evidence, given often by a newly qualified inexperienced doctor.

Particularly in accident deaths a coroner's verdict may deprive dependent relatives of any hope of proper compensation. If certain sections of the medical community are to be influenced to make secret reports, then I see no reason why medical men, employed by insurance companies responsible for compensation, should not be invited to make similar prior reports, a course to which no one would readily agree.—I am etc.,

London, E 7 BERNARD LEGGETT.

Medical Records in Wartime

SIR,—In your annotation (Dec. 12, p. 702) on "Faked Fits and Absent Records" you stress the importance of records from the patient's, and the doctor's point of view. With this most practitioners would agree, but your further statement, "the excuses of a large and busy practice are of no avail," suggests that you are perhaps out of touch with the conditions of wartime general practice. The increase of work resulting from the obligation to attend absent practitioners' patients, the multiplication of certificates demanded, and the inadequate, and in my case non-existent, domestic staff make work on a pre-war standard quite impossible. The essential point is that patients should be thoroughly examined though possibly under-visited and unrecorded.—I am, etc.,

Cheadle Hulme, Cheshire. NICHOLAS CRAIG, M.D.

Electric Convulsion Therapy and Brain Damage

SIR,—In reply to Dr. Horace Hill (Dec. 5, p. 679), I suggest that the point at issue is whether the detrimental effects so far observed outweigh the proved beneficial results, for there is no doubt at all that convulsion therapy will considerably shorten the duration of a manic-depressive psychosis.

No clinical evidence of a permanent defect of brain function has been brought forward although hundreds of cases have been treated during the past two years. Some patients, however, show memory defects of a temporary nature. Prejudiced opinion emphasizes that the treatment is dangerous and empirical, that we are giving the patient epilepsy. It should be realized, however, that, whereas the spontaneous fit is a symptom of disease, in the electrically induced convulsion we are dealing with what Penfield and Erickson (*Epilepsy and Cerebral Localization*, 1941) term a "physiological fit," and our concern is with the harm that can arise from the fit mechanism. Fever is similarly a symptom of disease, yet pyrexial therapy has a definite value. The reports of brain lesions observed in animals after subjection to induced convulsions are of great importance, although many of the acute changes found could be temporary and reversible. No comparable reports on the human subject are available. Punctate haemorrhages were described in a recent paper (*Arch. Neurol. Psychiat.*, Chicago, **47**, 385) on changes in the brain after electrically induced convulsions in cats, but it was admitted that whether similar changes are to be expected in human beings treated with electric shock cannot be determined from the material investigated.

In the organic and idiopathic epilepsies there is no convincing evidence that recurring seizures always produce intellectual deterioration. There is, in fact, no correlation between the severity and frequency of the seizures and the mental condition of the patient. This rather suggests that deterioration in epileptics is due to factors other than the seizures. It is well known that many epileptics have normal or high intelligence and are well able to maintain their positions in the community.

The introduction of E.C.T. by Cerletti was based on animal experiments, which convinced him that no permanent brain damage was likely to ensue in the clinical application of his method, and it appears that nothing has since been reported which would justify the abolition of such a valuable therapeutic procedure. It produces an immediate remission in uncomplicated cases of mania and melancholia, as instanced by two of our patients who are now at home and have been leading useful lives for the past six months after five and six years of melancholic misery in the back wards of the hospital. The treatment is admittedly of less value in schizophrenia.

Dr. Hill refers me to your annotation (May 30, p. 674), which begins with the statement that the convulsive treatment of mental disease constitutes one of the most striking recent advances in therapeutics. I assume he agrees with this, although, judging from his letter, he appears not to have taken advantage of it yet.—I am, etc.,

West Riding Mental Hospital,
Wadsley

F. T. THORPE,
Acting Medical Superintendent.

Obituary

L. R. BRAITHWAITE, F.R.C.S.

Consulting Surgeon, Leeds General Infirmary

The Leeds School of Medicine loses one of its most brilliant sons in the death of Mr. Leonard Ralph Braithwaite, which took place at his home at Headingley, after a short illness, on December 18. Braithwaite was the pupil, the assistant, and the colleague of the late Lord Moynihan, and on him the mantle of the Moynihan tradition may be said to have fallen. His entire career was spent in the West Riding, although his reputation extended far beyond its borders. He did much by his skill as a surgeon, his wisdom as a teacher, and his kindliness as a friend and counsellor to enhance the fame of the Leeds school.

Braithwaite was born in Halifax in 1878. Entering the Leeds School of Medicine, he became one of the most distinguished students in the anatomical department. He graduated M.B., Ch.B., with first-class honours, in 1903. After serving as house-surgeon at Leeds General Infirmary, he was appointed resident surgical officer, and the manner in which he acquitted himself in that position ensured him a place on the honorary staff when opportunity occurred. He was appointed assistant surgeon in 1909, became a member of the full staff in 1924, and retired on reaching the age of sixty in 1938, when he was made honorary consulting surgeon. Together with his hospital appointment he held the chair of clinical surgery at the University, and was made emeritus professor on his retirement.

In 1910, shortly after his appointment to the staff of the Infirmary, he became assistant to the distinguished surgeon who was then known as Mr. Berkeley Moynihan, and the close association continued for fifteen years. Like Moynihan, Braithwaite chose abdominal surgery as his special province. He assisted his chief both in private practice at Park Square and at the hospital, and Moynihan testified on several occasions to his own good fortune in having Braithwaite, thirteen years his junior, at his right hand. He once wrote of him as "unsurpassed by any surgeon in this country for his power of dealing safely and in the most consummately skilful manner with any problem that an operation might present." On the occasion of his own retirement in 1925, Moynihan wrote to his colleague: "Throughout all these years I have had the greatest happiness in my association with you. . . . And your loyalty and good faith have been without blemish. I have counted from the earliest days on your being the best man in our school in your day." Braithwaite acquiesced fully in what might be called the Moynihan discipline. He regarded surgery as demanding not only knowledge and a skilled hand but the dedication of the whole of a man's powers, and he denied himself every indulgence or luxury which might cause the slightest departure from the physical and mental alertness necessary for a crucial task. The partnership between the two men was not interrupted even by war service, for when Moynihan went out to France, in the early part of the last war, Braithwaite accompanied him and afterwards worked with him in the hospitals of the Northern Command. He also served for a time with the Mediterranean Expeditionary Force in Salonika, and held the rank of major, R.A.M.C.

Much other work in Yorkshire included service on the honorary staffs of the Dewsbury and Pontefract Infirmaries and the Ilkley Coronation Hospital. He was an inspector of British Red Cross hospitals in the county. Like his old chief, he devoted much attention to the cancer problem. He was an active member of the British Empire Cancer Campaign, taking a great interest especially in the work done under the aegis of its Yorkshire Council in the department of pathology and cancer research of his own university. He was particularly skilful in the interpretation of scientific findings into language comprehended by the layman, and in the issue of propaganda containing the necessary warnings and instruction, but without emotional exaggeration. This faculty also accounted largely for his success as a teacher. He excelled alike in the formal lecture and in the practical demonstration. He wrote on surgical subjects, not extensively, but always with the same precision as characterized all his professional doings.

At the Royal College of Surgeons of England, of which he became a Fellow in 1907, he was elected a Member of Council in 1933 and held office as a Vice-President in the present year. He was Arris and Gale lecturer to the College in 1923, Moynihan lecturer in 1941, and Bradshaw lecturer a few weeks ago. He was a Fellow of the Association of Surgeons of Great Britain and Ireland, a prominent member of the Leeds and West Riding Medico-Chirurgical Society, and he had been for thirty years a member of the British Medical Association, and was vice-president of the Section of Surgery at the Annual Meeting at Belfast in 1937. Quite apart from his professional distinctions, he was greatly liked as a man, one who had hosts of friends among his colleagues, his students, and his patients, and with whom no time was grudged in the service of others and the solution of their difficulties. He was frequently an excellent host at the Leeds Conversation Club He was also a "hospital man" in the true sense of the word, playing a large part in the shaping of hospital policy in the city. His name and personality never obtruded themselves, and yet his influence was felt in all aspects of hospital work. He also did much of the preparatory work at the outbreak of the present war in organizing the Leeds General Infirmary to deal with possible civilian casualties on a large scale.

Surgeon Rear-Admiral G. GORDON-TAYLOR writes:

Leonard Braithwaite was trained in a great school of surgery at a time when the latter was perhaps at the very pinnacle of its fame, and he worthily maintained the prestige of the Leeds Royal Infirmary with all its wealth of tradition. In matters of surgical technique he was perhaps fortunate in his association with Moynihan, and in the flawless artistry of his own work and his gentleness of touch he even rivalled his master. Perhaps the most exquisite operation that I have ever witnessed by any surgeon in any country was a gastrojejunostomy performed by him at the Royal Infirmary a few years ago on the occasion of a visit of the surgical section of the Royal Society of Medicine to Leeds. As in the fingers of his master, the 5/8-circle intestinal needle was a beautiful tool in his skilful hands. Though possessed of sublime surgical courage, he was essentially a sure and safe surgeon; the desperate adventure and forlorn hope made less appeal to his artistic temperament than to those who are more frequently confronted with the cancer problem.

The memory remains of a charming English gentleman, proud of his Yorkshire county, devoted to the Leeds Royal Infirmary, a man of charm and blessed with a genius for friendship. In his cult of punctuality he was almost an ascetic; but the meticulous ordering of his days and his evenings was dictated by a supreme desire to give of his very best to those who entrusted their lives to his hands. His manner of speech with its attractive drawl did not betray his origin from a great Northern county; his personality radiated comfort and confidence and must have given courage to thousands of patients as surely as it enslaved his many friends and admirers. Best of all he loved his own hearth and home, his devoted wife, and the three daughters of an adored and adoring father.

Dr. GLADYS JULIA CUTHBERTSON RUSSELL, assistant M.O.H. for maternity and child welfare in Leeds, has died at the age of 46. She graduated M.B., Ch.B. of St. Andrews in 1919 and took the D.P.H. of Manchester in 1924. She joined the public health service after house appointments at the Dundee Royal Infirmary and the North Lonsdale Hospital, Barrow, working first under the Cheshire County Council and later in Monmouthshire. She moved to Leeds in 1928, and was soon promoted to take charge of the maternity and child welfare work of the city, and was personally responsible for the growth of the infant welfare clinics and ante-natal clinics, as well as for the development of the midwifery service and the introduction of the "home helps" system. The hospital accommodation for mothers and children was enlarged and reorganized, and Dr. Gladys Russell laid the foundation of the day nursery system. A public tribute to her admirable work and character has been paid by Dr. J. Johnstone Jervis, M.O.H. for Leeds, in the *Yorkshire Post.* She joined the B.M.A. in 1919, was an active member of the Medical Women's Federation, and the first medical woman to hold office as president of the Yorkshire Branch of the Society of Medical Officers of Health.

Dr. EDMUND HENRY COLBECK, who died suddenly at Farnborough, Hants, on Dec. 16, had practised for many years in Upper Berkeley Street, W., and on his retirement from the visiting staff of the City of London Hospital for Diseases of the Chest was elected emeritus physician. He was born at Batley in Yorkshire in 1865, and was educated at Tonbridge School, and at Nelson and Wellington Colleges, New Zealand; he entered Caius College, Cambridge, with a science exhibition, graduating B.A. with first-class honours in the Natural Sciences Tripos of 1887. He then went on to St. Mary's Hospital with a university scholarship, took his medical degrees at Cambridge in 1889, and proceeded M.D. in 1892. After serving as house-physician at St. Mary's and clinical assistant at the Vienna General Hospital, Dr. Colbeck took the M.R.C.P. in 1890 and was elected F.R.C.P. in 1904. During the last war he was consulting physician to the New Zealand Military Hospital at Walton-on-Thames and the South African Military Hospital at Richmond, holding the temporary rank of major N.Z.M.C. He was for a time additional examiner in medicine for the Cambridge Final M.B., and had been an active member of the British Medical Association, serving for two periods on the Council and holding office as vice-president of the Section of Pharmacology and Therapeutics in 1910. Two of his books—*Diseases of the Heart* and *The Science and Art of Prescribing*—passed into a second edition, and he contributed a number of papers to the medical journals on diseases of the heart and lungs. In 1937 a portrait of himself painted by Sir William Rothenstein was presented to Dr. Colbeck at the City of London Hospital for Diseases of the Chest to mark his retirement as senior physician after 45 years' service on the staff.

Correction

We regret that the date of the death of Mr. Russell Howard was wrongly given in the *Journal* of Dec. 19 (p. 740), as Dec. 4 instead of Dec. 2.

Medical Notes in Parliament

Venereal Disease: Regulation 33B

In the House of Commons on Dec. 15 Dr. EDITH SUMMERSKILL moved that an address should be presented to the King praying for the annulment of Regulation 33B. She said the regulation would be quite ineffective and would simply delay real action. During the last year the number of new cases of venereal disease coming to civilian clinics for treatment was 70,000. If they added those that had not been traced, the number of new cases might be 150,000. The numbers in the Forces must also be added, and we had, in fact, gone back in our figures to 1932. In a year or two we might go back to 1928 unless 16,000 expectant mothers who had been infected were traced. This regulation would not protect the men and the country from venereal disease. It provided for the treatment of individuals who had infected two others—nothing more. No two men would inform on a respectable woman who had been infected innocently. The regulation would get only a few people, probably only prostitutes and a few other unfortunate women, but the vast number of infected victims would be ignored. The problem called for a bold and courageous lead from the Minister. The time and money spent on propaganda could be more usefully directed if notification and treatment of these diseases were made compulsory.

Example of Sweden

It would be suggested that many members of the medical profession were not in favour of compulsion. Lord Horder, the president of the Society for the Prevention of Venereal Diseases, was 100% in favour, but she believed he had never been consulted. She drew attention to the speech of Dr. Laird at a meeting of the Medical Society for the Study of Venereal Diseases this year. He said that as a result of compulsory notification in Sweden the defaulter rate in 1935 was only 2.5%, but in this country, where we had not compulsion, it was 82.5%. Replying to Miss Rathbone, who asked if those figures had been checked, Dr. Summerskill said she could only quote figures given by responsible persons. Those figures were in the editorial in the *British Medical Journal* for Nov. 21 (p. 611), and the case was put for compulsory notification. Those who said that the results of compulsory treatment and voluntary treatment were the same had really no case if the figures were carefully examined.

There should, Dr. Summerskill continued, be clinics which were accessible and a social service which would follow up the contacts. There should also be a 100% grant from the Government. The clinics should not be labelled, but should be places where all women's complaints were treated. It was essential, as a wartime provision only, to have a blood test for all expectant mothers. We could profit by the experience of Sweden, where every person with venereal disease must submit to treatment. Immediately a patient reported to the doctor and his disease was diagnosed, the doctor reported to the medical officer of health. A person who exposed another to risk of infection was liable to imprisonment or a fine. If infection occurred there were even more severe penalties. Each party to a marriage must present a written declaration that he or she was free from venereal disease. If a patient ceased attending at a clinic an order would be served on him. If the order was ignored, he must undergo compulsory examination and treatment at the hospital. That would be a comprehensive scheme, and would bring home to every patient suffering from the disease that treatment was essential.

A Useful First Step

During the debate which followed Sir FRANCIS FREMANTLE expressed the opinion that the medical profession would be divided on this subect because they did not all approach it from the same point of view. The whole question to-day must be, What was going to be effective at present? The disease accounted for 15% of the admissions to mental hospitals in London and 16% of the stillbirths. Gonorrhoea, which was crippling rather than killing, accounted for half the sterility in women and 70% of the ophthalmia cases in newly born children. This was an international problem. Regulation 33B was a useful first step, and was all that could be done at present. What was the good of pretending to set up clinics when they had not the doctors to man them, and they could not get them while the war was on? The same thing applied to nurses, almoners, and health visitors. Notification without treatment was a waste of time and labour and brought the whole scheme into ridicule.

Dr. HADEN GUEST, supporting the regulation, said that in the Services, where there were both compulsory notification and compulsory treatment, there was a tremendous rise in venereal infection. Men and women in the Forces were suffering under tremendous strain—moral, spiritual, and physical. If, as he believed, Regulation 33B would help to protect them against the dangers of infection, it was the duty of Parliament to put it into operation. Compulsory general notification of tuberculosis had not been successful, and compulsory notification of venereal disease would not deal with the larger number of cases. They must get at the centres of infection, and the regulation was a way of doing that.

Widespread Ignorance

Sir E. GRAHAM-LITTLE supported the regulation as a first step. He urged that the way in which science should regard the curve of incidence of venereal diseases should be as an epidemic. It was useless to pretend that they could stop an epidemic by dilatory methods such as were proposed from time to time in the way of safeguards. It must be something that could be done here and now. The epidemicity of this trouble was one of its main features. There was widespread ignorance on the part of the general public as to the origin and the methods of the spread of venereal diseases. The compulsory treatment of infected people was a cardinal point of the value of the regulation, because, while a person was not cured of syphilis by one or two injections of the arsenical preparation now used so extensively, he or she was rendered very rapidly non-infective. He was not very fond of notification, which destroyed to a large extent the privacy which ought to attend medical treatment and might possibly defeat the end in view. He was not sure, however, that it might not become necessary for the Minister of Health to extend his powers to include notification—as he hoped he could—under the Defence of the Realm regulations.

Dr. H. B. MORGAN opposed compulsion in any form, whether it was notification or treatment. The idea of compulsion, he contended, was rampant in medical bureaucracy. A great danger was that some doctors were banding together in order to get people to do things which were really unnecessary and unjustifiable from the medical treatment point of view. There was a delusion among medical men that venereal disease was always curable. It was not. It could be cured in some cases. Sometimes patients resisted the most intense form of treatment. The Minister of Health should withdraw the regulation, provide adequate facilities for treatment, and do all he could voluntarily.

Minister's Reply

Mr. ERNEST BROWN, having emphasized that self-control was the proper course both medically and morally and that a higher ethical standard and a fuller appreciation of spiritual values were the only complete and final solution of the problem, said that unless something more was done in this country this might become a tragic issue. Most, though not all, of them agreed that they ought if possible to keep the voluntary system and make it effective. During the last six months they had taken steps to co-ordinate education on this matter with all other health subjects in the hands of the Central Council for Health Education. The Press had dealt with the subject most helpfully, and through arrangements with the B.B.C. information for the public was presented in a way it had never been presented before. A bold, constructive, and sane discussion of this matter on a healthy plane should help the religious forces of the country to make their own case clear. No Minister would raise this issue unless there were grave reasons for doing so, because it involved personal questions of the most intimate kind. As always in wartime there was a rise in venereal disease. The clock had been put back 10 years. The latest information was that the rise was still going on, and the clock was being put back still further. No one could be deaf to the fact that some regulation was needed. Regulation 33B was only a part of the answer to the question.

There were, Mr. Brown continued, three main essentials in the attack on these diseases—public education, adequate free treatment, and indirect action to discourage promiscuity. He put education first. The Ministry were arranging for a complete new series of posters for free issue to local authorities. In the Services educational work was very fully organized, and he had recently been in consultation with various civil Departments, especially on the production side, on the possibility of extending educational work in their activities, and here also expansion could be looked for.

Extent of Free Treatment

Free treatment under conditions of complete secrecy had been available for the last 25 years. There were now 249 treatment centres in Great Britain, three-quarters of which were at hospitals. Eighteen new centres had been provided since the war began, and five more were on the point of opening. The Service demands for specialists and other medical staff made it progressively less easy to start new centres, and to meet the need, especially in the rural areas, a new wartime arrangement had been initiated under which general practitioners with special experience provided free treatment at their own surgeries. The latest returns showed that 109 practitioners were taking part, and they served 74 areas in 11 different counties.

Indirect help by the provision of more and more healthy facilities for recreation was needed. The regulation was not an ill-judged attempt to solve the problem of venereal disease by a single measure but a carefully planned item in a planned programme. The Government claimed that it would stop a gap in the voluntary system which had existed for a long time, and which assumed a new seriousness in wartime. It represented a new approach to the problem—namely, a public health approach. It did not attempt to control solicitation, as did Regulation 40D of the last war, or to discriminate between the sexes. It provided the power to deal with a health problem in a manner which provided safeguards against blackmail.

Safeguards

Mr. Brown said he was proposing to issue a direction by which a patient would know of the penalties for deliberately making false statements before giving detailed information of any kind. A second safeguard was that the practitioner must be satisfied that the information given was *prima facie* reliable in the light of the medical evidence he had. The next stage was that the medical officer of health must receive two separate notices. That was put in the regulation as a safeguard. This was not the case in Sweden, where action could be taken on information received from one person, but here more than a double safeguard was given for persons concerned against any reasonable risk regarding false statements by asking for information to the medical officer of health from two different sources. He made it clear that the whole of the proceedings were private. There was no publicity unless the person concerned made the publicity. Moreover, every attempt would be made to get the person to come voluntarily.

Swedish Figures "Fallacious"

In conclusion, Mr. Brown said that the comparison between Sweden and this country in regard to persons defaulting before completion of treatment was completely fallacious. The Swedish figure of 2% was arrived at by comparing the number of persons who in 1935 ceased treatment early and could not be found again with the total number of cases notified. The English figure of 82% was obtained by subtracting from 100 the percentage of cases stated to have completed their tests of cure in 1935. It was clear that the figures were not comparable, and that the picture given by the English figure was quite misleading. The important percentage was the proportion of new infections with early syphilis which did not complete one course of treatment, since completion of one course even without any further treatment rendered the great majority of cases non-infectious.

Already the appearance of the regulation had caused some persons who had not volunteered for treatment before to come forward. He did not believe that the regulation would be ineffective, but if any new powers were needed he would not be slow to ask the House for them.

On a division, the motion to annul the regulation was negatived by 245 votes to 31.

Medical Attention of Home Guard

Answering Viscount Elibank in the House of Lords on Dec. 15, Lord CROFT said that if members of the Home Guard entered a civil hospital for treatment they would be treated as other civilian patients. If they entered a military hospital or convalescent home, it was desirable that they should be treated in wards or rooms specially reserved for them. The Government would give instructions for this procedure wherever possible in military hospitals. Members of the Home Guard were treated alike in sickness, and under conditions of battle or serious air raid it would often be impossible to segregate men according to rank except to the detriment of the medical attention they should receive. Provision was made that every Home Guard who was injured got medical attention.

Miniature X-ray Equipment

Miss HORSBRUGH stated on Dec. 15 that deliveries of miniature x-ray equipment had not begun. Progress had been made with the detailed arrangements for its use as soon as it came to hand. Mr. Brown hoped to issue in the next few days a circular to local authorities regarding the development of the tuberculosis service in all its aspects, including particulars of the allocation of the miniature x-ray sets. Arrangements had been made for additional beds to be available for tuberculosis. On the supply of nurses for this and other forms of work Mr. Bevin and Mr. Brown were discussing detailed plans with the organizations concerned.

Workmen's Compensation Bill

During the committee stage of the Workmen's Compensation Bill Dr. RUSSELL THOMAS said he understood that "pneumoconiosis" applied to the inhalation of any kind of harmful dust. "Silicosis" and "anthracosis" merely particularized the effect of the special dust inhaled. Anthracite workers quickly developed a cold, but did not get pneumoconiosis at once. The cough was caused by particles of coal irritating the bronchial tubes. The cough made the miner take deep breaths, whereby he inhaled spear-like particles of anthracite which pierced the lungs and set up fibrosis. Mr. PEAKE said the evidence was that this new form of pneumoconiosis existed among coal workers and coal trimmers in South Wales. It was therefore proposed to make a scheme which would cover these cases. There were now 43 diseases scheduled under the Act, and the Home Office would not proceed to make general schemes for pneumoconiosis affecting industry until there was evidence that the disease existed and that it was due to the employment. The Home Office had taken power to go ahead with further schemes without having again to come to Parliament for authority.

Mr. MARSHALL said he hoped that the scheme would be expanded to include pulmonary diseases which affected grinders. Mr. PEAKE stated that the Home Office would require specific evidence before schemes were made under the Bill. The word "pneumoconiosis" was widely defined to include silicosis, asbestosis, and any affection due to the inhalation of dust. Not in every industry where dust was inhaled could it be proved that inhalation caused a disease connected with the employment.

The Services

The King has approved that the following be mentioned in recognition of gallant and distinguished services in the Middle East during the period Nov., 1941, to April, 1942:

Major-Gen. D. C. Monro, late R.A.M.C., and Brig. (local) S. Smith, late R.A.M.C.; Brig. (temp.) F. G. A. Smyth, C.B.E. (since died), Brig. (local) N. St. J. G. D. Buxton, Col. (temp.) D. C. Scott, O.B.E., Lieut.-Col. F. R. H. Mollan, M.C., Major (temp. Lieut.-Cols.) D. Bluett, G. M. Heiron, A. G. Henderson, J. W. Hirst, T.D., R. Lees, R. Marnham, Major L. F. Richmond, Capts. (temp.-Majors) I. Aird, J. B. Bunting, J. M. Corall, J. G. Elmslie, R. S. Hooper, C. McT. Hopkins, R. J. Kellar, H. M. R. Knight, J. B. M. Milne, M.B.E., W. H. Purves, J. C. Reed, and Capts. R. D. I. Beggs, M.C., B. A. McL. Brown, J. W. A. Dennis, J. H. Gibson, J. D. P. Graham, D. R. Hood, C. R. Houghton, M.B.E., H. M. Kelsey, G. T. L. F. Morris, C. G. Pantin, W. J. Shannon, R.A.M.C.; Major (temp. Lieut.-Col.) B. D. Khurana, Major F. W. Whiteman, and Capt. I. B. Mallik, I.M.S.; Subadar-Major T. K. Afrida and Assistant Surgeon J. F. T. O. Nazareth, I.M.D.

The King has appointed Capt. S. A. Mian, I.M.S., an M.B.E. (Military Division), and has approved the mention of Col. A. C. L. O'S. Bilderbeck, Lieut.Col. G. B. Hanna, O.B.E., Capt. (temp. Major) K. L. Jetley, and Capt. P. J. Wormald, I.M.S., and Jemadars F. Singh and J. S. Dugal, I.M.D., in recognition of gallant and distinguished services in Waziristan.

Surg. Lieut.-Cmdr. (Acting Surg. Cmdr.) T. C. Stevenson, R.N.V.R., has been appointed O.B.E. (Military Division) for outstanding devotion to duty in tending sick and wounded during and after the fall of Singapore.

CASUALTIES IN THE MEDICAL SERVICES

Lieut.-Col. TREVOR AVELING BUTCHER, O.B.E., R.A.M.C., who was killed in action in North Africa in December, was born on Aug. 12, 1893, and was educated at the University of Cambridge and at University College Hospital, qualifying M.R.C.S., L.R.C.P. in 1918. He graduated M.B., B.Chir. in 1924, and proceeded M.D. in 1929. He served in the war of 1914-18, and in 1920 was appointed O.B.E. in recognition of distinguished and valuable services during the campaign in South Russia. After the war he was employed for a time at Ministry of Pensions hospitals at Grantham and Leicester, and then settled in practice in London. On the outbreak of the present war he re-entered the R.A.M.C. as lieut., was immediately promoted capt., became major in 1941, and lieut.-col. in 1942. He had been a member of the B.M.A. since 1927. H. R. writes: T. A. Butcher was a keen temporary R.A.M.C. officer with an excellent record in the last war. Not very long after demobilization he started practice in South Kensington, where his unassuming friendly personality soon made him popular with his colleagues, as well as bringing him a steady stream of patients. His quiet easy manner did not prevent recognition of the fact that he knew his medicine and surgery pretty thoroughly; and his capacity for steady reliable work and plenty of it naturally resulted in the reward of a growing practice. He was president of the Chelsea Clinical Society in 1937-8. He was also honorary local secretary for the Royal Medical Foundation of Epsom College. The sympathy of Butcher's many friends in Kensington will be universally extended to his widow and daughter.

Wounded.—Lieut. J. F. A. Wood, R.A.M.C.

Previously Reported Prisoner of War, now Reported Wounded and Prisoner of War.—War Subs. Capt. A. Macfarlane.

It is regretted that by a clerical oversight Major-General Harvey's surname was omitted from the obituary notice which appeared in this column on Dec. 26 (p. 770). The name should have read Major-General Alexander William Montgomery Harvey.

Two slips crept into the obituary notice of Capt. P. C. Banerjee in the *Journal* of July 11, 1942 (p. 56). He graduated M.B. of the University of Calcutta in 1918 (not 1932) and joined the B.M.A. in 1925 (not 1932).

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The following candidates have been approved at the examination indicated:

FINAL M.B.—*Part I (Surgery, Midwifery, and Gynaecology)*: F Ashton, E. H Back, R. A J. Baily, H. W Balme, R. F. Barlow, D R. Barnes, C. H. Barnett, G. M. Barrett, W. M. Bennett, G G B. Blackman, R. H Boardman, J. F Bolton Carter, D. L Bridgewater, A. J. Briggs, W. L. Calnan A Carpenter, M. C. Connell, J. Davenport, E. W Deane, M B. Devas, R. J. Dickson, W. A. dos Santos, D. H. Drennan, C. O. Edwards, J. W. Evans J. W. Fawcett, W. M. Foreman, R. M. Forrester, H. A. Fraser, A. G Freeman, D. S. G. Genge, R. N. R Grant, H. C. Gupta, B Haigh, J R Handforth, E H Hare, H Harris, M. Hemming, J. K. Hinds, P. Holliday, A. E. Howarth, P. H Huggill, D. M. Jeffreys, P. F. Jones, R. N Jones, D. A. G. Kaye, H. W. H. Kennard, A. Lask, J. O Laws, J Lister, J C. Lloyd, R. E. Loder, C S McKendrick, A. I. MacLeod, D. H. Makinson, P. G. Mann, A. S. Mason, J. K. F. Mason, R. G May, F. S. Mellows, R. B. Meyer, P. H. Mitchell, D. A Mitchison, J R. Moffat, G. M. J Nicholl J. E Oliver, J. H. C. Phillips, J. M. Potter, E. J. T. Prettejohn, A. P. H Randle, J R Robinson, K. C Robinson, P. H. Rogers, P. H. Schurr, E. L Simons, A. N. Smith, T. R. Steen, R. V. Stone, R. G Tasker, S Tischler W. H Townsend, J. D. Trethowan, L. R. Twentyman, B P. Webster, D. Whitfield, E. H. Williams, P. A. O. Wilson, O. H. Wolff, R G. Woodsend, W. D Wylie, S. Young. *Women*: J. Hardy, V. U. Lutwyche, H. C. Mason, M E. Wehner.

Part II (Principles and Practice of Physic, Pathology, and Pharmacology): J N. Agate, O B. Appleyard, D J. ap Simon, H. W. A Baron, D J. Bauer, F. W. Blacklay, P. L. Blaxter, J. F. Bolton Carter, N. A. Campbell, A W. Capon, E. F. Carr, R. J. D. Carrick, J. A. H Collyns, M C. Connell, W. N. Coombes, P N. Cunliffe, W. A. dos Santos, W. K Douglas, P F Early, F. M. P. Eckstein, P D Eeman, J. V. T. Gostling, A. J. Gray, D. W. H. Griffiths, A G Harrold, B M. Heap, T S Hindle, S. C. H Hood, P. H. S. Hooper, P. E. Hughesdon, H R Jolly, R. N. Jones, M C. S. Kennedy, L G. Kingdom, F. K. Lau, D. I. Lishman, G C. Lloyd Roberts, T G. E Loosemore, J. K. F. Mason, P H. N Matthews, S R Mawson, H. R. A. Michelmore, N L. Mills, M. C. Mundle, J F. Neil, Y H. Ng, R. V Peters, H L. Pierce, B. Pownall, A. P. H. Randle, R K. Reid, A. G. Richards, W. Rogers, P. H. Sanderson, J. H. Simpson, R D. Slack, I. M. Smith, H. C. Still, M. G. P. Stoker, R. N Ticehurst, W H. Trethowan, B P. Webber, B C Weishman, L. A. S. White, D. E C Whittome. *Women*: H. M. Comely, P. B. Shaw, E. Tylden

UNIVERSITY OF LEEDS

The following candidates have been approved at the examinations indicated:

M.D.—A. L. Taylor.

FINAL M.B., CH.B.—*Part I*: Jean Bateman, Isabel H. M Blyth, I. Bruce, P. S. R. Burrell, *H. N. Burwell, H. S. Capoore, H H Collins, W D. Fletcher, D Fox, R H. Foxton, R. Goldberg, Winifred M. Haigh, J. F. Hanratty, *Cecilia Henry, M. Hutchinson, A. R. Hyslop, *R. B. Jones, Ursula M. Kirk, A. C. Knight, E R. Lecutier, A L. McKnight, O. Magidson, Barbara J. Maxwell, M. M Nagley, S. N. Nathan, Dorothy C. Newell, A P. Percival, H. Shaw, Victoria M. D N. Shaw, M Stanton, D. R. K. Street, P. A. Thorpe, Gwenith Turnbull, W. N. Wild, J R. Wilson.

* Distinction in public health.

UNIVERSITY OF DUBLIN

The following candidates have been approved at the examinations indicated:

M.D.—J. C. Gaffney, C. B Robinson

M.B., B.CH., B.A.O.—K H Anderson, Ivy K. Bayne, Rena Becker, Brenda R. Boydell, G. R Connolly, J. W. Dignan, C K. Elliott, J M. Hanrahan, Hannah E Hinchcliff, G A. McL. Lee, B. Marcus, L. T. H. Mills Lavinia F Nightingale, F. M. Lanigan-O'Keeffe A. V. Poots, R. O. D. Reid, N. L. Smith, M. G. Jackson-Smyth, R. T. Towson.

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

At a meeting of the Royal College of Surgeons of Edinburgh, held on Dec. 18, with Mr. J. W. Struthers, President, in the chair, the following, who had passed the requisite examinations, were admitted Fellows:

J. C. Brass, I. MacK. Davidson, A. T. George, A. M. Glen, J R. E. James, G. B. Jones, H. Karn, E. W Knowles, Jean Mason, J Potter, T C Skinner, K. Watson, H. G E. Williams.

No. 49

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Dec. 12.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1942					1941 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	75	6	16	2	5	132	7	30	4	2
Deaths		1	1				—	3		
Diphtheria	1,079	41	265	86	25	1,103	54	313	30	37
Deaths	21	3	1	2	—	27	1	9	2	—
Dysentery	133	19	53	—	—	165	3	73	—	—
Deaths		1	—	—	—			—	2	—
Encephalitis lethargica, acute	3	—	1	—	—	3	—	1	—	—
Deaths		1	—				—	—		
Erysipelas		—	71	6	2		—	52	8	6
Deaths		—					1			
Infective enteritis or diarrhoea under 2 years				66						
Deaths	51	5	9	10	2	28	1	15	2	3
Measles	13,287	459	563	36	28	667	55	27	75	4
Deaths	14	1	5	—	—	1	—	1	—	—
Ophthalmia neonatorum	69	5	12		—	83	2	14		2
Deaths										
Paratyphoid fever	7	1	—	—		8	—	3	—	
Deaths	1	—	—	—	—	—	—		—	
Pneumonia, influenzal*	989	61	11	5	1	979	52	13	3	13
Deaths (from influenza)	42	2	7	1	—	29	1	1	—	1
Pneumonia, primary			236	39				208	18	
Deaths		—		23	13		83		11	5
Polio-encephalitis, acute	—	—				—	—			
Deaths		—					—			
Poliomyelitis, acute	7	—	2	12	4	14	—	1	2	—
Deaths		—	—				—	—		
Puerperal fever		2	13	—	—		—	10	2	—
Deaths		—					—			
Puerperal pyrexia	174	15	22		—	178	5	9		5
Deaths										
Relapsing fever	—	—			—	—	—			
Deaths										
Scarlet fever	2,769	148	453	95	39	1,324	35	238	59	35
Deaths	—	—	—	—	—	—	—	—	—	—
Small-pox	1	—	6		—	—	—	—		—
Deaths		—	—	—	—		—	—	—	—
Typhoid fever†	10	1	—	7	—	17	4	—	9	5
Deaths	1	1	—	—	—	1	—			
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths			—	—	—			—	—	—
Whooping-cough	1,326	72	46	29	7	1,725	209	52	48	19
Deaths	5	—	1	2	1	6	1	—	—	—
Deaths (0–1 year) ..	388	44	75	42	18	322	33	75	24	18
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	4,896	711	619	243	141	4,271	552	592	184	114
Annual death rate (per 1,000 persons living)			13·9	16·2	‡			12·9	12·2	‡
Live births	5,744	666	839	290	233	4,674	413	710	337	198
Annual rate per 1,000 persons living ..			17·3	19·4	‡			14·4	22·4	‡
Stillbirths	230	25	29			177	14	24		
Rate per 1,000 total births (including stillborn)			33					33		

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes paratyphoid A and B for Northern Ireland.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* 2,082 more cases of measles were reported than in the preceding week. Substantial rises were also recorded for whooping-cough 131, acute pneumonia 99, and diphtheria 68. There was a further fall in the incidence of scarlet fever 131, and of dysentery 58. One case of small-pox was notified in Yorks West Riding, Swinton U.D.

The only large variations in the incidence of scarlet fever within the counties were those of Staffordshire with 43 fewer cases, and Yorks West Riding with 41. Lancashire, with a rise of 51, was the only area with a notably higher incidence of acute pneumonia. The mounting notifications of whooping-cough were due mainly to the experience of Lancashire with 57 more, and Middlesex with 34 more cases.

A violent outbreak of diphtheria involving 111 persons in Edmonton M.B. brought the Middlesex notifications up from 19 to 126. In Yorks West Riding the previous total went up by 33 and in Staffordshire by 26; in Lancashire there were 41 and in Wales 36 fewer cases.

The largest increases in the notifications of measles were those of Lancashire 507; Yorks West Riding 420; Nottinghamshire 198; Leicestershire 183; Staffordshire 147. Lancashire and Yorks West Riding contributed 44% of the total cases of measles during the week. There were severe epidemics in some of the county boroughs, the biggest totals this week being reached by Manchester C.B. 449, Bradford C.B. 495, and Leeds C.B. 487.

Although the figure for dysentery has fallen by 58, the disease is still prevalent: 14 cases, an increase of 11, were recorded in Hampshire (Petersfield U.D. 2, Petersfield R.D. 12); in London 18 cases were recorded in twelve boroughs; in Lancashire notifications went up from 32 to 34 (Liverpool C.B. 14, Manchester C.B. 8, Blackburn R.D. 5, Whiston R.D. 6); and in Yorks North Riding from 10 to 17 (Middlesbrough C.B. 12, Redcar M.B. 5).

In *Scotland* there were 75 more cases of scarlet fever, 51 more of acute primary pneumonia, 40 more of measles, and 31 more of diphtheria. The higher incidence of diphtheria and pneumonia was fairly general. Dundee with 104 notifications had the largest number of cases of measles; in Glasgow the figure had risen from 46 to 82, and in Aberdeen from 35 to 63. Of the total cases of scarlet fever 40% were reported from the two cities of Glasgow 99, and Edinburgh 87.

Up to Dec. 22 there were 35 cases of small-pox, with 8 deaths, in Edinburgh. No further cases have been reported from Lochaber, Inverness-shire, where the only case proved fatal.

In *Eire* an increase of scarlet fever, due to an outbreak in Waterford C.B. 33 cases, was the chief feature of the returns. The notifications of poliomyelitis fell from 18 to 12.

TUBERCULOSIS IN WARTIME

Speaking on the subject of tuberculosis in peace and war in his Malcolm Morris Memorial Lecture recently, Sir Arthur MacNalty said that in 1938 all forms of tuberculosis were declining in Great Britain. The decline in mortality rates had been greater since 1931 than at any time during the present century. It was, therefore, bitter to record that progress had for the second time this century been retarded by war. In 1939 deaths from tuberculosis in England and Wales numbered 26,250, in 1940 28,144, and in 1941 they had risen to 28,669. The figures for the two complete war years did not include non-civilians, but there was some increase in the disease among members of the Services. The incidence of pulmonary tuberculosis in the Army had shown, so far as men were concerned, no upward trend. At the outbreak of war there was a temporary dislocation of the tuberculosis services in some areas, but excellent work was now being done in spite of many difficulties. The present scale of rationed food was adequate for the tuberculous if the diet was carefully planned, as in sanatoria and hospitals. Since the war there had been an increase in mortality from this disease in mental hospitals and mental deficiency institutions. Miniature or indirect radiography, the speaker continued, was an important aid to early diagnosis, but it reinforced and did not supplant clinical examination. Recent work in chemotherapy encouraged the hope that a drug might be found which would destroy the tubercle bacillus in man. After the war more institutional provision and beds would be needed. The Medical Research Council favoured the setting-up of a national board to co-ordinate the planning of a national rehabilitation scheme. This was first advocated by Sir Pendrill Varrier-Jones in 1936. Such a board was called for, especially at the present time.

Medical News

A conference for workers in the medical sciences will be held on Saturday, Jan. 9, at 2.15 p.m. at the London School of Hygiene, Keppel Street, W.C.1. The conference will consider problems connected with the organization, application, and personnel of the medical sciences. It is hoped that any persons interested will attend, and will bring forward their own experience and suggestions for problems to be undertaken. Programme: (1) Address by the Chairman (Dr. D. McClean); (2) address by the industrial organizer of the Association of Scientific Workers on the part which the association can play in improving the status of medical scientists and in bringing the results of their work before the public; (3) accounts by members of the Medical Sciences Committee of the work of the subcommittees: Medicine in industry—Dr. D'Arcy Hart, Nutritional research and the need for a Nutrition Council—Dr. Yudkin, Co-ordination of medical research—Dr. Oakley, Training of medical technicians—Mr. Griffin, The need for a national supply of experimental animals—Mr. Bacharach. Further information may be obtained from the A. Sc. W., 73, High Holborn, W.C.1, or from Dr. J. H. Humphrey, 81, Highgate West Hill, N.6.

The London and Home Counties Branch of the Medical Superintendents' Society will hold a meeting on Saturday, Jan. 16, at 2.30 p.m., at B.M.A. House, Tavistock Square, for a discussion on the relative merits of medical and lay administration of hospitals. Any medical man who is interested will be welcome at the meeting.

It is stated in the Press that Dr. John Ryle is to vacate the regius professorship of physic at Cambridge during the present academic year.

Dr. John Crosthwaite Bridge has just retired from the post of Senior Medical Inspector of Factories, to which he was appointed in 1927; he will be succeeded by Dr. E. R. A. Merewether, who is now in the United States lecturing at the invitation of the American Public Health Association.

Dr. R. E. Smith, medical adviser to Rugby School, has been appointed health adviser to the National Association of Boys' Clubs. Dr. Smith's appointment is a direct outcome of a memorandum submitted to the Council of the National Association by Sir Hubert Llewellyn Smith, and it is hoped that, as well as advising on health problems, Dr. Smith will undertake research work concerning the general health of the working boy.

The Registrar of the University of Glasgow and the Secretary of the University of Edinburgh have jointly published an announcement that under recently revised regulations of the Ministry of Labour and National Service it will be necessary for all young men who wish to enter upon the study of medicine at either university in Oct., 1943, and who were born on or before July 31, 1925, to make immediate application on a form to be obtained from the Registrar of the University, Glasgow, W.2, or the Dean of the Faculty of Medicine, the University, Edinburgh, respectively. Women applicants and men born after July 31, 1925, should not apply until May 15 next.

Plans for building hospitals, clinics, maternity and child welfare centres, where needed, from factory-produced units have been developed by the British Concrete Federation in collaboration with the Ministry of Works and Buildings. These units can be expanded or adapted to suit requirements, and a unit building is proof against fire and the one-kilo incendiary bomb, has a high resistance to blast, and can be erected with the minimum of skilled man-power. Among units shown recently in London were a hospital for 36 patients but capable of expansion, an operating theatre and radiography unit, and clinics and hygiene centres for rural districts.

The Shipwrecked Fishermen and Mariners' Royal Benevolent Society, which lately celebrated its centenary, was founded by John Rye, a philanthropic medical man of Bath, and C. C. Jones, an ex-pilot of Bristol. A feature of this society is that it obtains its funds not only from charitable donations and subscriptions, but also from contributions by seamen themselves.

In accidents other than those on the roads and in industry 8,000 people lose their lives annually, and in a recent analysis of 1,153 of these over half were due to falls, but only a small proportion to falls in the black-out. Nearly one-fifth were due to burns (30% in children) and scalds (80% in children) and one-tenth to drowning. The Royal Society for the Prevention of Accidents prepared this analysis.

Examination of the weight of Paris school children for the school year 1941–2 has shown that an average of 15 to 20% of the children have undergone a loss of weight or no change, whereas in normal times this occurs in less than 1%. The average increase in weight was also distinctly less than in the years before 1939.

Letters, Notes, and Answers

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B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

QUERIES AND ANSWERS

Dressing for Cancer of Breast

Mr. WALTER PHILLIPS, F.R.C.S., writes: In reply to "Deodar" (Nov. 28, p. 654), in my experience the following method has given satisfaction for inoperable fungating carcinomas. Prepare a solution of 10% formaldehyde in water—about 1/3 of the official liquor. Cut a pad of two or three layers of lint to fit the ulcer. Smear zinc ointment over the surrounding skin for protection against caustic action of formalin. Soak the pad in the formalin solution and apply to the ulcer, tucking in the edges so as to avoid overlapping skin margins. Cover pad with a slightly larger piece of jaconet or other waterproof material, cotton-wool, and bandage. Retain in position for 24 to 48 hours. It may be necessary to give a sedative if pain results. A dry necrosis of the fungating mass is produced with resulting cessation of discharge. This horny material may be painlessly pared away with a scalpel until blood appears. The formalin may then be reapplied until the skin shows signs of reaction. Any dry dressing may be used after. The whole process can be repeated in three weeks to a month as necessary. The economy in dressings is remarkable.

Radium and Radon Burns

Dr. IRWIN MOORE (30A, Wimpole Street, Cavendish Square, W.1) asks that anyone who has had practical experience of the after-effects and treatment of serious radium or radon burns in the gynaecological and rectal regions will communicate immediately with him.

Income Tax

Payment of Bank Interest

"Z. X." left his private practice at the outbreak of war and has worked under the E.M.S. ever since. How can he now obtain relief for the bank interest he continues to pay?

⁂ As he is not carrying on a practice he cannot regard the bank interest as a professional expense; but he is entitled to an allowance, either by set-off from the tax now assessed under Schedule E or by way of repayment. He should obtain a certificate from his bank showing what interest he has paid for the period from the ending date of his last professional account to April 5, 1942—distinguishing between the financial years concerned—and forward it to the inspector of taxes asking him to arrange for the appropriate repayment or set-off.

Remittances by Officer Abroad

"CAPTAIN" is a British officer serving in India. He is paid £200 a year as a director of an English company, which is taxed at 10s in the £, less the 10% for earned income relief. He remits £32 10s. a month to his wife in the United Kingdom.

⁂ Assuming that the remittances are made from earned income, and not from dividends, etc., from foreign investments or property, the amount is *not* liable to income tax in this country. As regards the £200 from the directorship the position is a little complicated, he is entitled to such an adjustment as will leave him in the position of having paid United Kingdom income tax in the proportion which his total real income bears to his United Kingdom income. For example, if his pay, etc. (not liable to income tax here), is, say, £600, and the amount of tax which would be payable here on an earned income of (£200+£600=) £800 is £x, then the tax ultimately payable will be 200/600 of £x. A claim to adjustment should be made to the Board of Inland Revenue, Somerset House, London, W.C.2. Any capital brought home after the war in so far as it results from savings of earned income will not be liable to United Kingdom tax.

Absentee Practitioner—Earned Income

"CAPT, R.A.M.C.," is an absentee practitioner whose practice is being carried on under the Protection of Practices Scheme. His half-share has been assessed as unearned income.

⁂ As we understand the position such income is regarded as accruing from the continued exercise of the taxpayer's profession, and as such we consider it should be assessed as earned income, even if the practitioner is not able to show that he has assisted occasionally in the conduct of the practice during the financial year in question. If the local inspector of taxes will not agree to amend the assessment we suggest that our correspondent should put the facts in writing to the Chief Inspector of Taxes, Imperial Hotel, Llandudno, N. Wales.

Appointment: Motor-car Expenses

"P. Q. R." points out that retired medical men who take up work—e.g., on medical boards, the emoluments of which are charged under Schedule E—are at a disadvantage in that they are not allowed to deduct the expense incurred in keeping a car to travel to and from the place where their work is done.

⁂ This is so. The rule relating to Schedule E as interpreted in the courts prevents the deduction of the cost of travelling from the place of residence to the place where the work is done, the grounds of the judicial decision being that such expenses are not incurred "*in* carrying out the duties of the office."

Reduction in Earned Income

C. J. M. points out that the operation of the previous year's basis of assessment where, owing to some change in circumstances, the income has declined, involves the taxpayer either in unfair taxation or in the trouble, and probably the expense, of producing accounts and claiming an adjustment.

⁂ We agree that the "relief" from the operation of the previous year's basis when the income falls by 20% does involve some trouble, but it is only natural that the Revenue should require evidence that the relief is due. If the practitioner returns to his practice after the war, he stands to gain by the way in which the previous year's basis will work and, unlike himself, the Revenue has no right to claim a departure from it.

LETTERS, NOTES, ETC.

Recurrent Chicken-pox?

Mr. FRANK MANNINGTON (London, N.10) writes: On Oct. 21 last I saw a child, aged 7, with a typical but mild attack of chicken-pox. This followed a normal course and the child returned to school at the end of three weeks. On Nov. 25 I was again called to see her and found her suffering with a severe attack of chicken-pox, which again is following a normal course. During over 40 years of practice I have never before seen a recurrent attack of chicken-pox. Perhaps it is worth putting on record.

Health of the Medical Student

Dr. B. H. SHAW (St. Mawes) writes: I have read Dr. Hope Gosse's article (Nov. 14, p. 567) on the health of the doctor. May I suggest that attention should be given to the health of our medical students at the present time. The diet of students in college is carefully attended to and adequate, but the majority of those who are "taking out" hospitals are away from home and left to the mercies of landladies, no extras are allowed, and young, growing, hard-working adolescents have exactly the same rations as old people. It is obvious that the strain and mental tension involved at the present time in intensive application are very considerably greater than in peacetime, as the standard of the examinations must be maintained and apprehension of failure to sensitive natures under the present circumstances is a most serious matter. There is no excuse whatever for failure to see that the nutrition of these young people, compelled to undergo such severe conditions, should not be at least as good as that of other adolescents engaged in work of national importance. If it is to be understood that medical students, being in a reserved occupation, are so engaged, it is manifestly the duty of the authorities concerned to see that adequate food for their needs is provided, especially proteins, and not just enough to keep body and soul alive. When breakdowns occur a very heavy responsibility is incurred.

A "Medical Protection" Jubilee

It is just 50 years since the London and Counties Medical Protection Society came into existence. At the end of its first year it had 200 members, compared with the 18,000 it has now. Its first annual report, with the subheading "A Year's Work among the Black Sheep," is an amusing and even flippant document. In 1892 there were "specialists in corpulency," charlatans whose practice it was to circularize fashionable dressmakers in the hope that the latter would bring their slimming cures to the notice of clients. The report also mentions a man who—in the hard-headed Midlands too, not in the gullible South—succeeded in passing himself off as a doctor on the sole ground of the possession of a high gig and a smart footman. Medical practice changes, and with the change come new pitfalls. When the Society began its work there were no complaints over such matters as burns arising out of electrical treatment or failure to make an *x*-ray examination in a suspected fracture. Indeed, some of the earliest cases it had to defend turned on the point that the practitioner had done too much rather than too little. It is remarkable that in its 50 years the Society has had only four Presidents—Sir Jonathan Hutchinson, Dr. G. A. Heron, Sir John Rose Bradford, and now Sir Cuthbert Wallace, who was re-elected to that office at the annual meeting the other day. During the past year it has had to deal with 886 applications for advice and assistance. The idea has arisen in some quarters that a doctor in an official position or in the Services does not require protection, but only recently the Society has been concerned to defend practitioners in the employment of local authorities and officers tried by court martial The Treasurer, Mr. W. M. Mollison, reports a prosperous state of affairs, with over £85,000 accumulated funds. Originally the Society was responsible only for the payment of a member's own costs in proceedings, and in the event of an adverse verdict the member had to pay any costs or damages on the other side, but since 1924 it has given an unlimited indemnity.

Diet and Queening

Queen bees and workers are produced from identical larvae, and it is possible to rear queens from any female larva less than 3 days old by providing it with the appropriate food. On the chessboard a pawn has to plod dangerously to the eighth square to become a queen; but among bees royalty is a gastronomic affair. During the first two days after hatching, royal jelly, which is a secretion of the pharyngeal glands of the workers, is given to all female larvae. On the third day the diet of the larvae destined to become workers is abruptly changed, while the larvae destined for the throne continue to receive royal jelly. Heyl (*Science*, 1939, **89**, 540), it may be remembered, demonstrated the gonadotrophic activity of royal jelly on the ovaries of the immature rat. The jelly has been analysed by various workers, and at one time it was thought that the magical property resided in vitamin E. P. B. Pearson and C. J. Burgin (*Proc. Soc. exp. Biol.*, N.Y., 1941, **48**, 415) have recently come to the conclusion that the only vitamin in which royal jelly is unusually rich is pantothenic acid. It is, in fact, the richest known source of this member of the vitamin B_2 complex, but it has yet to be proved that it is pantothenic acid which will turn a possible worker into an actual queen.

Soluseptasine in Rheumatoid Arthritis

Dr. BERNARD F. SHEA (Sligo) writes: I have treated many cases of early rheumatoid arthritis with injections of soluseptasine, and the results have been so satisfactory that I think a more extended trial is worthy of consideration. My first case was in a married woman of 24 who had swollen ankles and great pain and limitation of movement in her knees, elbows, and shoulders. She had also typical swelling of the joints of the fingers. She had been in this state for three years and could walk only with great difficulty I gave her 12 injections of 10 c.cm. of 10% soluseptasine intramuscularly daily, and improvement set in immediately. She is now, 2 years afterwards, quite well. I have treated many more cases with like results, and even chronic cases improve with these injections. I have sometimes given 18 injections to a severe case and have never found any toxic reactions in a series of 50 cases.

Rationed Distribution of Doctors?

Dr DUNCAN LEYS writes with reference to his letter published on Dec. 12 (p. 708): I am reminded that the public health and medical staff of Inverness and its environs (with a population which I estimated at 30,000) also serve the county of Inverness with a further 55,000 people, so that the present staff is less, not more, than my estimated number required for basic essential wartime needs in a rationalized medical service.

Unreliable Vaginal Pessaries

Dr. MARIE C. STOPES writes. May I support emphatically the letter you publish from Dr. Lilias M. Blackett Jeffries (Dec. 12, p. 714) saying that quinine pessaries are widely advertised and the public "has complete confidence in them" though they lead to many undesired pregnancies. The misplaced confidence of the public is partly created by members of the medical profession who unfortunately advise their use, but even more by Press advertising. Since the foundation of the first birth control clinic we have done everything possible to spread the truth—namely, that *no* medicated pessary is, or can be, 100% safe by itself.

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THE PREMATURE INFANT: MANAGEMENT AND PROGNOSIS

BY

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There has been widespread discussion, with grave disagreement, between observers in various countries concerning the correct definition of prematurity. The obstetrical conception of prematurity is inacceptable from the paediatric point of view, because the dates given by pregnant women are notoriously inaccurate. Also, debilitating diseases in the mother have such a profound influence on the birth weight and vitality of the infant that a baby born under such conditions, even when it reaches term or sometimes goes past it, must be regarded as immature, as it tends to be under-developed and incapable of carrying on independent extra-uterine existence without special measures to help it.

The definition of prematurity now widely accepted is that recommended by the International Committee at Geneva in 1937, and agreed to by the British Paediatric Association in 1938; this gave the higher limit of viable prematurity as a birth weight of 5½ lb. and the lower limit as the 28th week of pregnancy, irrespective of the weight at birth. This standard has been found satisfactory in the Rotunda Hospital, where a special department has recently been established for the management of premature and weakly infants.

We are of the opinion that the question of the premature infant has not received the attention it deserves from the medical profession in general. A study of the public health reports of most of the thickly populated areas of Great Britain and Ireland reveals a considerable reduction in the infant mortality rate during the past ten years—i.e., from about 100 to 60 per 1,000 births. On the other hand there has been no appreciable reduction in the neonatal death rate, which still remains at about 32. This means that 50% of the infant mortality during the first year of life occurs within the first month. For a more detailed analysis of the neonatal death rate one must turn to the maternity hospital reports. The latest report of the Rotunda Hospital records 39 neonatal deaths from a total of 3,194 live births; of these 39 infants 25 (60%) were premature. In the National Maternity Hospital, Dublin, out of a total of 133 neonatal deaths 67 (50%) occurred among premature infants; and in the Royal Edinburgh Maternity Hospital in 1938 the proportion was over 50%. These figures show that the greatest single cause of death in the neonatal period is prematurity. Hence, if any appreciable reduction is to be made in neonatal mortality attention must be focused upon the management of premature infants and the causes of their death.

The Outlook for the Premature Infant

Before advocating the difficult and expensive measures necessary, however, it is wise to find out whether the saving of this group of infants is biologically sound. Opinions certainly differ as to the outlook for the premature infant. Capper (1928) maintains that it as often as not becomes the backward school child or a candidate for a home for imbeciles. On the other hand Wallich and Fruhinsholz (J. H. Hess, 1923) record that Newton, Rousseau, Voltaire, Couvier, Victor Hugo, Lamartine, and Renan were all premature-born. As late as Dec., 1940, we find Robert Hutchison, then President of the Royal College of Physicians and ex-President of the British Paediatric Association, when writing of premature babies saying: "I have a strong suspicion that, of those who survive, a large proportion turn out defective, either physically or mentally, or both."

To help to clear up the matter we have recently made a follow-up study of a group of premature infants which had passed through the paediatric department of the Rotunda Hospital within the last seven years. We were able to trace 45 of these. Seven had died—two within the first month of discharge from hospital, four during the first year, and one at the age of 2 years from bronchopneumonia following an attack of measles. The death rate in this group is only slightly higher than the infant mortality rate in the city of Dublin as a whole.

Of the 38 survivors nine can be said to have some slight abnormality—e.g., three of the children, all of whom are under 5 years of age, have not yet learnt to control the bladder. We feel confident, however, that they will eventually overcome this handicap, as some of the 7-year-olds whom we examined did not learn bladder control until they were 6 years of age. Four of the children have some speech defect (three stutter slightly and one has idioglossia). Those also, we believe, will overcome their handicap if carefully trained during development. One of the remainder has a right-sided hemiplegia: the right hand shows a choreiform movement together with a typical dinner-fork deformity. The lesion in this case would appear to be in the region of the basal ganglia. The child is at present 7 years old, and is able to walk almost perfectly in her special boots. Briefly, the clinical history is as follows:

Weight at birth: 4 lb. 13 oz.
How much premature. 6 weeks
Place in family: 8th
Mother's health in pregnancy: Severe albuminuria
Remarks: Baby very jaundiced at birth; was treated for icterus gravis

The other has Little's diplegia; this is an only child, and her mother is very intelligent and co-operative. Through her patient training the child has now learned to walk, and continues to progress as well as might be expected. She is now 3 years old. A brief summary of her hospital chart shows the following:

Weight at birth: 3 lb. 1 oz.
Nature of labour. Rather difficult delivery with version and manipulations
How much premature: 9 weeks
Place in family: 1st
Remarks. Crown of head appeared bruised. Child was 10 weeks in hospital, and was discharged weighing 6 lb. 3 oz

To sum up, we found that out of the 38 surviving children 29 (76%) were perfectly developed and equal in weight and height to the average full-term infant for their age; of the remaining 9 only two were found to have severe defects, and in neither case could the result be attributed to their prematurity. The series is small, but we are justified in allowing these figures to support our previous belief, founded upon individual observation, that premature infants, if without congenital stigmata and given special care, will generally grow up normally.

The Rotunda Paediatric Department

Some 15 years ago the Rotunda Hospital contained no paediatric department, intern or extern. There were no temperature charts for babies, and few notes were kept regarding their progress. It is stated that some 60% of all premature and sickly babies born in the hospital died before discharge. A paediatric department was then founded, and has since gradually developed into the following organization. Special nurseries with 31 cots have been set aside for the management of all premature infants and those suffering from other neonatal disorders. These nurseries are under the control of a paediatrician and managed by a paediatrically trained nursing staff. The normal babies are still managed in the general puerperal wards with their mothers, though each baby now has its own chart, on which its daily weight and temperatures, together with other clinical observations, are noted. A large extern clinic for babies born in the hospital or in its district has also been instituted. The method in the Rotunda Hospital differs from that in some other well-known maternity hospitals in the way normal and abnormal babies are managed in different departments. It has been adopted for two reasons. First, if a sister is given charge of all infants, normal and abnormal, the latter do not receive the same attention as if she has all her time to concentrate on them. Secondly, by leaving the normal babies with their mothers and their midwives in the wards both the latter are taught to manage the babies by ordinary simple methods which can be carried on in the home. It must be admitted that this exposes the normal babies to some degree of infection from visitors; but we believe the system is in accordance with the movement of medical opinion, for we visualize a time when every mother going into a maternity hospital will be provided by society with a room, or at least a cubicle, for herself and her baby during the few days she must spend within its walls. This will entail some modification of present arrangements in the puerperal wards, but the necessity for a nursery for the special cases will still exist.

The result of these measures is seen in the last report of the Rotunda Hospital, quoted above, the premature death rate having fallen from 60% to the present figure of 16%. The measures which are responsible for this very large reduction are discussed below under four headings: (1) maintenance of body temperature; (2) feeding; (3) nursing technique; (4) prevention of infection.

Body Temperature

In the premature infant the heat-regulating mechanism is imperfectly developed at the time of birth, and unless the infant is kept warm by the application of external heat the body temperature quickly falls. This inability to regulate and to maintain a normal body temperature is attributed to incomplete balance between loss and production of heat. The premature infant, if left unattended, rapidly cools down to the temperature of the surrounding air, and among the factors which favour such a rapid lowering of the body temperature are: (*a*) the relatively great area of heat-eliminating surface—i.e., the skin as compared with body weight; (*b*) the absence of subcutaneous fat, which increases the escape of heat from the body (Blackfan and Yaglou, 1933); (*c*) the very low production of heat; and (*d*) the failure to increase this by crying, kicking, and other activities when the environmental temperature falls below normal.

On the other hand, hyperthermia is very easily induced in these infants, as the heat-eliminating mechanism is equally imperfectly developed: the sweat glands do not function as freely as in full-term infants, and sometimes they fail to act at all. Incubators are now available for the maintenance of body temperature in premature infants; some modern ones are so constructed that the temperature and humidity of the air are automatically adjusted, and the infant can be fed, weighed, and the diapers changed without removing it from the incubator. Incubators are, however, very expensive, and in our opinion are too complicated for use in an institution that has a large number of infants to look after.

When one is confronted with the problem of a premature infant in the environment usually met with in practice the quickest and cheapest way to maintain its body temperature is by the use of three hot-water bottles suitably covered with blankets or flannels, one being placed on each side of the infant and the third at the feet. The water is changed in rotation every few hours. In more favourable circumstances electric pads or electrically heated blankets may be used with advantage, provided they are closely watched to prevent overheating. For hospital purposes or in nursing homes some form of heated cot is most efficacious. In the Rotunda Hospital a simple incubator cot is used, which consists of a rectangular wooden box, divided into an upper and a lower compartment by a removable "mattress" formed of zinc strips criss-crossed on an oak frame. In the lower compartment are fitted two high-resistance electric bulbs, which keep the temperature of the cot between 80 and 85° F. The upper compartment, well cushioned, receives the infant. This incubator cot is a modification by one of us (W. R. F. C.) of the type introduced by Allen of Belfast.

In addition to the use of the heated cot the temperature of the ward is maintained at 70 to 75° F. by central heating. Such a high temperature tends to dry the air, and premature infants do not thrive in a low relative humidity. To combat this difficulty a humidifier which keeps the relative humidity of the ward between 60 and 65% has been installed in the premature ward. Conditioned air is of course the ideal, but for financial reasons we have not yet been able to install the apparatus in the Rotunda nurseries. All infants weighing less than 5 lb. at birth are nursed in this specially heated ward of high relative humidity. When they are 5 lb. in weight they are transferred to a cooler ward with a temperature of 60 to 65° F. and a relative humidity of from 40 to 45%. It has been our experience that larger premature infants of 5 to 5½ lb. do not gain weight as readily when nursed in the heated and humid ward as when kept in the cool ward. In the private house the relative humidity can be maintained by the use of a steam kettle or by spraying the room frequently with warm water, or, if the floor material is suitable, by mopping the latter with a wet towel. The premature infant becomes dehydrated if the relative humidity of the room is allowed to fall below 30%, and this very quickly takes place if electric heaters are used in a badly ventilated room.

The use of suprarenal cortical hormone (both synthetic and/or the extract of the gland cortex) for the treatment of dehydration and for stimulating growth in premature infants has recently been reported upon favourably by some observers. We have used this substance in some cases, both to treat dehydration and to prevent it, but we have not found it of general benefit. It has proved of great value, however, in some cases of birth shock and in certain cases of dehydration, possibly those associated with a ketosis.

In spite of the use of the heated cots for external application of heat the temperature of premature infants fluctuates considerably in the first few days of life, and some of them cool down to an alarming degree within half an hour of birth. It is often very difficult to restore the temperature to normal by employment of the incubator cot alone, so recourse has to be had to some means of stimulating the infant's production of heat. The method we now use as a routine at the Rotunda Hospital is the administration of thyroid, which has proved most successful. The infant is given 1/4 gr. of thyroid (B & W) on admission, and 1/10 gr. twice daily for the next three to four weeks. We have found this hormone extremely useful in maintaining the body temperature and stimulating growth in premature infants.

Feeding

The digestive apparatus, even in the smallest premature infant, is reasonably well developed: most of the digestive ferments are present as early as the fourth foetal month, increasing gradually until the adult level is reached when the baby is 3 months old (Hess, 1923). The ideal food is breast milk, and every effort should be made to secure this. The mothers of such infants seldom, however, have enough milk until about the third or fourth day. In such circumstances, if possible, pooled breast milk should be obtained or a wet-nurse be engaged. In a great many cases it will be found impossible to obtain an adequate supply of breast milk, and artificial feeding will have to be resorted to.

At the Rotunda Hospital the smaller premature infants are usually fed two-hourly by day and three-hourly by night, making a total of ten feeds in the twenty-four hours; the larger infants are fed three-hourly. Immediately on admission to the nursery the infants are given water 1/2 oz., glucose 1/2 drachm, and thyroid gr. 1/4. Feeding is started two hours later, except in the case of cyanosed infants and infants born of toxaemic mothers, who are kept on glucose-water for the first 12 hours. For the first three or four feeds the infants are given a weak mixture of milk and water (e.g., 1 part of milk and 2 parts of water), gradually increasing to a stronger mixture in two to three days. Breast milk is used when available, and by the end of the first week the infants are able to take this undiluted. When breast milk is not available, however, humanized dried milk or peptonized milk is substituted: these preparations are almost impossible to obtain at present, and we are now using half-cream "Cow & Gate," dried acid milk, or boiled cows' milk with equal success. Because of the low food value of weak milk mixtures they have to be reinforced by the addition of sugar (1 drachm to 2 oz. of the mixture). It is well known that premature infants take sugar with avidity during the early days of life, and it has been suggested that hypoglycaemia may be the cause of death in some of them, especially those weighing less than 3 lb. at birth. We have found, however, that they do not tolerate such a high percentage of sugar after two or three weeks, and the earliest clinical indication of carbohydrate intolerance is when the buttocks tend to get red. When this occurs sugar is cut down to about 1 drachm in 3 oz. of the mixture, and the protein content is correspondingly increased: this increase must, however, be very gradual, otherwise the infant will develop protein dyspepsia and start vomiting curds.

Our experience has been that infants weighing less than 4 lb. at birth or who have had a difficult delivery are seldom capable of sucking from the breast, and even when the milk is expressed are too weak to obtain an adequate supply from the bottle. Special teats, Breck feeders, pipettes, and spoon-feeding have been recommended for such infants; but these methods are unsatisfactory, as the feed tends to get into the larynx, causing coughing and choking. We now use gavage (tube feeding) for babies who are unable to suck easily. The pharyngeal reflex is imperfectly developed in these infants, so that the operation is carried out with the minimum of disturbance while they lie in their cots. When the infant starts to suck at the tube it is a sign that bottle-feeding may be gradually started. By this means we are able to avoid giving concentrated mixtures as advocated by some workers: these in our opinion are a potent cause of digestive disturbances. Instead of thickened feeds we give more feeds in the twenty-four hours—i.e., about 10 oz. to babies weighing 3 lb. or less, and about 15 oz. to babies over 4 lb. It is our experience that at this period of life the quantity of feeds is more important than the quality. By giving large quantities of fluid, in addition to keeping the infants in an optimum air condition, we have been able to reduce the initial weight loss to a considerable degree, and in some cases to eliminate it.

We have found it impossible to make an invariable rule for supplying the calorie requirements of our premature infants; some of them take as much as 45 to 50 calories per lb. body weight in the first twenty-four hours, while others will not; but none of these infants will gain weight after ten days on anything less than 60 calories per lb. body weight a day, and often we have to increase to 100 or more.

Vitamin Therapy.—Vitamin concentrates are administered to all our premature infants from a very early date. Vitamins A and D are added to the feeds in the form of adexolin from the second day of life. 3 minims daily is given at first, and this is gradually increased until 5 minims is being given by the end of the first month. Redoxon (vitamin C) 10 mg. daily is added to the feeds from the fourth week. Infants who have had a difficult delivery or who have haemorrhagic disease of the newborn are given vitamin K as a routine—0.5 to 1 c.cm. kapilon twice daily.

Nursing Technique

Of equal importance to feeding and other measures in the management of the premature infant is the nursing technique. In the Rotunda Hospital the following routine has been most successful. Immediately after birth the cord is ligatured and cut; the baby is cleansed with warm olive oil and wrapped in a warmed gamgee jacket of known weight. Recently, since olive oil can no longer be obtained, we have refrained from washing them altogether, leaving the vernix to fall off gradually. On admission to the nursery the baby is weighed and the rectal temperature taken. A dry dressing is applied to the cord, strict precautions being taken to prevent sepsis; the dressing is kept in place by a flannel abdominal binder. If the infant weighs under 4½ lb. its limbs are wrapped in cotton-wool; if under 4 lb. the head is also wrapped in cotton-wool. Glucose-water and thyroid gr. 1/4 are now given as already outlined; the baby's colour is most carefully observed and the rectal temperature taken again after two hours. If the general condition is not now satisfactory—i.e., if the baby is cyanosed or has birth shock—some form of stimulant is administered, such as nikethamide (coramine), rectal coffee-saline, or brandy. If the condition is satisfactory two-hourly feeding is begun. The baby is subsequently cleansed with olive oil once a day: the diapers are changed five times daily, when the baby is stimulated to induce crying in order to prevent atelectasis: at these times the genitals are cleansed with sterile water and the buttocks rubbed with a cream containing castor oil, zinc oxide, and tinct. benzoini co. The baby is turned on its side every four hours to prevent congestion of the lungs. A bi-daily temperature chart is kept and the baby weighed three times a week.

Infection

Infection is one of the commonest causes of death in the neonatal period. Newborn infants as a rule, and premature ones in particular, have but little power of resistance, and succumb very readily when infected. In an analysis of the causes of death of 101 premature infants in Edinburgh Maternity Hospital it was found that 43 of the deaths were due to infection (McNeil, 1940). Such a finding, however, is not confined to Edinburgh. It has been our experience on more than one occasion, and that of all other maternity hospitals of our acquaintance. The sources of these infections are as a rule:

(*a*) *Fingers of Attendants*.—Organisms are conveyed to the fingers from septic spots on the face or other parts of the body or from masks which have become infected; if the hands are not properly washed, contact with the premature infants implants the organisms on their delicate skin and gives rise to infection.

(*b*) *Improperly Sterilized Feeds and Teats*.—During the early days of life the contents of infants' intestines are sterile, and if their feeds are not thoroughly sterilized they tend to contract a sudden heavy infection with coliform organisms. These are absorbed not uncommonly into the circulation and are later excreted by the kidneys, giving rise to pyelitis and secondary enteritis in both male and female infants.

(*c*) *Droplet Infection*.—This is caused by attendants or visitors, with or without obvious respiratory infection, breathing over the infants; the commonest organisms thus spread are pneumococci, streptococci, and staphylococci.

Infection has been found our greatest difficulty in the Rotunda Hospital nurseries. Again and again it has appeared in spite of the most stringent regulations. During the present year we have had a persistent outbreak of enteritis. As well as enforcing the most stringent regulations regarding the sterilizing of feeds, bottles, etc., and washing of the nurses' hands, we do not now allow admissions from outside the hospital or infected cases from the puerperal wards even to the isolation wards in the nursery. No visitors or students are permitted entry to any of the infant wards. The nurses' nasopharynges are periodically examined and swabbed, and sterile masks are supplied in sufficient quantities to avoid their being worn when permeated by saliva, and the nurses are instructed never to touch them with their fingers once they are adjusted.

Discussion

There is no doubt that the measures necessary to reduce the death rate of premature infants are elaborate and complicated, but the results that may be obtained are so remarkable as to make them well worth while. In the past far too much publicity has been devoted to the maternal complications of obstetrics and far too little to those of the child. If the neonatal death rate is to be reduced, as can so easily be done, a new attitude to the whole subject is essential. A proper paediatric unit must be developed in every maternity hospital. There should be a maternity hospital in every region. For babies born outside the maternity hospitals, units of a similar nature should be set up in all children's hospitals. It can be said that attempting to manage premature babies in the general wards of children's hospitals is almost waste of time, as they will tend to become infected and die.

We have dealt here with the management of the premature baby exclusively, and so far have said nothing in regard to the prevention of the condition. This is largely a social matter that can no longer be ignored. The maternity centre in New York has been able, by pre-natal care, to reduce the percentage of premature births by one-third. In a certain home for unmarried women in Oslo the proportion has been reduced to 2%, compared with 32% still prevailing among women of the same class attending the ordinary obstetrical clinic. Nutrition, sufficient rest, and relief from strain are the most important predisposing factors. In this connexion it is well to mention that cerebral haemorrhage is a common cause of death among premature babies, and recent work suggests that one of the reasons for this is lack of vitamin K in the mother's diet. Women suffering from even mild types of the toxaemias of pregnancy are usually placed upon deficiency diets. In the past obstetricians have often failed to recognize the importance of adding vitamin concentrates to these diets. In all such cases it is wise to give special injections of vitamin K.

Finally, we may sum up the position in regard to prematurity by saying that when a combined effort is made by the obstetrician and the paediatrician a considerable reduction will occur in its incidence and its death rate, and as a result we may expect a general improvement in the whole neonatal mortality.

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TREATMENT OF WOUNDS AND INFLAMMATION BY X RAYS AND RADIUM RAYS

BY

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The use of x rays and other radiations in the treatment of wounds and inflammations has been much neglected. Dr. Leopold Freund of Vienna, who was the first to employ x rays for any form of therapy, used them for inflammations more than 40 years ago. One of us treated such cases as long as 36 years ago, and the other has done experimental research work on the basic principles underlying this treatment. The causes of this neglect are various. First, the indications for the treatment were so universal that it came to be looked at askance by the profession, who feared that it was a semi-quack treatment. Secondly, the discovery of the value of x rays and radium γ rays in malignant disease overshadowed their other uses. Thirdly, incorrect dosage was used in the earlier days. It was not until 1928 that it came to be universally realized that the doses previously given were too large and either produced inferior results or caused the late development of telangiectases and atrophy of the skin. Fourthly, it has been found that the action of ultra-violet and sunlight increases the liability to these late changes if larger doses have to be given, as in keloid. Finally, in the earlier days of the use of x rays the penetration, in treating deep-seated conditions, was much too low, so that the surface received an overdose and the deep part an underdose. Also, in those days accurate measurement of the dose, except that administered to the surface, was impossible.

With the very small doses now employed by some radiologists it is possible to carry on treatment, if necessary, for very long periods without the slightest risk of after-effects: this necessity, of course, arises only in the most chronic inflammations. Success has been obtained by ray therapy in such diverse conditions as carbuncle, erysipelas, suppurative parotitis, tuberculous glands, tuberculous peritonitis, actinomycosis, chilblains, whitlow, gas gangrene, osteomyelitis, and many others.

Basis of Treatment

In wounds there are two purposes to which irradiation can be put. One is the acceleration of the healing of clean wounds and the prevention of keloid; the other is to check the local inflammatory reaction, if there is no foreign body or sequestrum present. It does not matter whether the infection is acute, subacute, or chronic, except that one tends to use even smaller doses in acute cases. Experimental research work was done on the mode of action of small doses of x rays at the Holzknecht Institute in Vienna by one of us and by Shuichi Fukase. This gave the following results:

(1) Under treatment with small doses of x rays polymorphonuclear leucocytes in exudates break down more quickly than they usually do. Some think that this increased breakdown of polymorphs may be combined with the liberation of immune bodies and that the acceleration of healing is achieved by this means. (2) Wounds of the skin and of the cornea of animals heal sooner in the part treated locally by x rays. On the shaved skin of rabbits incisions were made about 12 cm. long down to the superficial fascia. One half of the incision was covered with lead and the other half was treated by x rays immediately after the wound was inflicted. The wounds were left open and the animals kept in their usual surroundings. In that part treated by x rays hardly any exudate or other sign of cellular reaction occurred either as to the naked-eye or the microscopical appearance. The treated part of the wound was healed in 8 days as if it had been sewn up. The untreated part became infected and healed slowly by granulation. (Figs. 1 and 2.) Wounds of the cornea healed without surrounding inflammation on the side treated by x rays, but with marked infiltration on the side not treated. (3) Experimentally produced fractures of both fibulae of rabbits heal more quickly on the side treated with x rays. The callus on the irradiated side is less in quantity, is formed earlier, and is more heavily calcified. (4) After the inunction of tuberculin into the skin no reaction takes place in the part of the skin treated by x rays soon after the inunction. This shows the local effect of x-ray

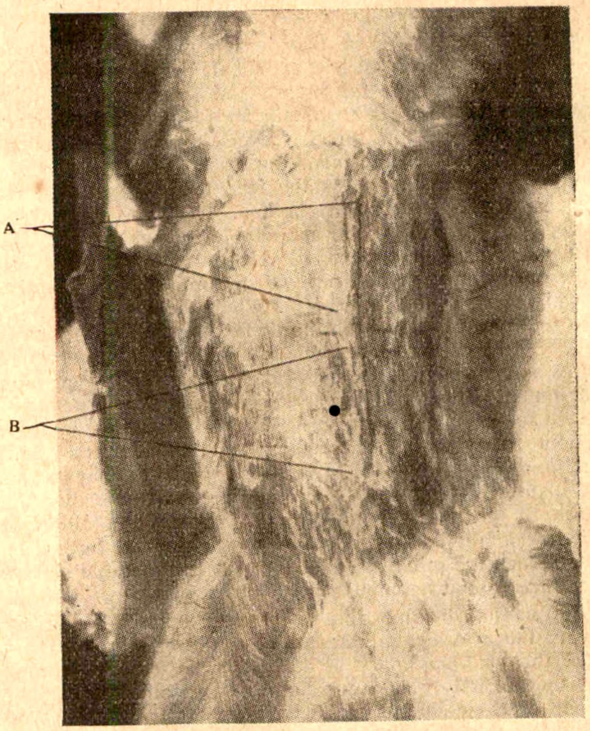

FIG. 1.—Cut in back of a rabbit 5 days after Section A had been irradiated. This section is firmly united, while Section B is still ununited.

treatment on the immunity reaction. The most striking result in all these experiments is the prevention of gross inflammatory reactions as seen both macroscopically and microscopically. Exudates are prevented and any inflammatory cells are rapidly changed to fibrocytes and fibrous tissues. This change, which always normally occurs in inflammatory reactions when sound natural healing takes place, can be induced and accelerated artificially by *small* doses of x rays. If *bigger* doses are used, reversed effects and even necrosis occur, probably on account of the fact that inflamed tissues are much more radiosensitive than normal tissues. It seems to be of specific value in checking *local* inflammatory reactions which are of no further use in defence. Sometimes a mild infective agent will elicit abundant cellular reaction in the body and thus endanger life. In these cases irradiation is most useful by cutting short this inflammatory allergic reaction.

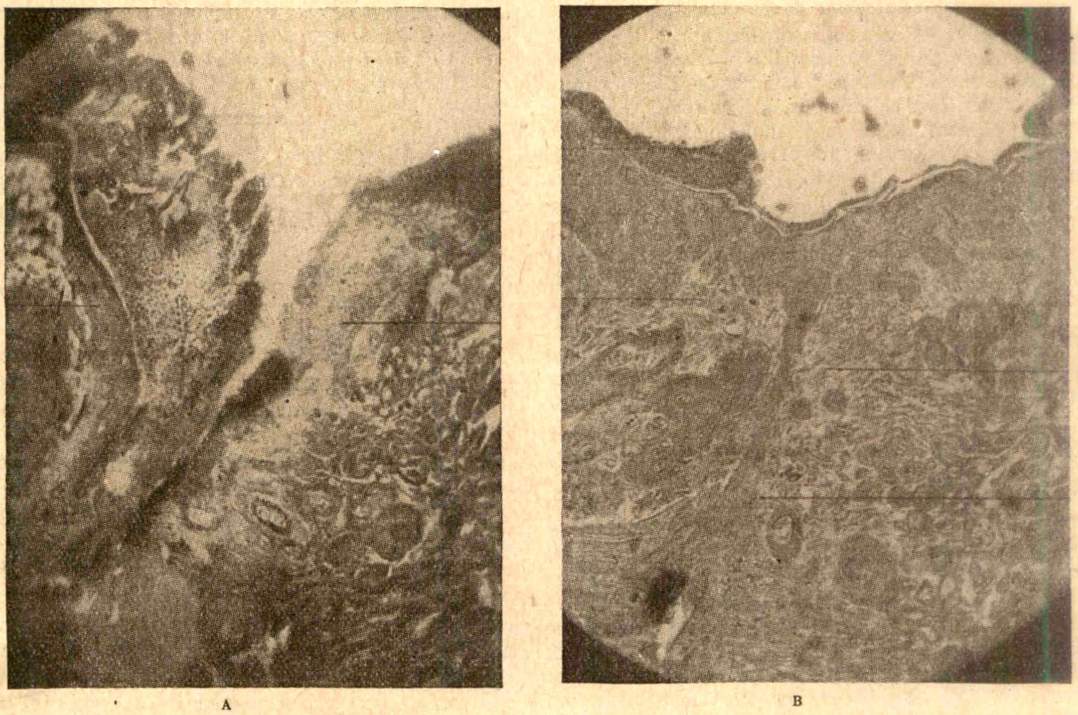

FIG. 2.—(A) Untreated wound after 5 days shows no union. (B) Treated wound after 5 days shows firm union.

Indications for Use of Irradiation

Delay in Natural Healing.—Wounds of the surface which do not heal are quickly cured by treatment with the small doses of x rays mentioned. After a day or two the process of healing can be recognized by loss of pain; the exudation gradually subsides, frequently after a preliminary increase; the closure of the wound and the growth of the epithelium are both accelerated; callous chronic ulcers soon become covered with healthy granulations and heal. In fractures in which bony union has not occurred x-ray treatment induces quick calcification and bony union. Similar healing takes place in those haematomata which do not heal quickly—e.g., haematoma of the pinna of the ear.

Failure of Surgical or Medical Treatment.—In any inflammation where surgical or medical treatment fails, irradiation with small doses of x rays is indicated. As an example of failure of surgical treatment osteomyelitis following whitlow may be mentioned: loss of part of a finger, even in advanced cases, is generally unnecessary. With x-ray treatment we get regeneration of bone which is almost decalcified and destroyed by osteomyelitis (Figs. 3 and 4). Much disability in workmen, munition workers, men in the Forces, artists, housewives, and

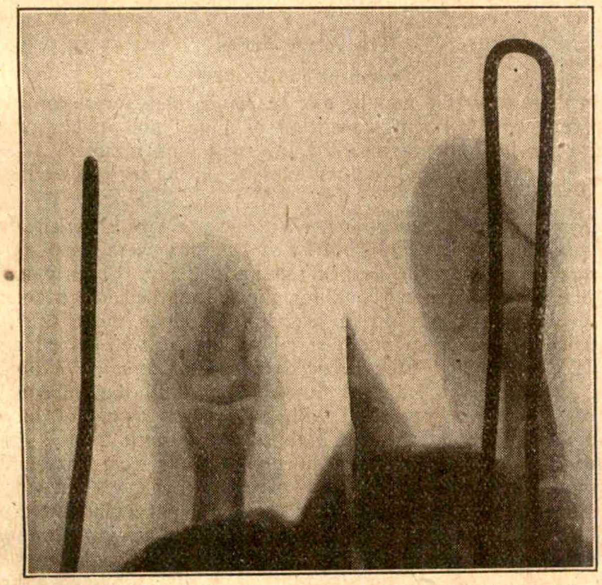

FIG. 3.—Whitlow before x-ray treatment. Amputation had been advised.

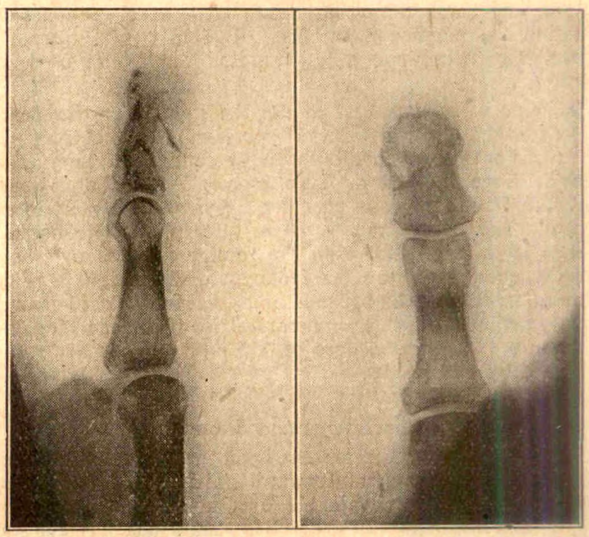

FIG. 4.—Whitlow 3 months after x-ray treatment was begun. Seven weekly doses of 100 r (surface) were given, and, later, two more doses of 100 r.

others is prevented. All other forms of osteomyelitis are indications for *x*-ray therapy combined with the necessary surgical treatment. Amputations with their consequent disability may be avoided. Great claims have been made in the United States for the use of this treatment in gas gangrene. Parenthetically, as an example of failure of medical treatment post-herpetic neuralgia may be mentioned. The treatment of the posterior root ganglia by *x* rays is followed by quick cure. Trigeminal neuralgia also responds to irradiation of the Gasserian ganglion.

Acute Inflammations.—Carbuncles of the upper lip, some forms of erysipelas, cellulitis, lymphangitis, gas gangrene, and osteomyelitis of the skull should be treated at once with *x* rays. No harm whatsoever can be done by using small doses on a limited field, whereas delay may sometimes prove fatal. In very few cases of infection, however, the treatment fails to improve the condition.

Subacute and Chronic Inflammations.—The number of these conditions is very large; we will instance only a few. Good examples are actinomycosis, local tuberculous infections as of lymph nodes or mucous membrane, chronic osteitis, septic fingers, and other local septic conditions.

Prevention of Disfigurement.—Scars are much better, thinner, and less obvious in wounds that are treated by *x* rays, and keloid will be prevented if irradiation takes place soon after trauma. This treatment is now often employed by plastic surgeons.

Social Indications and Wartime Purposes.—Delay in healing of all kinds of inflammation may be of importance from its economical or its wartime aspect. Healing can be much accelerated by irradiation and the period of incapacity therefore considerably shortened.

Dosage

The wave-length does not seem to be of great importance if the lesion receives the same biological dose. This is not the same thing as the physical dose, because a larger number of roentgens (*r*) have to be given if the wave-length is shorter, in order to produce the same biological result. Nevertheless, Fukase has shown experimentally that the shorter wave-lengths give better results. Grenz rays* are not sufficiently penetrative to give the requisite lesion dose.

The accurate modern methods of measurement enable us to calculate the dose received by the lesion whether it is superficial or deep. Though a very large dose is definitely harmful and the optimum dose is very small, there is considerable latitude. Thus, double the optimum dose will still give a good result, though not the best. The dose to be received by the lesion lies between 30 *r* and 80 *r*. The former dose may be applied twice a week and doses from 50 *r* upwards once a week. This dose presumes the use of *x* rays of about 140 kV constant current with a filter of Al 5 mm. With higher voltage and filtrations the number of *r* must be larger to give the same biological dose; with lower voltages and filtration the number is smaller. Radium γ rays filtered by Pt 0.5 mm. necessitate a lesion dose double that used with medium *x* rays.

In acute cases it is best to use the smaller dose, repeating in 3 days, and again in 4 days if necessary. With chronic cases treatment may occasionally have to continue a long time—two or three months or even more. A case of extensive abdominal actinomycosis even took one of us a year to cure finally. The dosage rate is 10 to 80 *r*/min. The necessary dosage is so small that even the routine fluoroscopy is occasionally enough to stop the inflammatory reaction. Children with enlarged bronchial glands and constantly raised temperature sometimes lose this temperature rise if screened for about 5 minutes. A repeated dose of 150 *r* or more is likely to be followed by bad results.

Conclusions and Summary

Owing to the war the present is an important time to bring this method of treatment forward. The use of radiations in these cases is a very valuable one, and will without doubt much increase in the future, when experience has confirmed the good results, which cannot be achieved by any other means.

The treatment of acute, subacute, and chronic inflammations by small doses of *x* rays is described, as well as the experimental and research work on which this treatment is based. The accelerated healing of wounds and fractures by irradiation is also described. The effect of *x* rays is due to the influence on local cellular reaction and local immunity. The reasons for the neglect of this treatment are gone into. The necessity for small doses is stressed, both for the better results and for the absence of late bad effects.

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* *X* rays of very long wave-length on the border (Grenze) of the ultra-violet.

THE USE OF SULPHAGUANIDINE IN BACILLARY DYSENTERY

BY

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The cases surveyed in this paper were selected for treatment from 600 patients suffering from bacillary dysentery admitted to a general hospital in the Middle East over a period of 8 months. Of these, 77 were treated with sulphaguanidine. Its use was authorized only in severe or refractory cases. Hence the acute cases described represent those which from general experience of dysentery could not be expected to do well on standard treatment, and the chronic cases those which had already failed when so treated. There was occasionally a temporary shortage of supply, but every effort was made to give what was considered to be an adequate course of the drug. Sulphaguanidine consists of sulphanilamide in which one of the hydrogen atoms of the amino group is replaced by a guanidine ring, and is thus homologous with sulphathiazole and sulphapyridine. Experimental investigation has shown that sulphaguanidine, although water-soluble, is poorly absorbed by the intestinal mucous membrane. This would allow large concentrations to be maintained in the gut, with only a low tissue fluid and blood concentration resulting, and a correspondingly slight danger of toxic poisoning from large or prolonged dosage.

Of the 77 cases 26 were classed as acute and 51 as chronic. This differentiation was based mainly on the day of disease, and all cases giving a history of less than 2 weeks from the onset were considered acute. Duration of symptoms in the cases termed chronic varied from over 2 weeks to many months.

The Acute Series

Treatment and Routine

In these cases the malaise and toxaemia were severe and the motions very frequent, consisting of blood and mucus only. The majority had not received any treatment, although a few had had castor oil and sodium sulphate during their evacuation to this hospital.

Dosage of Sulphaguanidine.—With no previous experience as a guide the following arbitrary indications were used as a means of gauging the dosage required: 3.5 g. 4-hourly until (*a*) the patient's general condition showed marked improvement as evidenced by a drop in temperature, clean moist tongue, absence of toxaemia, and general feeling of well-being; and (*b*) the stools had been reduced to five or less in 24 hours and were faecal. 3.5 g. 4 times a day until the infrequent stools became a semi-solid with only slight traces of blood and mucus present. 3.5 g. 3 times a day until 2 or 3 days after the stools had become normal. Stools were considered normal when not more than two solid or nearly solid stools without blood were passed in a day. No particular attention was paid to a small excess of mucus, which was almost invariably present. In the early cases treated this latter part of the plan was not strictly adhered to and sulphaguanidine was stopped on the day the stools were free from blood.

On admission the patient was generally somewhat collapsed. He was put to bed, rested and warmed, and his clinical condition observed for the first few hours. During this time the frequency and character of stools were noted and specimens sent to the laboratory for plating and microscopy. Treatment with sulphaguanidine was started with an initial dose of 7 g. in the form of a powder stirred up in 2 oz. of water. In very severe cases this was followed by 3.5 g. in 2 hours, and again after 2 more hours. Otherwise the 3.5-g. doses were repeated at 4-hourly intervals. The diet was limited to fluids for the first 24 hours of treatment, after which mashed potatoes, fish, chicken, junket, and bread-and-butter were gradually added until on the third or fourth day the patient was receiving a full diet. No difficulty was encountered in getting patients to eat, as the desire for food returned almost invariably in the first 48 hours. Every effort was made to encourage a large fluid intake by mouth in the early stages to replace fluid loss. In no case was intravenous fluid found to be necessary.

The following adjuvant treatment was carried out: (1) In the case of Shiga infections, 30,000 units of antiserum; (2) mist. bismuth. c̄ creta, 1 oz. every hour, in the initial stages of treatment to aid in reducing the frequency of the bowel motions; (3) tinct. opii in 10-minim doses, or occasionally 1/4 gr. of morphine, to relieve abdominal pain.

Sigmoidoscopy was carried out during the week after treatment, and subsequently if a normal mucosa was not seen the first time. Sigmoidoscopy as a routine measure before treatment did not seem justifiable. The rectum was, however, examined in a few cases, and showed a typical picture of sloughs separating to leave intensely congested and bleeding surfaces with varying oedema and induration. In acute cases the general condition and a stool examination would seem to be an adequate means of assessing the intensity of the infective process. The urine was tested daily and a blood count done at completion of treatment.

TABLE I.—*Acute Cases*

No. of Case	Clinical Nature	Day of Disease	Bacteriology	No. Days Treatment	Total Dosage (g.)	Day of Marked General Improv.	Day Stools Faecal	Day No Abdom. Tender	Day No Abdom. Pain	Day Stools Normal	Remarks and Sigmoidoscopic Findings
13	Very severe	6	Shiga	17	266	10	10	10	9	14	Healed
10	„	10	„	11	199	7	5	7	7	9	„
12	„	12	„	13	192·5	6	7	6	4	11	„
20	„	6	„	11	171·5	4	7	4	4	8	„
17	„	3	„	12	161	9	6	5	3	10	„
21	„	4	„	10	154	4	5	5	6	8	„
18	„	10	„	10	150	5	8	7	3	8	„
6	„	5	„	11	143·5	3	5	5	5	9	„
8	Severe	2	„	9	133	2	3	3	3	7	„
15	„	8	„	10	133	4	5	4	2	8	„
9	„	12	„	9	117	3	4	4	2	8	„
26	„	7	„	9	108·5	4	3	4	2	7	„
7	„	12	Flexner	9	136	4	4	4	3	8	„
22	„	8	„	8	98·5	3	3	4	4	6	„
24	„	10	„	7	98	2	2	4	4	5	„
11	„	1	„	7	91	2	2	3	3	5	„
14	„	2	„	7	91	2	3	3	3	5	„
19	„	12	Not identified	7	112	4	4	4	3	6	„
25	„	7	„	7	98	3	2	3	4	4	„
23	Very severe	10	Shiga	20	350	—	always faecal	—	—	—	Mucosa remained injected and oedematous (catarrhal). See case notes
16	„	4	„	7	136	5	5	6	3	7	Mucosa showed marked induration and oedema with ulceration
4	Severe	9	„	7	101	4	3	6	3	7	Hyperaemic granular mucosa in patches and loose faecal stools with blood after a few days. Degrees of induration and oedema of bowel wall, with occasional bleeding ulceration
3	„	3	„	7	101	3	3	4	4	7	
2	„	4	Flexner	5	60	5	3	4	4	—	
1	„	5	Not identified	5	77	2	4	3	3	5	
5	„	10	„	8	123	4	4	5	5	7	

Out of a total of 26 acute cases treated 16 were Shiga, 6 Flexner, and 4 undetermined culturally but having a typical bacillary exudate in the faeces. Table I gives the cases in descending order of dosage and grouped according to cultural findings, except that those not completely cured and not showing a healed mucosa on sigmoidoscopy are grouped at the bottom. The cases are classed as severe or very severe according to their clinical condition on admission to hospital.

Cases Completely Cured.—Of the 26 cases 19 were cured, of which 11 were severe and 8 very severe. Table II shows the days on which recovery from symptoms occurred.

TABLE II.—*Showing Days of Recovery from Symptoms*

	Severe Cases (11)	Very Severe Cases (8) (All Shiga)
Average total dose	110 g. over 9 days	180 g. over 12 days
Marked general improvement ..	2 to 4 days	3 to 10 days
Stools became faecal	2 to 5 days	5 to 10 days
No abdominal tenderness ..	3 to 5 days	4 to 10 days
No abdominal colic	2 to 4 days	3 to 9 days
Normal stools	5 to 8 days	8 to 14 days

It is interesting to note the quick response to treatment of Cases 11 and 14 (Table I), both of which were severe Flexner infections treated on the first and the second day of onset respectively. Treatment lasted a week, with a total dosage of 91 g., and in spite of the severity of the infection stools were formed, and without blood, on the fifth day, the patient being discharged from hospital in full health 14 days from the onset of disease.

Cases Not Completely Cured.—These cases numbered 7—5 severe and 2 very severe. In the severe cases the average total dose was only 90 g. over 6 days and the response of symptoms to treatment occurred as in the cured cases. Sulphaguanidine was stopped on the day stools became normal. These cases continued to improve for a few days and then suffered a relapse, although not of a very acute nature. Stools became loose, 4 to 10 daily, with blood and mucus. There was some return of colic and abdominal tenderness. In all cases sigmoidoscopy showed moderate hyperaemia and granulation of the mucosa, accompanied by a variable degree of oedema, induration, and bleeding from actual induration. Subsequent treatment with colonic wash-outs produced complete healing in from 2 to 4 weeks. As both the very severe cases were Shiga infections they are here described separately:

Case 16.—Sulphaguanidine was stopped owing to a shortage of supply after 136 g. had been given over 7 days. The response to treatment was quite satisfactory, with the disappearance of symptoms and the return of faeces to the stools. The latter, however, still contained mucus with very slight traces of blood the day treatment had to be suspended. No further improvement was seen and the case became chronic, with up to 6 loose stools daily containing blood and mucus. Shiga's bacillus was again isolated from the stools, and sigmoidoscopy showed much induration and oedema of the bowel-wall, with a coarsely granular hyperaemic surface, nodular in places and covered by muco-pus which was expressed from pockets by passage of the instrument. Colonic wash-outs effected a temporary improvement only, and after 5 weeks a further course of sulphaguanidine—175 g. over 10 days—was given. Subsequent sigmoidoscopy revealed a healed mucosa.

Case 23 showed an initial response which was not sustained: although blood disappeared on the sixth day the stools remained as frequent as 20 or more a day. Malaise and toxaemia, with abdominal colic and tenderness, were marked. Sulphaguanidine was continued until 350 g. had been given over 20 days, but without improvement in the patient's condition. Repeated sigmoidoscopy showed an oedematous and injected mucosa without ulceration. Shiga's bacillus was again isolated after 100 g. of sulphaguanidine had been given.

Case Reports (Acute Cases)

Case 10.—This is an example of the very severe cases that were cured. Dec. 1: Gradual onset of symptoms; no treatment was received, and the condition had steadily increased in severity until admission to hospital on Dec. 11. Admitted very weak, pale, exhausted, and in a collapsed condition. Temperature 97.4°; pulse 120; abdominal pain very severe. Stools showed almost continual passage of blood and mucus. Morphine 1/4 gr. was given; hot blankets, water-bottles, etc. Some hours later temperature was 102° and pulse 110; treatment with sulphaguanidine was begun. Treatment of the case continued as follows:

Day of Dis.	P.M. Temp. & Pulse	General Condition	Stools		Ab-dom. Tender	Colic	Sulpha-guanidine
			No.	Nature			
10	102°/110	As above	+++	B. & M. only +++	+++	+++	7 g stat. 3·5 g. after 2 hrs. + 3·5 g. ditto
11	101°/90	Slight improv.	20	B. & M only ++	+++	++	3·5 g ×6
12	100°/90	LS Q.	8	B. & M. only ++	++	++	3·5 g. ×6
13	99·2°/90	"	+6	B. & M. only ++	++	++	3·5 g. ×6
14	99·4°/90	"	+6	B. & M. only ++	+	++	3·5 g. ×6
15	99·2°/85	Still much malaise and toxaemia	+4	Slightly faecal, mostly B. & M. only +. 3 faecal B. ++ / M. ++	Slight	+	3·5 g. ×6
16	99°/85	" "	4	1 B. & M. only	Slight	+	3·5 g. ×6
17	N.	Marked improv.	3	Semi-solid. B. & M. ++	0	0	3·5 g. ×4
18	N.	Improv. contd.	2	Semi-solid. M. ++	0	0	3·5 g. ×4
19	N.	"	1	" "	0	0	3·5 g. ×3
20	N.	"	1	Solid. Slight M.	0	0	3·5 g. ×3

Adjuvant treatment was as follows: 10th day—morphine gr. 1/4×2; anti-Shiga serum, 30,000 units; mist. bism. cret, 1 oz. q.h. 11th to 14th days—mist bism., tinct. opii ♏ 10×4. Adjuvants were then stopped.

The stools remained normal except for a slight excess of mucus, and sigmoidoscopy showed a healed mucosa with an occasional submucous haemorrhage. The urine was normal throughout. A final blood count after treatment showed: Hb 96%, R.B.C. 4,910,000, W.B.C. 5,300, with normal differential count.

Case 11.—This case illustrates the quick response to early treatment in comparison with Case 10. In the early morning of Sept. 28 the patient was taken with sudden diarrhoea and abdominal colic, blood appearing in the stools after a few hours. Marked vomiting and tenesmus were present. Sixteen hours after onset admitted to hospital collapsed, with severe abdominal colic. Tongue furred and dry; abdomen showing marked tenderness; stools slightly faecal, with much blood and mucus. The severity of the symptoms suggested a Shiga infection, and 30,000 units of antiserum were given, although the report received 2 days later indicated a typical Flexner bacillus.

Day of Dis.	P.M. Temp. & Pulse	General Condition	Stools		Ab-dom. Tender	Colic	Sulpha-guanidine
			No.	Nature			
1	101°/100	As above	+15	First faecal, becoming B. & M. only	+++	+++	7 g stat.
2	99·4°/80	Marked improv. at end of day	+5	Occ. faecal. B. & M only ++	++	++	3·5 g. ×6
3	N.	—	3	Fluid. Faecal. B. + M. +	0	0	3·5 g. ×6
4	N.	—	3	Semi-solid. M. +	0	0	3·5 g. ×4
5	N.	—	1	" "	0	0	3·5 g. ×4

Adjuvant treatment given was: 1st day—morphine gr. 1/4, mist. bism. cret. 1 oz.; antiserum 30,000 units q.h.; 2nd day—tinct. opii ♏ 10×2.

The stools remained normal and sigmoidoscopy showed a healed mucosa. Urine normal. Blood count normal.

The Chronic Series

These patients had been suffering from chronic dysentery for from a few weeks to many months, and all had received various periods of routine treatments.

Dosage.—Indications as to dosage were again purely arbitrary and, as in the acute series, the nature of the stools passed was taken as a guide, sulphaguanidine being continued until 2 days after the stools had become normal. Of 20 cases so treated, 9 were not cured. In these, symptoms returned and sigmoidoscopy showed that although the stools were microscopically normal the mucosa had not healed. It was evident that this plan of dosage, although satisfactory in acute cases, when used in the chronic cases resulted in too small a total dosage and too short a period of treatment. Accordingly a new scheme was adopted whereby all the cases were treated for a minimum of 8 days, 3.5 g. of sulphaguanidine being given at 4-hourly intervals, omitting the 2 a.m. dose. The total daily dose was therefore 17.5 g. The number of days under treatment was increased in cases of more than average severity, where such was indicated by the degree of toxaemia of the patient, sigmoidoscopic appearances, and length of illness.

Treatment and Routine

Preliminary to Sulphaguanidine.—Most cases gave a history of previous treatment with sodium sulphate and fluid diet. Cases 6, 23, 25, 26, and 51 had received from 30 to 80 g. of sulphaguanidine in the acute phase (i.e., during their evacuation), but treatment had not been continued until the stools were normal. 19 cases received a period of treatment (after admission here) with colonic wash-outs while on a low-residue diet. Sigmoidoscopy sometimes showed temporary improvement, but complete healing did not take place.

With Sulphaguanidine.—During the first few days the patient's general condition was observed, nature of stools noted, and sigmoidoscopy carried out, material being removed for microscopical examination and plating. The sigmoidoscopic appearances are illustrated in case notes given below. Diet was the same as in the acute cases. The urine was tested daily, and a blood count done at the end of treatment.

Description of Chronic Cases

Of the 51 chronic cases treated, 20 were Shiga infections, 14 Flexner, and 17 unidentified. They are described in two groups: Group A, in which the original plan of dosage was used, and Group B, in which the modified plan was used. Table IV shows both groups in descending order of dosage.

Group A.—This consisted of the first 20 cases treated, and the average total dose was 90 g. over 6 days. All responded to treatment, and in from 3 to 6 days the stools had become normal, abdominal tenderness and colic had disappeared, and the patients' general condition had greatly improved. Yet only 11 (55%) cases showed complete healing on sigmoidoscopy. In the other 9 granular hyperaemic areas with some induration and oedema remained. There was some return of symptoms, and complete healing took several weeks, during which period the patients remained on a low-residue diet and received daily colonic wash-outs.

Group B.—This series consisted of the subsequent 31 cases, and the average total dose was 160 g. over 10 days. Symptoms responded to treatment as in Group A, but the final results were much better in that 24 (77%) cases showed complete healing on sigmoidoscopy and 5 complete healing except for granular hyperaemic patches limited to the lower part of the rectum. These had disappeared after one week's treatment with rectal wash-outs, during which time the patient was given liquid paraffin to soften the stools. Two cases (Nos. 33 and 45) which appeared to respond quite well suffered a subacute relapse when treatment was suspended. Sigmoidoscopy showed a return of ulceration on an oedematous indurated hyperaemic mucosa. Treatment with colonic wash-outs was tried again, but the lesions did not heal completely. A further course of sulphaguanidine—189 g. and 175 g. respectively—resulted in cure.

Table III (including both groups) shows the average day, the earliest day, and the latest day on which recovery occurred.

TABLE III

	Average Day	Earliest Day	Latest Day
Marked general improvement	3rd	2nd	7th
No abdominal tenderness ..	4th	3rd	7th
No abdominal colic .. .	4th	2nd	9th
Normal stools	4th	3rd	10th

Case Reports (Chronic Cases)

Case 13.—This case was from Group A and was treated according to the original scheme of dosage without complete cure. In the acute phase of an attack of dysentery in Sept., 1941, after 4 months in the Middle East, the routine saline treatment was given for 10 days with improvement, but the stools never became normal. When admitted here a month later (Oct. 3) he was pale, thin, and toxic, with temperature 99° to 100° and pulse 80 to 110. There was marked tenderness over sigmoid, ascending colon, and caecum. The stools, about four daily, contained much bloody mucus. Sigmoidoscopy showed numerous irregular ulcers with overhanging edges covered by yellowish muco-pus, which on removal left a bleeding granular floor. Some ulcers had become confluent, and the intervening mucosa was granular, slightly indurated, and oedematous. The exudate was bacillary in type, but culture from swabs proved negative. From Oct. 17 to 27 treatment was carried out with colonic irrigation. The patient's condition would improve for a few days and then relapse. Stools continued to contain blood and mucus. Sigmoidoscopy now showed much increase in the oedema and induration of the bowel wall, and instrumentation was impossible beyond 10 cm. The ulcers had not healed. Culture from a swab again proved negative. Therapy with sulphaguanidine was started on Nov. 3, and was continued as follows, 70 g. in all being given:

Day of Dis.	P.M. Temp. & Pulse	General Condition	Stools		Abdom. Tender	Colic	Sulphaguanidine
			No.	Nature			
52	100°/90	As above	4	S-S. B. + M. ++	+	+	7 g. stat. +3·5 g. ×2
53	99°/90		1	S-S. B + M. ++	+	0	3·5 g. ×5
54	98 4°/90	Slight improv.	0	—	+	0	3·5 g. ×4
55	N./85	Marked improv.	0	—	0	0	3 5 g. ×4
56	N./N.	Improv. contd.	1	S. M.	0	0	3·5 g. ×3

After a few days stools were again loose, with occasional blood-streaked mucus. Sigmoidoscopy showed a great improvement, but indurated, oedematous, bleeding granular areas remained. From Nov. 13 to 28 treatment was continued by colonic irrigation, and sigmoidoscopy one week later showed a healed mucosa.

Case 28.—This was a severe case from Group B, and was treated according to the revised scheme, with complete cure. At the onset of an acute attack of Shiga dysentery in Nov., 1941, after 3 months in the Middle East, routine saline treatment was given with initial improvement but subsequent acute relapse; on Dec. 1, when admitted here, saline treatment was repeated, and was followed by colonic irrigation. On Dec. 28, 2 months after the onset, stools were about 5 daily, and contained much blood-stained mucus; chronic toxaemia was gradually worsening the patient's condition. Sigmoidoscopy showed numerous irregular-shaped ulcers covered with blood-stained muco-pus. The rest of the mucosa was granular and haemorrhagic, and in some places nodular. Pus was expressed from between the nodules by the passage of the instrument. Oedema and induration of the bowel wall became so great that instrumentation was impossible beyond 12 cm. Treatment with sulphaguanidine was started on Dec. 29—the 55th day of disease—and continued as follows (total dosage, 175 g.):

Day of Dis.	P.M. Temp. & Pulse	General Condition	Stools		Abdom Tender	Colic	Sulphaguanidine
			No.	Nature			
55	99 8°/90	As above	5	S-S. B. + M. +++	++	+	7 g. + 3·5 g ×3
56	99 8°/90		2	S-S. B. + M ++	+	+	3·5 g. ×5
57	99 2°/90		1	S-S. B. M. ++	+	Occ.	3 5 g. ×5
58	N./90	Marked improv.	2	S-S. M. +	+	Occ.	3·5 g. ×5
59	N./85	Improv. contd.	1	S. M. +	0	0	3·5 g. ×5
60	N./N.	,,	2	S-S.	0	0	3·5 g. ×5
61	N./N.	,,	1	S.	0	0	3·5 g. ×5
62	N./N.	,,	1	S.	0	0	3·5 g. ×5
63	N./N.	,,	1	S.	0	0	3·5 g. ×5
64	N./N.	,,	1	S.	0	0	3·5 g. ×5

Stools remained normal, and sigmoidoscopy one week after treatment showed a completely healed mucosa.

Case 47.—A moderate case from Group B showing complete healing but some residual proctitis. At the onset of an acute attack of dysentery on Dec. 4 routine saline treatment was given. Admitted here on Dec. 14 much improved, but still with loose faecal stools containing blood and mucus. Sigmoidoscopy showed a granular hyperaemic mucosa, covered by blood-stained muco-pus, with moderate oedema and induration of the bowel wall. Culture was negative. From Dec. 20 to 30 colonic irrigation and low-residue diet. On Jan. 6 stools were still loose, with blood and mucus. Sigmoidoscopy showed no healing. Treatment with sulphaguanidine was started on Jan. 7—the 33rd day of disease—and was continued as shown, the total amount given being 140 g.:

Day of Dis.	P.M. Temp. & Pulse	General Condition	Stools		Abdom. Tender	Colic	Sulphaguanidine
			No.	Nature			
33	99·2°/85	Malaise and toxaemia +	3	S-S. B. + M. +	+	+	7 g. + 3·5 g. ×3
34	98·6°/N.	,, ,,	0	—	+	+	3 5 g. ×5
35	N./N.	Marked improv.	1	S. M. +	0	0	3·5 g. ×5
36	N./N.	,, ,,	0	—	0	0	3·5 g. ×5
37	N./N.	Improv. contd.	0	—	0	0	3·5 g. ×5
38	N./N.	Slight toxic effects here—malaise, anorexia, erythema [N B. Bowels confined]	1	S. M. +	0	0	3·5 g ×5
39	N./N.	—	1	S.	0	0	3 5 g. ×5
40	N./N.	Rash gone. [N.B. Bowels open]	2	S-S. M.	0	0	3·5 g. ×5
41	N./N.		2	S-S.	0	0	3·5 g. ×5

Sigmoidoscopy showed a healed mucosa except for hyperaemic granular patches with slight oedema and induration in the rectum. Stools were loose for 4 to 5 days, with flecks of blood-stained mucus. Treatment was continued with rectal wash-outs and liquid paraffin for 10 days. On Jan. 27 sigmoidoscopy showed the rectal lesions to have healed, and stools were quite normal, with patient fit and well.

TABLE IV.—*Chronic Cases*

Case	Previous Treatment	Day of Disease	Bacteriology	No. Days Treated	Total Dosage SG	Day of Marked General Improv.	Day No Abdom. Tender.	Day No Abdom. Colic	Day No Stools	Sigmoidoscopic Findings and Results One Week after Treatment
			GROUP A							
15	S	24	Flexner	9	126	4	4	4	6	Healed
1	S	21	,, I	7	98	4	4	4	3	Improved after treat. CI
11	S	42	,,	6	91	3	3	3	4	Healed. Sequel: tachycardia
17	S	30	,,	6	84	3	3	3	3	Healed
8	S	22	,,	5	73	3	3	3	3	,,
6	S SG 30 g.	31	,,	5	70	3	3	3	3	Improved after treat. CI
3	S	30	,, II	5	66·5	3	3	2	3	Healed
4	S	25	Shiga	8	101·5	5	5	3	7	Improved after treat. CI
5	S	26	,,	6	77	3	3	3	3	Healed
10	S	24	,,	5	63	3	3	2	4	Improved after treat. CI
7	S CI	37	Unidentified	6	91·5	3	3	3	3	Healed
12	S	?	,,	6	87	4	4	2	3	,,
19	S	34	,,	6	80 5	3	3	–	3	,,
2	S	16	,,	5	80·5	2	3	3	4	Improved after treat. CI
9	S	31	,,	5	77	3	3	3	4	Healed
16	S	21	,,	6	77	3	3	3	2	,,
13	S CI	52	,,	5	70	3	3	2	4	Improved after treat. CI
20	S CI	30	,,	5	70	3	3	2	3	,, ,,
18	S CI	21	,,	5	63	3	3	2	2	,, ,,
14	S CI	32	,,	4	53	3	3	3	4	Slightly imp.*
			GROUP B							
51	S SG 50 g.	39	Shiga	12	224	4	9	9	9	Healed
45	S CI	39	,,	12	210	—	9	9	4	Subacute relapse
	Re-treated			10	175	7	5	8	4	Improved and finally healed
31	S	30	,,	13	206·5	7	7	5	3	Healed
24	S SG 50 g.	21	,,	12	191	7	6	9	10	Healed but for rectal patches
22	S CI SG 50 g.	—	,,	11	183 5	5	5	5	5	,, ,,
26	S	31	,,	10	175	3	4	4	2	,, ,,
27	S	—	,,	10	175	6	7	5	6	,, ,,
28	S	50	,,	10	175	4	5	5	4	Healed
37	S CI	—	,,	10	175	4	4	4	4	,,
38	S	43	,,	10	175	4	4	4	4	,,
39	S	41	,,	10	175	4	3	3	5	,,
41	S	67	,,	10	175	6	6	6	7	,,
42	S	38	,,	10	175	4	4	5	6	,,
46	S	23	,,	10	175	5	5	5	6	,,
49	S CI	50	,,	10	175	5	4	4	4	,,
34	S	40	,,	9	157·5	3	3	2	6	,,
48	S CI	70	,,	8	140	3	3	3	5	,,
30	?	—	Flexner	9	151·5	3	3	3	3	,,
21	S	18	,,	9	143 5	4	4	2	4	,,
25	S SG 82 g.	38	,,	8	143·5	4	4	4	4	,,
23	S CI	24	,,	8	140	3	4	4	4	,,
29	S CI	21	,,	8	140	4	4	2	4	,,
32	S CI	39	,,	8	131	3	3	3	3	,,
43	S CI	66	,,	8	130	3	3	3	3	,,
36	—	—	Unidentified	10	175	4	3	4	4	,,
50	S	25	,,	10	175	6	6	2	5	,,
35	S CI	—	,,	9	157 5	3	3	2	4	,,
40	S CI	46	,,	8	140	3	3	3	3	,,
47	S CI	23	,,	8	140	3	3	3	3	Healed but for rectal patches
44	S CI	63	,,	8	130	5	3	3	4	Healed
33	S CI	33	,,	6	108	4	4	3	4	Subacute relapse*
	Re-treated after 3 weeks			11	189	3	3	5	4	Healed

* Supply of sulphaguanidine ran short.

S=Saline. CI=Colonic irrigation. SG=Sulphaguanidine.

Toxicity of Sulphaguanidine in Chronic Series

Toxic symptoms were rare, occurring in only 9 patients out of 51 chronic cases treated. (No toxic symptoms occurred in the acute cases.) They comprised rashes, nausea, headache, tachycardia, and fever (see Table V). It will be seen that in all but 2 cases a dose of at least 100 g. had been given, and it was noted that all patients with toxic symptoms were relatively constipated—i.e., one stool in 2 or 3 days. It is therefore reasonable to assume that the concentration of sulphaguanidine in the bowel was unusually high and that this may have led to increased absorption into the blood stream.

TABLE V.—*Toxic Symptoms*

Case	Day of Treatment	Dosage Given (g.)	Symptoms	
			Duration	Nature
51	12th	224	3 days	Macular red rash on trunk; headache and tachycardia
34	9th	157·5	2 „	Slight fever; tachycardia; headache; nausea
23	8th	140	2 „	„ „ „ „
29	8th	140	2 „	„ „ „ „
46	8th	140	4 „	Maculo-papular rash; headache; nausea
48	7th	122·5	3 „	Generalized erythema; headache; slight fever
47	6th	105	3 „	„ „ „ „
19	2 days after	80·5	4 „	Maculo-papular red rash
6	4th	4	2 „	Slight fever; headache; nausea

Conclusions

Acute Cases

In all, 26 acute cases of bacillary dysentery were treated with sulphaguanidine. 19 cases were completely cured in from 14 to 21 days; 6 cases relieved, 1 of which became chronic; and 1 case hardly affected. The chronic case was subsequently cured by further treatment with sulphaguanidine.

Sulphaguanidine, like other sulphonamides, would appear to be bacteriostatic, the dysentery bacilli dying only slowly. Hence an efficient concentration of the drug must be maintained for some time after the active infective process has been inhibited. Such a stage is evidently reached when the stools are almost normal, and the failure to continue the sulphaguanidine makes a relapse likely. Cases 1, 2, 3, 4, and 5 were the first treated, and sulphaguanidine was stopped when the faecal stools had a consistency and showed no blood. The fact that these cases relapsed after a few days would appear to stress the importance of continuing treatment for 2 to 3 days after the stools are normal and while the final stages of healing are taking place. Further evidence in support of this is given by Cases 6, 23, 25, 26, and 51 of the chronic series, which received up to 80 g. in the acute phase but subsequently became chronic. Treatment had not been continued until the stools were normal.

The early acute infections showed a very quick response to treatment, and the longer the interval between the onset of the disease and the beginning of treatment, the longer was treatment necessary.

The more frequent and looser the stools the less the concentration of sulphaguanidine in the bowel (*Trop. Dis. Bull.*, 1942, **39**, 34), and in the initial stages of treatment adjuvants such as tinct. opii, bismuth and chalk, and kaolin were used to lessen the frequency and increase the consistency. In the one case which failed to respond the stools remained fluid and frequent in spite of all treatment.

The feeling of well-being as toxaemia is overcome and the early fall in the frequency of the stools greatly reduced the exhaustion and dehydration of the patient. Fluid can be made up adequately by mouth, and the patient's early desire for food as his condition quickly improves allows his strength to be built up while the infective process is overcome.

Chronic Cases

A series of 51 cases of chronic bacillary dysentery were treated with sulphaguanidine. All showed an early and marked response to treatment. In the first 20 cases, as in the acute series, the nature of the stools governed the dosage given, and the average total dose was about 90 g. over 6 days. Only 11 (55%) cases were completely healed, without relapse. In the subsequent 31 cases a minimum dosage of 17.5 g. for 8 days was given, and the advent of normal stools was not taken as an indication for reducing or stopping treatment. The average total dose was 160 g. over 10 days. 24 (77%) cases showed complete healing, and 5 complete healing but for granular patches in the rectum; 2 responded but relapsed after treatment.

Stool examination and the general examination of the patient are inadequate as a means of gauging the state of the lesions in the bowel, and sigmoidoscopy is essential. It would seem that passage of normal stools and disappearance of symptoms in chronic cases indicate only that the active infective process has been inhibited and not that healing of the mucosa has taken place. If sulphaguanidine is not continued the infective process may again become active, delaying healing for some weeks. A full daily dose of 17.5 g. for at least 8 days, and longer in cases showing other than moderate severity, would appear to afford adequate protection against this delay in healing. Nine cases of the chronic series showed mild toxic symptoms from the sulphaguanidine.

Summary

In all, 77 cases of bacillary dysentery were treated—26 acute, 51 chronic. Of the 26 acute cases 16 were Shiga infections, 6 Flexner, and 4 unidentified. Of the 51 chronic cases 20 were Shiga and 14 Flexner infections; in 17 the organism was undetermined.

Patients were put to bed, rested and warmed. The frequency and character of stools were noted, and specimens plated and examined microscopically. Diet was limited to fluid in the first 24 hours. A large fluid intake by mouth was encouraged in the early stages to replace fluid loss. No intravenous fluid was necessary.

Adjuvant treatment was given, cases of Shiga infection receiving 30,000 units of antiserum.

Acute cases received an initial dose of 7 g. of sulphaguanidine, followed by 3.5 g. at 4-hourly intervals. In very severe cases 3.5 g. was given 2 hours after the initial dose, followed in 2 hours by a further 3.5 g. In the main, sulphaguanidine was given until 2 days after the stools had become normal.

Chronic cases received 17.5 g. of sulphaguanidine daily, in 5 doses, for a minimum of 8 days, the length of treatment being increased in the severer cases. A preliminary period of treatment with colonic wash-outs while on a low-residue diet was carried out in 19 cases.

In chronic cases sulphaguanidine must be given until healing of the mucosa has taken place: to gauge this, sigmoidoscopy is essential.

Complete cure was obtained in 19 (73%) acute cases, in 11 (55%) chronic cases receiving 90 g. over 6 days, and in 24 (77%) chronic cases receiving an average dose of 160 g. over 10 days.

Toxic symptoms occurred in only 9 of the 51 chronic cases; there were none in the acute series.

Illustrative cases, showing the scheme of treatment, are recorded.

PROBABLE TETANUS DESPITE INOCULATION WITH TOXOID

BY

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Preliminary reports upon battle casualties previously protected with tetanus toxoid seem to vindicate both its use and the administration of two doses at a six-weekly interval. In the B.E.F. in France and Flanders no tetanus occurred in the wounded who had been so inoculated (Perry, 1940), and the third dose after a six-months interval, which is now the standard method advocated by Boyd (1938) and in practice in the British and Indian Armies, should further raise the antitoxin level. The following is a probable case in a subject who had been protected by two doses at a six-weekly interval.

Case History

A sepoy aged 20 received 1 c.cm. of tetanus toxoid subcutaneously on April 25, 1941, and again on June 7 (as recorded in his pay-book). He was admitted to this hospital on Dec. 4 with a history of stiffness in the dorsal thoracic muscles and the muscles of the back of the neck for two days. Slight stiffness of the jaws and dysphagia appeared first on the day of admission. His only injuries were a wound on the left thenar eminence and one on the palmar surface of the left middle finger, each about 3/4 in. long, incised, superficial, and at the time of admission quite healed, with only the edges of the most superficial horny layer very slightly gaping. He had received them on Nov. 18 while serving on the Red Sea Littoral.

Moderate risus sardonicus and trismus were present, the jaws opening 1/2 in. There was marked stiffness of the back and neck. One could just pass the flat of the hand between the shoulders and the bed. The abdominal muscles were rigid, but moved with respiration. Spontaneous paroxysms of opisthotonos were occurring about every half-minute; they lasted about 5 seconds, and were accompanied by clenching of the jaws and spasm of the thoracic and abdominal muscles. The limbs were unaffected. These paroxysms had first appeared on the night of Dec. 3. He was quite rational, but his face bore an appearance of intense anxiety. The only findings of note in the C.N.S. were loss of plantar reflexes (a usual finding in the sepoy in health* and disease) and a complete absence of abdominal reflexes. The pupils were moderately small, and reacted normally to light.

The patient had received 15,000 units of A.T.S. (therapeutic) in his unit on the previous day, and 15 c.cm. intravenously and 5 c.cm. subcutaneously with adrenaline and calcium lactate in a reception station earlier on the day of admission. (There he had also undergone lumbar puncture, the fluid revealing no abnormality of pressure or constituent.) In this hospital he was given 40,000 units (therapeutic) intramuscularly b.d., and was kept stuporous with 4 drachms of paraldehyde by mouth, the paraldehyde being repeated in 2-drachm doses when necessary, day and night.

On the morning of Dec. 5 his temperature was 99.4°, pulse 90, and respirations 20, and his condition was unchanged. On the 6th the spasms were of 5 seconds' duration as before, but occurred only every 2 minutes, and their severity was much less marked. The neck rigidity and trismus were unchanged, and the morning temperature was 100°. Treatment was repeated. Early on the morning of the 7th he suddenly died. The temperature had just been taken—99°.

Necropsy.—The examination was made by Capt. A. E. Wilkinson, R.A.M.C., about 6 hours after death. There were two small completely healed wounds on the left hand; rigor was noticeably more pronounced in this hand than in the right, but was absent in both arms. The right ventricle and auricle were engorged with fluid blood, while the left heart was comparatively empty. Numerous petechial haemorrhages were present in the epicardium over both auricles and ventricles. The posterior cusp of the pulmonary valve was ruptured at its free border. The remaining yalves were normal, the coronaries were patent, and the cardiac muscle appeared excellent. The lungs were pale and emphysematous, with no subpleural haemorrhages; the liver was very dark and congested; the kidneys were congested; and the brain was normal. There was a pronounced smell of paraldehyde, most noticeable in the lungs, liver, and brain. The remaining viscera appeared to be normal. The tissue from the healed wounds was not cultured for *Cl. tetani.*

Differential Diagnosis.—The diagnosis was not confirmed bacteriologically, hence the doubt expressed in the caption of this article. The other possibilities were rabies and strychnine poisoning. As regards rabies, points of similarity were the spasms and rising temperature, but the respiratory rate was only slightly increased and there was no manifestation of air hunger. The larynx was involved in the spasms, but between them speech was normal. Similarly, fluids were taken freely by mouth between the spasms. There was no hydrophobia or hypersalivation. The trismus, risus sardonicus, and constant neck and back rigidity were distinguishing features, and the incubation period of 14 days agrees with a diagnosis of tetanus arising from such a wound in the hand. Strychnine poisoning is excluded by the duration of illness (5 days) and the persisting trismus and neck and back rigidity. Poisoning by brucine has been suggested, but since this drug is similar in action to strychnine but is only slightly toxic (Lynch and Pryce, 1939), it also is excluded. Furthermore, I have been unable to find any evidence of the use of poison on arrow tips or otherwise by the natives of this district. There was no history of an arrow wound.

Comment

No other case of tetanus has been reported in this area during the eight months of British occupation. The country is dry, sandy, hot, and arid, and tetanus is rare in such soils (Boyd, 1939). However, the Italians left the site of occupation in a filthy condition, and there had been much recent contamination of the soil by horse, mule, and donkey manure. No A.T.S. had been given at the time of the injuries, the patient considering them too trivial to report. At the post-mortem examination the pronounced rigidity of the left hand was a noticeable feature. The atmospheric temperature was similar to that of a fine English spring day, and could not have appreciably accelerated the onset of rigor mortis. There was no factor in the environment which might have allowed one part to cool more quickly than another.

The man was not seen by me just before he died, so the severity of the spasms then occurring cannot be stated accurately. The nursing sepoy attending him reported that they seemed less severe than on the previous day, and that he had his back to the patient at the moment of death. The rupture of the pulmonary valve cusp was mute evidence of the immediate cause of death. It is extremely rare for a pulmonary valve cusp to rupture as a result of violent physical exertion, and there was no congenital defect in the cusp to weaken it. Death must have occurred in diastole. One can imagine that the severe respiratory effort with closed glottis forced blood out of the alveolar walls, and that the tension within the pulmonary artery was further increased by the general intrathoracic pressure's acting on its outer surface until a cusp ruptured. The emphysema in one so young is confirmatory evidence of the high pressure in the thorax at the time of death. Despite the improvement after his admission to hospital and until the moment of death, the ultimately fatal issue agrees with Cole's gloomy prognosis (Cole, 1941) in cases in which spasm begins within 48 hours of the onset of trismus.

It is admitted that tetanus usually arises from unhealed wounds or disturbed scars, but it does occur where no obvious wound can be found (the so-called "idiopathic" cases). The mere fact that the wounds in the left hand were healed does not invalidate the diagnosis.

If this was undoubtedly a case of tetanus the two protective inoculations had not even sensitized the reticulo-endothelial system, and the stimulus of toxin from the wound produced no rise of antitoxin to "the highly protective level," which has been suggested as 0.01 international unit per c.cm. (*British Medical Journal,* 1940, 2, 910). It would be similar to a persistently Schick-fast reactor. Marvell and Parish (1940) report that 26 out of 27 subjects reacted satisfactorily to the third dose of tetanus toxoid, and that the remaining titre rose from 0.05 to 0.05–0.1 unit. This, in conjunction with Perry's report, is an indication of the rarity of the case recorded above.

The occurrence of such a case vindicates the present practice of giving antitoxin to all wounded, irrespective of previous inoculation with toxoid.

I am greatly indebted to Col. J. S. K. Boyd for his criticism of this paper and personal communications upon it. I wish to thank Capt. A. E. Wilkinson, R.A.M.C., for performing and reporting upon the necropsy; Capt. G. J. H. Maud, I.M.S., Lieut.-Col. E. Oastler, R.A.M.C., and Major H. Fidler, R.A.M.C., for their criticism and advice; and the D.M.S., Middle East Forces, for his permission to publish.

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Medical Memoranda

A Case of Acute Aseptic Meningitis

Acute aseptic meningitis was first described as a separate disease by Wallgren (1925). Since then numerous cases have been reported, though the cause remains obscure. It is distinct aetiologically from the virus form of lymphocytic choriomeningitis. It is often referred to as benign aseptic meningitis. The term "benign" is accurate as regards prognosis, for all cases recover; but if applied to symptoms it may be misleading, as in the present case, in which the illness was so severe that I did not at first think it could possibly be what I had always known as benign aseptic meningitis.

CASE HISTORY

I saw the patient, a girl aged 5, at her home on June 17, 1942. Two days before, she had returned from school feeling sick and complaining of sore throat: three days previously she had been perfectly fit. She had had a convulsion on the morning of the 17th She had moderate neck rigidity and a doubtful positive Kernig's sign. I admitted her as a probable case of meningococcal meningitis. On admission, lumbar puncture yielded a clear fluid under greatly increased pressure. The pupils were widely dilated and fixed: no reaction to light. Knee- and ankle-jerks were absent, as were all arm-jerks; plantars were extensor. The child resented all examination. Shortly after the lumbar puncture she had twitchings of the right side of face and body, which later spread to the left and became violent. These violent choreiform movements continued all afternoon and most of the night, and the child became desperately ill. On the assumption that this was a case of poliomyelitis, though a very unusual one, she was given 20 c.cm. of human serum intramuscularly. The following morning the movements were less pronounced, but the child was semi-comatose, with marked head retraction; her limbs were all held flexed, and it was difficult to extend them. An obvious left facial paralysis and slight left foot-drop were present, and there was some difficulty in swallowing, but the palate moved freely. She was given 20 c.cm. of poliomyelitis horse serum intravenously and 20 c.cm. intramuscularly. The facial paralysis had largely disappeared within a few hours, and by June 19 was scarcely appreciable. The foot-drop had also almost gone and there was no difficulty in swallowing. The child remained semi-conscious, with marked head retraction and fixed flexion of all limbs. The most likely diagnosis at this stage seemed to be tuberculous meningitis. On the 20th, however, there was a distinct improvement in the child's condition, and by June 22 she appeared almost normal. She was discharged on July 8, and has been seen several times since, quite fit. The following investigations were carried out:

Lumbar Puncture	Appearance of Fluid	No. and Type of Cells	Protein (mg /100 c cm.)	Chlorides (mg./100 c.cm.)	Culture
17/6/42	Clear	380 Lymphocytes, 55% Polymorphs, 40% Large hyalines, 5%	40	640*	Sterile
18/6/42	"	320. Lymphocytes, 96%	20	720	"
20/6/42	"	410. Lymphocytes, 94%	20	700	"
2/7/42	"	90 Lymphocytes, 80% Polymorphs, 20%	20	730	"

* This figure was reported as "not guaranteed" the following day it obviously supported a diagnosis of tuberculous meningitis.

Radiographs showed no skull abnormality and the lungs were clear. Animal inoculation revealed no signs of virus infection from inoculation with patient's serum or cerebrospinal fluid (June 20) Complement-fixation and neutralization tests were both negative on the patient's serum on August 17.

Comment

Points of interest are: (1) the extreme severity of the symptoms, the term "benign" being rather misleading; (2) the absence of a preceding febrile illness (in the virus form, a febrile illness of one or two weeks' duration is frequently, though not always, recorded); and (3) the very transient paralyses. The last two points are well discussed by Baird and Rivers (1938). Diagnosis from tuberculous meningitis could be made only as signs of recovery became apparent. The wild choreiform movements followed by fixed flexion of the limbs were unlike poliomyelitis, though the absence of tendon-jerks was in its favour on the first day; failure to develop any flaccidity or marked paralysis in a case in which the central nervous system was so acutely involved, and a high cell count a fortnight after the onset, suffice to exclude it.

I am greatly indebted to Dr. MacCallum of the Wellcome Research Foundation, who carried out the animal inoculation and serological tests; to Dr. May of the Emergency Pathological Service, who reported on the cerebrospinal fluid; to Dr. Sleigh Johnson, who saw the case in consultation; and to the medical officer of health, Southend-on-Sea, for permission to publish.

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Thrombophlebitis of the Cavernous Sinus: Recovery

The following case of cavernous sinus thrombosis, which recovered after a combined treatment with blood transfusions and sulphathiazole, may be considered worthy of record.

Case History

On May 25, 1942, I was consulted by a vigorous, healthy married woman, aged 56, about a nasal furuncle situated inside the left alar cartilage. It was a typical staphylococcal lesion, not of large size, and there was the usual oedematous swelling of the adjacent cheek, with intense pain and slight pyrexia. I treated her from the outset with 1 tablet (0.5 g.) of sulphathiazole (M & B 760) four-hourly, and advised glycerin packs for the interior of the nose. Next day I was sent for and found a good deal more swelling of the cheek, with oedema of the lower eyelid and temperature 101°. Pus was being discharged from the furuncle. She also complained of severe supra-orbital headache, but it was not till the following day that I suspected the possibility of cavernous sinus thrombosis. On May 28 there was no longer any doubt: the left eye was proptosed, both lids being greatly swollen, and chemosis was present; the right eye was also involved, but not to the same extent. Frontal headache was very severe, and oedema extended over the supra-orbital region, more pronounced on the left side. Detailed examination of the eyes was difficult, but the patient volunteered the information that she "saw double on looking to the left," and there appeared to be definite paresis of the left external rectus—from involvement of the sixth nerve, which runs along the inner wall of the cavernous sinus. There was some rigidity of the neck muscles, and temperature had risen to 103°. The patient was seen with me by Mr. C. Gill-Carey and removed to hospital.

A blood count showed R.B.C. 4,740,000 and W.B.C. 10,200 per c.mm. A blood culture was also taken that night (from which, after five days' incubation, a *Staphylococcus aureus* was grown of the same type as that found in the nasal lesion). Immediate treatment given was a transfusion with 400 c.cm. of whole stored blood (freshly taken that day), and intramuscular injection of sulphathiazole was started, alternating with oral administration of the drug—4 g. of each within the first 24 hours. The local condition was rather worse next day, proptosis and chemosis being more noticeable; but the temperature fell gradually to normal within two days, and the general condition was obviously better. The same dosage of sulphathiazole was continued for three days, when it was reduced to 6 g., but next day the temperature began to rise, and 8 g. was again given. On June 2 there was a sharp rise of temperature to 102°, so a second transfusion of stored blood was given, once more with good effect, the temperature falling to normal next day and remaining normal for four days. There was a great improvement in the patient's condition, general and local, except for the appearance on June 6 of a papular rash on the neck, arms, legs, and abdomen As she was complaining of a good deal of nausea the sulphathiazole was reduced to 3 g. daily on June 6 and 7.

On the 7th, however, she felt very ill, with sudden rise of temperature to 102°. Again 400 c.cm. of whole blood was given, and sulphathiazole 6 g. daily. The dramatic improvement, however, was not repeated this time, so on the 9th 400 c.cm. of blood from a donor was administered. A blood count taken at the time showed W.B.C. 7,800 per c.mm., with no sign of agranulocytosis, so the dosage of sulphathiazole was stepped up to 8 g. daily. For the next four days the patient remained very ill, the rash extending into large confluent areas, and headache being severe: but the local condition of the eyes showed marked improvement. On June 13, as the rash was so distressing, and the patient had by then had 95 g. of sulphathiazole, it was decided to discontinue it. Next day the temperature remained normal for the first time for a week; the rash gradually faded and the swollen eyelids returned to normal fairly rapidly. Headache, though still severe at times, became spasmodic in character, and convalescence began.

Discussion

Thrombophlebitis of the cavernous sinus is a grave complication of suppurative lesions of the face; the mortality has been notoriously high, and all the textbooks which I consulted record that it is "almost invariably fatal." In the *Lancet* for May 2, 1931, W. G. Scott-Brown, in a comprehensive review of six fatal cases collected from the records of St. Bartholomew's Hospital, alludes to it as "an invariably fatal complication of minor facial sepsis, unless the sinus can be drained." He goes on to describe the methods of approach to the sinus: (1) the Gasserian-ganglion route; (2) the orbital route; (3) the nasal route, through the sphenoidal air sinus. But each of these represents a surgical manœuvre fraught with the gravest peril of injury to important structures and of spreading the disease to the meninges. Bischer reported in 1893 a successful case of drainage through the petrous portion of the temporal bone (Scott-Brown), but his success has apparently never been repeated.

With regard to surgical treatment of the local lesion, it is generally recognized that free incision is dangerous and apt to lead to rapid dissemination of the infection. It is therefore gratifying to feel that methods of treatment exist to-day which give a good chance of recovery. I cannot say whether the repeated blood transfusions or the sulphathiazole therapy played the greater part in curing the condition, but I feel sure that the combination of the two was the important thing. A study of the temperature chart did make it appear that the fresh antibodies provided by transfusion caused dramatic improvement on the first two occasions, and, though the temperature persisted after the third and fourth transfusions, I am inclined to think that the patient had by then had as much sulphathiazole as she could deal with. The rash was very severe, and it seems likely that the drug itself may have been responsible for keeping the temperature up at this stage, the sudden cessation of fever on discontinuing it pointing strongly in that direction.

The case has, to my mind, proved conclusively the great value of sulphathiazole in the treatment of serious staphylococcal infections, and bears out the claim of the makers that its toxicity is only half that of sulphapyridine. Before the appearance of the toxic rash my patient had had about 60 g. of the drug, and she was able to take in all 95 g. in 18 days, without serious detriment.

I am indebted to Dr. Frank Knott, pathologist to Guy's Hospital, and to Dr. J. Verdon, R.M.O. at Surbiton Hospital, for their invaluable help in treating this interesting case.

A. R. C. Doorly, M B, B.S.

THE MEASURE OF NIGHT VISION

BY

N. BISHOP HARMAN, M.B., F.R.C.S.

It is agreed by all that in these days there should be some assortment of men and women for the various kinds of night duty according to their ability to see in a minimum of outdoor light. Those on such duty who are good observers discover for themselves some measure of their night-light reaction. An officer of the Home Guard told me that when he went out from his house at night he could see little at first, but he knew his road and walked slowly; in five minutes he could see so well that he could distinguish the white patches of road markings. There is no doubt of the truth of this observation. When I go out into the dark after an evening of reading and look at the roof of a near-by cottage it appears to have no chimney on its ridge, the skyline seems unbroken; but on looking at the gable end of the roof three metres away the missing chimney can be seen. After staying out of doors for from 5 to 10 minutes the chimney can be seen by direct fixation. The macula has recovered its full vision.

Defect of Some Night-vision Tests

There are several tests of night vision. Some are distinctly ingenious; but with some—and to my mind this is the most important point—there is no definite measure of the minimum light necessary for vision in the particular subject who is tested. Such a measure should undoubtedly be given by a direct reference to our scientific standard of candle-power, and it should be ascertained in such a way and by such an instrument and recorded in such terms that it can be obtained by any ophthalmic surgeon anywhere—here in England or far away in Australia—by repeating the same process. All our eye work is done so far as possible according to definite measurement. We agree everywhere to the measurement of Snellen's distant daylight vision test; and the figures of that test carry with them an exact appreciation of the vision of the person examined. When a workman's compensation case is under consideration in a law court the statement of the medical witness that the subject's normal eye sees 6/6 and the injured eye 6/18 conveys a direct and fair impression to the minds of the judge and the lawyers. Some definite measure and figure of night vision are equally desirable. In an article in the *Journal* on wartime street lighting[1] this was clearly stated: "The measure of illumination provided by wartime street lighting, though so small, is of appreciable benefit, especially when applied on a wide scale."[2]

A number of night-vision tests are now available. The earliest of them measured the time required by the individual to attain an adaptation to the dark. From one point of view, that of the general health and nutrition of the subject, this time reaction is valuable. But among subjects of equally good health and nutrition these adaptation tests do not give a direct and definite measure of the minimum light required by the individual to see an object or objects. An early test for the measure of night vision was that of Dr. W. D. Wright.[2] His test cards were black with a letter **C** thereon in varying shades—from pure white to dark grey. The cards were exposed to a radium glow, and examined at a distance of 12 inches. The test is simple, but it gives no definite measure of the light, for radium glow varies. Major B. W. Rycroft[3] has reversed this test for Army use, and based his instrument on a widely used form of Snellen's test. The test mark is the letter **V** painted in varying positions on transparent screens, which are illuminated from behind by an electric bulb. The test is attractive and easy to use, but again there is no definite measure of the lighting, so that the results are not exactly comparable. Opal glass varies in its filtration of light (so even does plate glass!) and electric bulbs vary in their reaction. So far as I can judge the response to this test is wholly related to the particular instrument in use at the time, and it does not give a light measure that can be obtained by anyone, anywhere, and at any time.

The Disk-spotting Test

The disk-spotting test[4] is planned on a direct measurement of light. The light is reflected from illuminated disks on a black velvet background, and the measure is gained by finding the distance at which the disks can be seen and counted. An instrument made by Theodore Hamblin is most convenient to use, but the plan of the test is so simple that it can be set up by anyone anywhere. Further, since the illumination is from "the standard candle," which is well known to all testers of lighting and all students of physics, there can be such an exactness of the light used and of its measurement that the returns of the examination are definite. The figures were given of night-vision reactions in some 700 healthy subjects with full daylight distance vision grouped as follows: (1) school children 10 to 18 years; (2) soldiers 19 to 30 years; (3) soldiers 31 to 40 years; and (4) persons over 41 years. The reactions differed slightly with age: children did the test best and subjects in group (4) least well. But there is a common average for all classes and ages which the figures showed to be 5. At a distance of 5 metres the light is only 1/1075 of a foot-candle; at 1 metre the light is 1/373, and at the greatest distance at which the disks can be counted, 8 metres, the light is only 1/1816 of a foot-candle, or 1/2000 allowing for reflection loss.

A question put to me by a colleague is one of importance. He said: "I know what is meant when the night-light reaction with this test is only 2 metres, but it would be well if there were some means of registering the reaction to this test that would be recognizable and understandable by any intelligent layman, even though he has no knowledge of how the test is made." There is, I think, a means of registering these night-vision reactions to the disk-spotting test that will meet this need. Here are the percentages of the reactions of the 700 persons examined (half-metre positions have been omitted).

Metres distant	2	3	4	5	6	7	8
% average reaction.. ..	5	12	16	21	15	4	1

The figures make it evident that night vision at 5 metres, or in light of 1/1075 candle-power, is the average for most people. If this figure 5 be taken as the denominator of a vulgar fraction of which the numerator is the reaction of the particular individual, that vulgar fraction will state the facts of the finding of the test in such fashion that any person will understand it—just as that person understands something of what 6/18 on Snellen's test implies as a fractional quantity of distant daylight vision. Returns of the disk-spotting night-vision test would be thus: 2/5, 3/5, 4/5, 5/5, 6/5, 7/5, 8/5. If, after testing a subject in this manner, the figure registered is night vision 5/5, everyone will know it is normal. If the figure is 2/5 all will know that night vision is poor; if it is 8/5 no one will doubt that it is very good.

My only criticism of such "fractional" figure returns is that they do not, and cannot, show the amazing value of the high returns. The fractions from 2/5 to 4/5 are a fair statement of the condition of the patient's night vision; but the fractions 6/5, 7/5, and 8/5 seem insufficient for the splendid condition of seeing at 6 or 7 or 8 metres. I have no doubt that in these latter cases the examiner would add a note that "the subject's night vision is exceptionally good," and the reader or examiner of the recorded returns would be duly impressed.

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[1] *British Medical Journal*, 1941, **1**, 635.

[2] Harman, N. Bishop, ibid., p. 636.

[3] Rycroft, B. W., ibid., 1942, **2**, 576.

[4] Harman, N. Bishop, *British Medical Journal*, 1941, **2**, 347.

Griffiths, Marks, and Young have shown that the implantation of various oestrogens for periods of two to four weeks increases the insulin content of rat pancreas. H. L. Fraenkel-Conrat and his colleagues (*Proc. Soc. exp. Biol., N.Y.*, 1941, **48**, 333) confirm their observation, and believe that the effect is brought about through the mediation of the pituitary. They found that oestrogen which raises the insulin content in the pancreas of normal rats fails to do this in hypophysectomized rats. Also, implantation of the pituitaries of oestrinized rats increased the insulin content of the pancreas of the host animals, an effect not observed with implantation of pituitaries of untreated rats.

Reviews

PATHOGENESIS OF POLIOMYELITIS

Neural Mechanisms in Poliomyelitis. By Howard A. Howe, M.D., and David Bodian, Ph.D., M.D. (Pp. 234. $3.50 or 20s.) New York: The Commonwealth Fund; London: Oxford University Press. 1942.

This well-written and well-illustrated book describes the experimental work carried out by the authors to throw light upon the pathogenesis of poliomyelitis. The extent of current researches upon virus diseases is illustrated by the fact that this book contains some 200 references to this aspect of one virus infection alone. The question investigated is important because measures for the prevention of poliomyelitis can be based only upon knowledge of the mode of infection with the causative virus and the nature of the immunity which protects against a second attack. Howe and Bodian's researches suggest that the olfactory tract is probably not the usual route of infection in man, but that the virus multiplies in the alimentary canal, from which it passes to the central nervous system by ascending the axis cylinders of nerves which have not yet been identified. Within the nervous system the virus spreads along nerve paths, but there are great variations in the susceptibility of different centres. The total pathological picture is thus determined by at least three principal factors: the portal of entry, the selective spread from the region of the nervous system first invaded, and the susceptibility of the centres reached by the virus. There is evidence that immunity is not a reaction of the nervous system but is the result of protection at the portal of entry. Many problems remain unsolved, but this book is an encouraging account of steady progress made towards the eradication of this scourge of childhood.

SPECTROSCOPY OF VITAMINS AND HORMONES

The Application of Absorption Spectra to the Study of Vitamins, Hormones and Coenzymes. By R. A. Morton, D.Sc., Ph.D., F.I.C. Second edition. (Pp. 226. 28s. 6d. post free inland.) London: Adam Hilger, Ltd.

The great advance in the technique and applications of spectroscopy during the last ten years has made it imperative that Dr. Morton's book should be completely rewritten and enlarged. Spectroscopy has become widely used not only for detecting the presence of many substances but also for determining them quantitatively in many media. In particular the estimation of certain vitamins and hormones has been much simplified by this branch of physical chemistry. Full details of the procedures and precautions necessary for such determinations are given in the second edition of Dr. Morton's book. In addition he has also given a satisfying account of the theory underlying the technique. The substances to which the science of spectroscopy has been most usefully applied are the steroids (provitamins D and vitamins D, oestrogens, follicular hormones, male hormones, etc.), the carotenoids and vitamin A (with a full examination of the conversion factor for changing intensity of absorption at 325 mμ into international units of biological activity, and the conclusion that one molecule of carotene yields only one molecule of vitamin A), vitamin E and antioxidants, vitamin K, vitamins C and P, the vitamin B complex (a pity that pantothenic acid was omitted from the summary on page 140), purine and pyrimidine derivatives, proteins, enzymes and coenzymes. The physiological aspects of these substances are treated shortly but adequately to interest the pure spectroscopist. The book contains both name and subject indexes. The diagrams, plates, and whole format of the book are excellent.

DEVELOPMENT OF THE CEREBRAL CORTEX

The Postnatal Development of the Human Cerebral Cortex. By J. LeRoy Conel. Volume II: The Cortex of the One-month Infant. (Pp. 144; 108 plates. $8.00 or 46s. 6d.) Cambridge, Massachusetts: Harvard University Press; London: Oxford University Press. 1941.

The second volume of this work by Prof. J. LeRoy Conel has now been published, and it maintains the high standard of the first volume, which deals with the cortex of the newborn infant. Precisely the same procedures have been adopted, so that the two series of observations can be compared side by side—namely, the cortex of the newborn babe with that of a one-month infant. Some results of these observations, which indicate the number and measurements in μ of the cells in each unit and the width of the laminae in the various areas of the isocortex, have been tabulated, so that changes in the different areas of the isocortex that take place during a given period of development may be compared, and, with the photomicrographs and camera-lucida drawings of individual neurons in each area, be used as a standard for comparison of the normal structure of the cortex at the ages investigated, when dealing with physiological problems or morbid material. Later stages in the growth and differentiation of the cortex are to be described in subsequent issues of the series. The procedures adopted in the preparation of the sections comprise staining with cresyl-violet, Cajal, Golgi-Cox, and Weigert methods; and the criteria used in studying the development of the cortex include size of cell bodies; chromophil substance; neurofibrils; size and length of cell processes; branching of axons, spines, thorns, and varicosities; size and number of exogenous fibres; and myelination.

One specific purpose which the author has had in planning this and subsequent instalments of his work is the observation and record of those changes that occur during the growth and differentiation of the cortex which are correlated with the development of the progressive phases of behaviour in growing children. During the first month of post-natal life definite advances, although as yet slight, have been greatest in the growth of those parts of the cortex which are associated with movements of the hands, and the co-ordinated movements of the eyes which are necessary for binocular and stereoscopic vision. We note also that, while in the one-month infant the greatest advance in the growth of cell processes, Nissl bodies, and neurofibrils is in the large pyramidal cells of layer V of the posterior part of G. frontalis medius, the functional area for contralateral movements of the eyeball, the posterior region (pars opercularis) of G. frontalis, Broca's area for speech, shows little advance. The receptive area of the parietal lobe and the "striate area" of the occipital lobe have advanced in development to a greater degree than the acoustic or hippocampal areas, in which progress is only slight. It will be interesting to learn from the later volumes of this work whether in the period corresponding to increased growth of the legs, and the use of the lower limbs in walking, there will be a corresponding change in the motor cortex of the leg area, and also whether there will be a perceptible advance in the development of the acoustic and Broca's areas, preceding or at the time when the child learns to speak.

Notes on Books

A fourth edition has now reached this country of Dr. MALFORD W. THEWLIS's book, *The Care of the Aged* (*Geriatrics*) (Henry Kimpton; 35s.). The third edition was noticed in these columns as recently as April 4, 1942, when we commended it as a book of reference relating to old age and its diseases which might well find a place on the shelves of all general physicians. The text has been revised and additional matter included. The importance of the subject continues to grow because of the great shift in living population of the United States and of this country. The latest census figures show that there are nearly nine million persons in the U.S.A. over 65 years of age—an increase of 35% for this age group since 1930, while the total population increased by no more than 7.2%.

The ninety-ninth edition of the *Medical Directory* has been published by Messrs. J. and A. Churchill, Ltd. It appears in the same form as last year and at the same price. There has been a net increase of 1,346 entries, and the number of pages of text has been increased by thirty-two. The numerical summary of the medical profession shows that there are now 66,740 names, compared with 65,394 in 1942. Increases will be found in all but one of the sections of the *Directory*: 24 in London, 719 under Provinces, 114 under Abroad, 380 under Scotland, 179 under Ireland, and 2 under Wales. A decrease of 72 is recorded under Services. The figures do not include 1,632 temporarily registered practitioners whose names, addresses, and qualifications are listed in a short section near the end of the volume. The publishers are to be congratulated on keeping this valuable book of reference up to its usual high standard.

Dorothy Gill (*Arch. Pediat.*, 1942, 52, 587) has collected 36 cases of nephritis following varicella, including one of her own in a boy aged 5½. The ages ranged from 6 months to 11 years. Of the 26 cases in which the sex was mentioned, 10 were males and 16 females. The interval between the eruption and the onset of nephritis varied from 1 to 24 days. Seven of the cases were fatal.

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TREATMENT OF CANCER OF THE LARYNX

The curative or radical treatment of malignant tumours must at present take the form of either excision or irradiation, and as the surgery of malignant disease has always been from its very nature fraught with disaster and disappointment, however great its positive achievements in various directions, the hopes aroused by the claims of radiotherapy have produced a swing towards this treatment even for operable cases of cancer. It is this group of cases, which might have been successfully treated by excision, that have provided radiotherapy with almost the whole of its good results, though it has had some success in inoperable cases. This, however, has eventually proved nearly always to be palliative only.

As the two forms of treatment follow quite different routes, and attempts to combine them have led nowhere, it is very difficult, and perhaps impossible, to obtain an unbiased judgment on their respective merits. To gain the experience and skill required in order to obtain the best results in any group of cases much patience and long years of training are necessary, whether it be in surgery or in radiotherapy, and this must induce some bias, however resolutely the tendency be resisted. It is an odd coincidence that the most determined attacks have been made by radiotherapy on regions usually in the province of specialists where the results of excision have been fairly good, while regions which fall to the general surgeons have been relatively neglected. Thus the uterus, larynx, and pharynx are favourite fields for radiotherapy, though excision has much to offer, whereas the stomach, colon, rectum, and breast are less subjected to this treatment. Without inquiring more closely into this, it remains clear that generally the cases most favourable for surgery are those most favourable for radiotherapy, and those unfavourable for the one, such as cases of cancer of the oesophagus, are also unfavourable for the other. Unfortunately the two methods, apart from palliative treatment, are not complementary, and where one fails—speaking quite generally—the other fails also. This is shown very well by the case of cancer of the larynx, where both surgery and radiotherapy can, up to a point, advance quite respectable claims, and their respective advantages have been debated now for many years.

A good instance of this kind of disputation is a recent paper by Nielsen and Strandberg[1] from the Finsen Institute in Copenhagen, where the art of radiotherapy has reached the peak of perfection. The results, therefore, must now be about as good as it is possible to achieve. Although the authors appear to be unaware of the fact, intrinsic cancer of the larynx is relatively uncommon in the Scandinavian countries, as compared, for example, with Great Britain, while the incidence in the upper jaw is greater. This accounts for the rather small size of their material, amounting to only 63 cases, though this is compensated by the careful study and records of the cases. They were all treated by protracted fractional irradiation with *x* rays, sometimes for as long as eight weeks, but recently for about three to four weeks, the total dose being 5,000 to 6,000 *r*, and occasionally 7,000 *r*. The authors state that perichondritis and necrosis have not been seen except in cases in which the cancer had already invaded the cartilage before treatment was instituted. There have been no late cutaneous changes of any severity. The sites of origin in these cases were three: (1) the true vocal cords; (2) the vestibule, which includes the false vocal cords, the laryngeal surface of the epiglottis, and the sinus of Morgagni; (3) the subglottic region. The authors state that "the cases most amenable to radiation therapy are absolutely those in which the mobility of the vocal cord is still unimpaired, or nearly so." Tumours of the ventricular bands and the immediate neighbourhood—that is, those in Group 2—are considered to be particularly radiosensitive.

In order to evaluate the results of treatment the cases were grouped into the following stages: (1) Those operable by laryngofissure: the carcinoma is localized to the anterior two-thirds of one vocal cord, which retains free mobility. (2) The carcinoma involves the anterior commissure and the anterior portion of both vocal cords, whose mobility is free or only slightly impaired. (3) Cases operable by laryngectomy or possibly hemilaryngectomy: the muscles are invaded and the cord fixed with possibly subglottic extension. Also subglottic cancers without enlarged lymphatic glands. (4) Cases with extension beyond the limits of the larynx. All patients with enlarged lymphatic glands are included in this group, and also carcinomas of the vestibule and extensive subglottic tumours. Cases in which the patient was over 70 were regarded as "biologically inoperable." There were 6 patients in Stage 1: these all remained well with a normal voice, 3 of them for more than 3 years and 1 for 5 years. There were 8 patients in Stage 2: these all remained well, but 3 of them for less than a year. In Stage 3 there were 21 patients, of whom 11 would have been operable by laryngectomy: of these none has survived 5 years, 3 for 3 years, and 8 for 1 year or less; the fate of the remaining 10 out of the 21 is not made clear. There were 28 inoperable cases in Stage 4: no patient has survived for 5 years, but 3 are alive after 3 years and 5 for lesser periods.

The authors complicate the report of their results, as is seen in almost every radiological report, by including cases which have been treated for less than 3 years. No surgeon would report a recent case unless for some exceptional reason, and would certainly never report a series under 3 and preferably not under 5 years. To report cases under 1 year is, however, an established radiological custom, and the condition of these recently treated cases is generally described as encouraging, which may be the case if encouragement is required, but they vitiate the statistics. This is shown by the fact that some of the cases in the above record were afterwards submitted to operation with survival for several years. Not only is it impossible to accept the standards of operability and inoperability proposed by the authors, especially in the matters of palpable lymphatic glands, encroachments on the pharynx, and perichondritis, but they fail to take account of improvements in surgical technique corresponding to improvements in radiological technique. The operation of laryngofissure gives at least 80% of freedom from recurrence for 5 years with very little disability, and the same may be said of modified excisions falling upon both cords, except that the voice is not so good though quite strong. At least 40% of those submitted to laryngectomy, even with a liberal view of its limitations, survive for 5 years, though many needing this operation have enlarged glands in the neck. With modern technique the disability is not very great, and a useful voice is obtained or a speaking instrument can be used, but the mutilation is serious compared with the result of a successful treatment by radiotherapy. It may, however, be much less so than the result of a radiotherapeutic failure.

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[1] *Acta radiol.*, 1942, **23**, 189, 255.

It appears, therefore, that as an adequate operation is available for every stage of the disease which presents any prospect of benefit from radiotherapy, surgical treatment should be considered first, and radiotherapy adopted only if for some reason surgical treatment is contraindicated. These authors, however, would reverse this usually accepted procedure. They propose a test irradiation to discover how the tumour reacts. "If it reacts without local complications, during the first part of the irradiation, there is good hope that by continued treatment with full dose freedom from symptoms may be obtained." This compromise is unlikely to be generally acceptable, though it is often put into practice with uncomfortable results for both patient and surgeon, and a decision upon one or other line of treatment should be made in the beginning. This paper shows yet again that it is in the more advanced cases, in which laryngectomy, especially with the extensions of which it is capable, frequently succeeds, that radiotherapy fails except as a palliative, and this should influence the decision. The fallacy of biological inoperability at the age of 70 is shown by the case of a man aged 78 who had an extrinsic carcinoma of the larynx with enlarged glands in the neck. The glands in the neck, part of the pharynx, and part of the larynx were excised by lateral pharyngotomy. He succumbed recently to an apoplexy, having had no recurrence.

BYSSINOSIS AND BAGASSOSIS

Dangerous dusts in industry are mostly mineral, but there are two lung diseases produced by the inhalation of dusts of vegetable origin. Byssinosis is the name given to a disease in cotton operatives which has been the subject of several investigations in this country, and is now scheduled under the Workmen's Compensation Act. Its mode of production is still somewhat obscure, and it would be interesting to know whether the findings in a recent investigation in the United States have any bearing on it. There being a large cotton surplus in that country, needy rural families were provided free with enough for making mattresses, of which 3,944,456, as well as other articles, were made during 1940-1 at rural mattress-making centres. Large numbers of people so engaged developed within a few hours a transitory illness consisting of fever, headache, nausea, and vomiting, but without symptoms referable to the respiratory tract except a dry cough and a sense of discomfort or pressure in the chest. This illness was associated with the handling of a low-grade very dusty cotton; carding it and beating the filled mattresses to level them raised much dust, and the inhalation of this was clearly the cause of the illness. All the incriminated cotton was also stained, having a yellow or brown colour. P. A. Neal, R. Schneiter, and Barbara H. Caminita[1] describe an investigation which has brought the cause of this illness to light. Neither chemical nor mycological examination of dust from the stained cotton revealed anything significant; the abnormality was found to be bacterial. In the stained fibre were large numbers of bacilli, and cultivation of the dust showed the presence of many millions per gramme of a capsulated motile Gram-negative bacillus which was not found in cotton of good quality. The same micro-organism was recovered from the dust of a cotton mill in which "mill fever" had occurred some time earlier. Extracts of stained cotton dust and filtrates of cultures of the cotton bacterium produced inflammatory lesions when injected intradermally, and reproduced the full picture of the mattress-makers' disease when sprayed and inhaled by human volunteers. When the dust itself was inhaled and the disease produced, it did not appear that the cotton bacterium multiplied in the air passages. These and other experiments in a very thorough investigation seem to have established fully that this disease is due to the absorption of a bacterial toxin from inhaled dust.

Although this episode in the U.S.A. is exceptional, the possible relation between this disease and the "mill fever" or "Monday fever" of cotton operatives seems well worth investigation. These authors point out that the Departmental Committee on Dust in Card Rooms in the Cotton Industry[2] refers in its report to the presence of large numbers of Gram-negative bacilli in cotton dust, but considered them of no importance because such bacilli could not be found in the operatives' sputum. If such bacteria are responsible for any of the symptoms complained of by cotton operatives generally, the present American work fully explains why they should not be recoverable from the secretions of an affected person. "Monday fever" is a condition for which a bacterial intoxication affords a reasonable explanation; whether long repetition of this form of insult to the bronchial mucosa can be expected to give rise to the chronic bronchitis and emphysema which constitute byssinosis is another matter. It should certainly be worth while to reinvestigate respiratory disease in cotton workers from this new point of view.

Bagassosis is the term suggested in their recent paper in this *Journal*[3] by L. I. M. Castleden and J. L. Hamilton-Paterson for a somewhat similar condition, in that the dust producing it is also of vegetable origin. Bagasse is the fibre left after extracting the sugar from sugar-cane: board made from it is a good insulator, both auditory and thermal. Dry crushing of bagasse liberates much fine dust, and workers exposed to it developed after two to four months increasing dyspnoea, with severe cough and scanty sometimes blood-stained sputum; there is slight fever, and the *x*-ray picture is that of a bronchopneumonia Complete recovery followed removal from the dusty atmosphere in two of their cases, but in two others and in further cases described by J. A. Gillison and F. Taylor[4] there was disability of longer standing, and some degree of pulmonary fibrosis may have been produced. No bacterial cause was found, either in dust or in sputum, but the patients had a cutaneous sensitivity to bagasse extract which was not found in controls. This is evidently a more severe and much more rapidly disabling condition than byssinosis, and is presumably a reaction to some chemical constituent of the fibre concerned.

STARVATION IN EUROPE

When the time comes for relief in Europe the Allied nations will be united in a Herculean task. The work must be carefully prepared beforehand, and plans are already engaging the attention of many persons and official committees. The first and most urgent requirement will be the provision of food and shelter for the starving, the refugees, and the destitute. Then will come medical care of the sick, reorganization of the social and medical services, and the setting into motion of agriculture and industry. For all this planning there must be a headquarters staff, under which the technique of relief and its specialist problems will have to be worked out in detail by *ad hoc* committees from among Allied representatives. The administrative capacity and pooled resources of the world will be taxed to the utmost. Medicine has an important part to play in this humane work of relief, and what it can do is now being discussed. Doctors and nurses, it is obvious, will be wanted for medical relief. The planning and carrying out of nutrition schemes; measures for the control of typhus, malaria, enteric; the danger of the present continent-wide increase in tuberculosis—these are but some of the tasks for international medicine in the post-war period. But can anything be done now for the appalling famine in Greece, Belgium, Spain, Poland, Yugoslavia, and Western Russia? It is estimated that the present surviving population of Greece is some 6½ million and that the wheat now available, excluding imports permitted by the belligerents, would keep alive about 3½ million of them. In Athens 100,000 out of 1,000,000 have already perished. The plight of the Greek children is terrible. Even in December, 1941, the Athens Welfare Centre stated that 9 out of 10 babies were dying in the first six months because their mothers were starved and milk was almost non-existent, practically all the cattle having been slaughtered during the famine. The need to send milk for the children is urgent, and 100 tons of Canadian powdered milk are to be carried by Swedish ships and distributed by the International Red Cross, in addition to the monthly supply under navicerts of 15,000 tons of wheat. The first cargo of powdered milk has been dispatched, but it is not yet known whether it has reached its destination. Vitamins and powdered milk in much larger quantities and dried vegetables are essential to save lives and to counter an epidemic of nutritional disease of osteomalacic type which has developed in both children and adults. Here are some observations from eyewitnesses in Athens: " . . . The children had not even the strength to beg, and some had died as they crouched over a grating; they seemed to be asleep, and hours might pass before their companions realized they were dead" (January, 1942). "Orphans and abandoned children are found wandering in the streets . . . starving, dirty, pale, and thin, a sight recalling Dante. They stop at nothing to find a bit to eat, searching among refuse and fighting the dogs for something edible . . ." (March, 1942). The morbidity rate is such that in June, 1942, there were four children to a bed in one temporary hospital. Conditions are little better in Belgium. The infant mortality rate is rising steeply and is said to be now about four times as high as in 1939; famine oedema is seen and vitamin deficiency is common. The morbidity from tuberculosis has increased 30 to 80% in different parts of Belgium. In varying degrees of severity the same appalling conditions prevail in other European countries.

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[1] *J. Amer. med. Ass.*, 1942, 118, 1074.

[2] Home Office Report, H.M.S.O., 1932, p. 42.

[3] *British Medical Journal*, 1942, 2, 487.

[4] Ibid., 1942, 2, 577.

The sending of food to any occupied country has political implications which make relief out of the question unless guarantees can be given and accepted that the food will not be used by the enemy. And even if it is not used directly by the enemy it may be of use to him indirectly by sparing his own supplies to the country he occupies. But now that arrangements have been made to distribute cargoes of wheat and dried milk in Greece, our own Government should soon know if the distribution is satisfactory; it will then be easier to determine what further help can be given to the starving population, and especially the children, of Belgium. The Famine Relief Committee (67, Brook Street, London, W.1) has estimated the quantities of dried milk and vitamins (per million inhabitants) needed to save the lives of children in Greece and Belgium. These calculations can be applied to other countries. For Greece the tonnage of shipping per month is 2,000, and the Swedish Foreign Minister has stated the willingness of Sweden to carry relief.

In the armed Forces medical men treat the sick and the wounded prisoner with as much care as they treat their own men. In so far as it is compatible with the paramount task of winning the war, the relief of that pathetic casualty of war—the child ill from starvation—is an especial object of medical concern.

COMBINED TUBERCULIN AND RADIOLOGICAL SURVEY

In 1934 the Royal College of Physicians of London inaugurated under the terms of the Prophit Bequest a survey scheme with the following objects:

> To determine the level of tuberculous infection by the graduated Mantoux tuberculin test.
>
> To correlate the result of the Mantoux test with the results of *x*-ray examination of the thorax.
>
> To determine the value of mass *x*-ray examination as a means of revealing unsuspected pulmonary tuberculosis.
>
> To assess the possible prognostic significance of the Mantoux test.
>
> To discover the existence and importance of opportunities for primary tuberculous infection in the population studied.
>
> To determine the significance of certain abnormal appearances in the chest *x*-ray which are not yet fully understood.

This was a highly ambitious programme. An illustration of the difficulties met with in carrying out radiological and tuberculin surveys in this country is the fact that only now has the first communication[1]—and that a preliminary one—appeared on the work of this survey. Results are given of the tuberculin testing and *x*-ray examination of five groups of people, mostly between 15 and 25 years old: a volunteer control group of 1,543 persons (considered to be non-representative of London's average population, as the proportion of factory workers was small, and only a very small proportion came from overcrowded homes), 784 "contacts," 953 voluntary hospital and 523 municipal hospital nurses, 1,247 medical students, and 918 boys entering Royal Navy training establishments. The chief radiological findings at first examination are of much interest. In the control group only 0.13% were found to have pulmonary tuberculosis requiring treatment; an additional 0.71% were found to have inactive pulmonary tuberculosis. Healed primary lesions (that is, calcified foci of the primary complex) were detected in 7.2%. (This figure has little significance, because many such foci would not be discovered without routine over-penetrated and lateral radiographs.) In the contact group the first two percentages given above were respectively 2.4 and 2.5 (over 18 times as many active lesions). Among the hospital nurses active phthisis was found in 0.2% and inactive in 0.4% more. Among the medical students none was found to be suffering from active phthisis, and only 0.19% had inactive lesions.

The conclusions drawn from the results of tuberculin testing must be accepted with caution. International Standard, synthetic, medium, old tuberculin was used. The tests were read "after 48 to 72 hours," and the minimum positive reaction—apparently for all dilutions of tuberculin used—was taken as "2 mm. of definite oedema with surrounding erythema" (it is not stated how much erythema). Apart from the difficulty that must surely be met with in measuring "2 mm. of definite oedema" and distinguishing it from the needle puncture, it would be of interest to know on the basis of what work these criteria were adopted as sufficient to exclude false reactions. Using O.T., the following minimum criteria have been adopted by well-known workers in this field: D'Arcy Hart,[2] erythema or erythematous infiltration 5 mm. in diameter (Hart used a control test of broth in addition); Opie and McPhedran,[3] Wallgren,[4] Ustvedt,[5] Söderling,[6] Kayne,[7] 10 mm. erythema with infiltration. It will be agreed that the synthetic medium tuberculin is "purer," but even in connexion with this the State Serum-Institute at Copenhagen, on the basis of extensive and careful work by Holm,[8] recommends[9] the following as the minimum requirements for a positive reaction: a "papule" of 7 mm. at 48 hours and 5 mm. at 72 hours in the first test and of 10 mm. (48 hours) and 8 mm. (72 hours) in the second and third tests. Even with the still purer PPD, Aronson and his co-workers at the Henry Phipps Institute[10] regard the minimum for a positive reaction as "some redness and definite oedema more than 5 mm." Thus it would appear that the results given in the Prophit survey publication cannot be considered altogether reliable in regard either to the incidence of tuberculin-negative persons in the different groups or to the proportion that react to the different strengths of tuberculin. For instance, a simple calculation shows that no less than 90% of the tuberculin-positive controls are said to have reacted to 1 in 10,000 tuberculin, a high figure indeed when contrasted with 61% to 68% in different age groups found by D'Arcy Hart,[2] and 50% to 68% by Madsen and Holm.[11] Nor can the conclusions be accepted in regard to increase or decrease in sensitivity in repeat tests after an interval. Our final comment is this. Dr. Ridehalgh finds that, among the controls aged 15 to 30, 7.5% were tuberculin-negative; among the hospital nurses, 11.5% (voluntary) and 17.8% (municipal); and among the boys aged 15–16 in naval training, 34.0% and 21.3%, depending on the proportion coming from rural districts. It is safe to say that these percentages are actually higher by an unknown amount, and therefore that an appreciable percentage of individuals reach adult life even in towns without being primarily infected.

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[1] Ridehalgh, F., *Lancet*, 1942, **2**, 463.
[2] Med. Res. Cncl. Spec. Rep. Series No. 164, 1932.

SURGERY OF OESOPHAGEAL CANCER

In 1913 Torek performed the first successful operation for total excision of the oesophagus for carcinoma; this brilliant achievement was further enhanced by the patient's surviving for eleven years without recurrence; during this time the distal end of the oesophagus in the neck was connected to the gastrostomy by a rubber tube, and in this way a good state of nutrition was maintained. The promise that Torek's operation held out was not to be easily fulfilled, and malignant disease of the oesophagus has continued to be the surgeon's despair. Indeed Ochsner and De Bakey in a recent review[12] state that out of a total of 53 additional recorded cases 41 of the patients (70.6%) have died. No doubt one reason for the slow progress, in addition to the complexity of the problem, was the absence of wide experience in intrathoracic surgery. The recent rapid development of the surgery of the thorax has directed attention anew to the problem of partial or total extirpation of the oesophagus, and, slowly but surely, much new ground is being gained.

Ohsawa's[13] report from Kyoto in 1933 of 8 successful cases of resection of the cardia and lower end of the oesophagus with immediate restoration of continuity passed almost unnoticed, and it was not until Adams and Phemister[14] published (from America) in 1938 a successful case of resection of the lower oesophagus with immediate oesophago-gastrostomy that interest became fully aroused; since then at least a dozen other such cases have been recorded in the U.S.A. and several more complete oesophagectomies. Experimental investigations have also been made into methods of resection, suture, and restoration or reconstruction of continuity. Carter, Stevenson, and Abbott,[15] for example, have shown that implantation methods of joining oesophagus to stomach are followed by stenosis, and that direct mucosal apposition is necessary. Improved methods of anterior oesophagoplasty are described by Stephens[16] in a recent review of 23 cases submitted to operation. Carter, Abbott, and Hanlon[17] record their use of tubes made from the greater curvature in restoring continuity. Much of this experimental surgery is of a high order and of great interest, even though the methods described may not be finally accepted. The main difficulty in reconstruction of a new anterior oesophagus is in securing sound union between skin and stomach: fistulae readily form, and the best way to avoid this is by using an inferior oesophagostomy as advocated by Garlock, Wookey, and Phemister. Unfortunately this cannot often be done, but when possible it is a simple manœuvre, and the oesophageal mucosa and the skin tube take much more kindly to union than stomach and skin. Phemister[18] reports 12 cases of excision with 8 immediate survivals; Wu and Loucks,[19] writing from Peking, record 11 cases with 8 survivals, in 5 of which continuity was restored at once by direct oesophago gastrostomy.

It is interesting to compare these American experiences with work just recorded in this country. Allison[20] writes from Leeds of four patients who survived the operation but unfortunately died of recurrence within a year Franklin, from Prof. Grey Turner's clinic at Hammersmith, describes two cases of total oesophagectomy: one of his patients died 16 months later from metastases; the other is still alive and well after 18 months. Prof. Grey Turner has done much to keep alive surgical interest in carcinoma of the oesophagus in this country and has refused to admit that the problem is insoluble. His well known case of success by the "pull-through" method was a milestone in the surgery of this condition, although it is in essence a "trick" that can scarcely be expected to supplant the direct approach through open thoracotomy Finally, Brock[21] records the first case from this country, in fact from Europe, of resection of a tumour of the cardia involving the lower end of the oesophagus with immediate direct oesophago-gastrostomy by a combined abdomino-thoracic operation.

Perusal of all these papers impresses one with the difficulties and problems that have to be faced in those cases of total extirpation in which an anterior oesophagus has to be reconstructed. When oesophago-gastrostomy can be performed both patient and surgeon are spared much extra anxiety and operating. There seems every reason to strive to achieve this in all cases of carcinoma of the lower part of the oesophagus in which total oesophagectomy seems unnecessary on pathological grounds, as the main spread of the metastases is downwards to the glands along the lesser curvature. The recurrence rate is discouraging, but this is a common experience in the early attempts at surgery of malignant disease of any organ and should be a spur, not a deterrent, to effort: Torek's original patient survived 11 years without recurrence.

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[3] *Amer. Rev. Tuberc.*, 1926, **14**, 347.
[4] *J. Amer. med. Ass.*, 1928, **111**, 1876.
[5] *Rev. Tuberc.*, 1932, **13**, 121.
[6] *Acta paediat.*, 1934, **15**, 424.
[7] *Lancet*, 1934, **2**, 1333; and *British Medical Journal*, 1938, **1**, 992
[8] *Undersögelser over Tuberkulin*, 1934, Copenhagen.
[9] Instructions enclosed with tuberculin sent out by the Institute.
[10] *Amer. Rev. Tuberc.*, 1934, **30**, Suppl. to Dec issue.
[11] *Quart. Bull. Hlth. Org. L.o.N.*, 1935, **4**, 475.
[12] *J. thorac. Surg.*, 1941, **10**, 401.
[13] *Arch. Jap. Chir.*, 1933, **10**, 605.
[14] *J. thorac. Surg.*, 1938, **7**, 621.
[15] *J. thorac. Surg.*, 1941, **10**, 446.
[16] Ibid., 1942, **11**, 469.
[17] Ibid., p. 494.
[18] Ibid., p. 484.
[19] Ibid., p. 516.
[20] *Brit. J. Surg.*, 1942, **30**, 132.
[21] Ibid., p. 146.

REINSTATEMENT REFUSED AFTER WAR SERVICE

CASE OF LEICESTERSHIRE POLICE SURGEON

The Government has frequently declared that men who have served with the Forces should not be penalized with regard to employment on their return to civil life. Private employers have been exhorted to recognize this principle, but they have a right to expect that official bodies and local authorities will set the example. An instance of what appears to be a flouting of this principle has occurred in the case of a standing joint committee in dealing with a police surgeon. The police authority in each county is a standing joint committee, which is composed of representatives of the county council and Quarter Sessions. It may be that its double derivation is considered to give it some right to override ordinary standards of procedure by which both its parent bodies would feel themselves bound, but the facts are extraordinary enough to warrant public attention. If the facts available are not all the facts, and other reasons in the background have operated, the standing joint committee can hardly complain, because its response to repeated requests by the aggrieved person and those acting for him is the autocratic utterance, "We do not give our reasons."

At the outbreak of the war Dr. Justin Davies, who held the appointment of surgeon to the Leicester County Police, was called up as a Territorial medical officer for military duties. He gave to the chief constable the name of a deputy to act during his absence, but the chief constable, according to Dr. Davies, suggested that he should resign his post temporarily, which he did, and a few days later it was intimated to him that another doctor had been appointed to take over his duties. After about twelve months Dr. Davies relinquished his commission on the ground of ill-health, returned to his practice, and notified the chief constable, who, however, informed him that the doctor who had been appointed to take over the duties in his absence had been confirmed in his appointment. No reply was received to his request for the reasons for his supersession, and when he asked for an interview with the chairman or with the committee he was refused. Later, at the request of the Local Medical War Committee, the police surgeon who had been acting in Dr. Davies's absence submitted his resignation, and, following the usual procedure when a practitioner acts as deputy, paid into the Protection of Practices Bureau half the fees he had received during his tenure of the office. The standing joint committee accepted the resignation of the deputy, but some months later its clerk informed the Local Medical War Committee that the erstwhile deputy had been reappointed, with his partner to act with him, "in succession to Dr. Justin Davies, whose appointment was determined some time ago." Incidentally the partner was away, serving with the Army. When Dr. Davies joined up for military duty his temporary resignation was asked for, and yet the standing joint committee appoints as one of his successors a practitioner who is already in the Army.

Repeated letters have passed between the Local and Central Medical War Committees and the clerk to the standing joint committee in an endeavour to ascertain from the latter why Dr. Davies was not reinstated on his return from active service. The invariable reply is: "It is not the [standing joint] committee's custom to give any reason for any decision at which they may arrive." Equally unsatisfactory has been the correspondence with the Under-Secretary of State for the Home Office. Three months elapsed before an official of the Home Office replied that the appointment of a police surgeon was a matter for the police authority and did not require Home Office approval, but the Secretary of State had made inquiries of the Leicestershire Standing Joint Committee, which was "not prepared to give their reasons for not reappointing Dr. Davies." Apparently the standing joint committee was as high-handed with the Home Office as it had been with the Local Medical War Committee. It never gives its reasons, even for disregarding, *prima facie*, the requests of the Government to reinstate men on their return from Service, and Whitehall is reduced to impotence by the feudalism of Leicestershire.

There the matter rests, but it is an uneasy rest. Here is a medical man who temporarily relinquished an appointment solely because of his absence with the Forces. On his return he is refused reinstatement by a public body, which declines to give its reasons. If there are reasons which justify terminating Dr. Davies's appointment, the practitioner and those acting on his behalf have the right, as an ordinary principle of English justice, to be informed of them. If there are no reasons, the action of the Standing Joint Committee for Leicestershire will cause widespread disquiet among those who, relying on the assurance that their jobs, big or little, whole-time or part-time, would be available on their return, have gone cheerfully to serve their country. If county councils and standing joint committees and bodies of that description cannot act fairly in such a matter, what can be expected of the ordinary tradesman, to whom it may mean personal sacrifice? It is a question of principle far more important than the loss to this practitioner of a part-time appointment. It cuts across the common rights of aggrieved persons and appears to flout the undertaking of the Government which, by implication, extends to local authorities.

It may be that the standing joint committee had in mind the dictum of Lord Mansfield: "Never give your reasons, for your judgment will probably be right; but your reasons will certainly be wrong." But whether in this case the judgment is right or wrong is past finding out save behind the shut doors—shut even to the aggrieved person—of the Standing Joint Committee for Leicestershire.

ELECTROMEDICAL APPARATUS AND ELECTRIC PADS AND BLANKETS

The Board of Trade and Ministry of Supply have consulted the Ministry of Health regarding future production (in the United Kingdom) of electromedical apparatus and electric blankets and pads. War demands upon man-power and the increasing and inevitable shortage of raw materials render it imperative that production be controlled and limited to the minimum essential requirements and, also, that available supplies shall be procurable only for clearly established medical needs. Agreement has been reached on future control measures.

Measures for Control

Henceforth raw material will be released only for the production of electromedical apparatus of major importance in medical treatment and for the purpose of treatment which cannot be carried out by alternative means involving less use of labour and materials Apparatus of a luxury type or constructed to a luxury standard will no longer be available after existing stocks are exhausted, and no material will in future be released for the production of equipment which has not a clearly accepted and defined medical value.

Under the Machinery, Plant, and Appliances (Control) (No. 3) Order, 1942 (S.R. & O. 1942, No. 2487) (price 2d.), manufacturers may supply apparatus of an electromedical nature to members of the public only where a licence under the Order has been obtained from the Board of Trade. The purchaser must obtain the licence and the Board of Trade will require applications to be supported by a medical certificate setting out detailed particulars of the apparatus required, the condition for which its use in treatment is required, and certifying that the patient is unable to make use of hospitals, clinics, or other existing facilities. The applications will be referred to the Ministry of Health for confirmation that the designated apparatus is essential for the particular condition. Application forms may be obtained from Industrial Supplies Department (Machinery Licences Division), Board of Trade, 1-6, Tavistock Square, London, W.C.1.

Manufacturers licensed by the Board of Trade under the Electrical Appliances (Control of Manufacture and Supply) Order, 1942 (S.R. & O. 1942, No. 1453) (price 1d.), for the manufacture and supply of electrical heating pads and blankets may supply such pads and blankets to members of the public only in those cases where a certificate from a registered medical practitioner, to the effect that such supply is essential on medical grounds, has been submitted and the written approval of the Board of Trade, acting in consultation with the Ministry of Health, has been given for the supply. Applications for licences for electric blankets and pads should be addressed to the Board of Trade, Imperial Chemical House, Millbank, S W.1

Supplies to hospitals and similar institutions will be regulated by the issue of licences by the Board of Trade, but, while it is hoped to meet reasonable requests, strict scrutiny of applications will be necessary.

Care in Issue of Medical Certificates

Medical practitioners will realize that the serious limitation of production which will now be imposed renders it essential, in the interests of the really necessitous cases, that the most careful consideration and discrimination should be exercised in the issue of certificates, which should be given only where the need is absolutely imperative and alternative treatment is not practicable. Only with the full understanding and co-operation of the medical profession will it be possible to safeguard the essential needs of patients without prejudice to the vital national needs for man-power and material

NEW YEAR HONOURS

The names of the following members of the medical profession were included in a New Year Honours List published in *Supplements* to the *London Gazette* on Jan. 1 and 4:

Barony

Sir Charles McMoran Wilson, M.C., M D President of the Royal College of Physicians of London.

G.B E. (Civil Division)

Sir Henry Hallett Dale, C B.E , M.D , D.Sc., F R.C.P. Lately Director of the National Institute for Medical Research. President of the Royal Society.

K.C B. (Civil Division)

Sir (William) Wilson Jameson, M.D , LL.D., F R.C.P., D P H. Chief Medical Officer of the Ministry of Health and Board of Education.

K.B.E. (Military Division)

Henry Letheby Tidy, M.D., F R.C.P. Hon Major-Gen., late R.A.M.C.

Knighthood

Ratnajoti Saravanamuttu, M.B., C.M For public services in Ceylon

C.B. (Military Division)

John Alexander Manifold, D.S.O., M.D., D.P.H. Major-Gen., late R.A.M.C. Honorary Physician to the King.

C.S.I.

Heerajee Jehangir Manockjee Cursetjee, D.S.O , B Chir Major-Gen., I M.S. Honorary Surgeon to the King. Deputy Director of Medical Services, Headquarters, North-Western Army

C.M G.

Edgar Laurent, M D. For public services in Mauritius.

C.I.E.

Edward Cotter, M.B., B.Ch., D.P.H. Lieut.-Col., I.M.S Public Health Commissioner with the Government of India

C.V.O.

Charles Sculthorpe Morris, M.R.C.S., L.R C.P., L.D.S.

C.B.E. (Civil Division)

Wallace Ruddell Aykroyd, M.D., Sc.D. Director, Nutrition Research Laboratories, Coonoor, S. India.

Frederick Hall, M D , D.P.H. Medical Officer of Health to the Lancashire County Council. For services to Civil Defence

Hon. Capt. Rai Bahadur Maharaj Krishna Kapur, L.M.S., D P.H Medical practitioner, Lahore, Punjab.

William Paterson Hay Lightbody, L.R C P.&S Ed., D P.H. Colonial Medical Service. Director of Medical Services, Sierra Leone.

John Bowes McDougall, M.D.Glasg., F.R.C.P.Ed Medical Director of Preston Hall, Maidstone.

M.V.O. (4th Class)

John Robert Kennedy, M.B., C.M.

O.B.E. (Military Division)

Justin Wilfrid Francis Albuquerque, M.B., B.S , D P H Lieut.-Col., I.M S.

Everett Francis Crutchlow. Temp. Acting Surg. Lieut.-Cmdr , R.C.N.V.R.

Frederick McKibbin, M.B., B.Ch Lieut.-Col (temp. Col), R.A.M.C.

David Mitchell Wallace, F.R.C.S. Acting Wing Cmdr , R.A.F.V.R.

Edward Rex Pascoe Williams, M.B , B.S. Surg Cmdr., R N

O B.E. (Civil Division)

Alfred Innes Cox, M.R.C.S , L.R C.P. Lieut -Col., I.M.S. District Medical Officer and Superintendent, Government Headquarters Hospital, Ootacamund, Madras.

Hugh Gregan Crawford, M.C., M.R C.S., L R.C.P. For services to the Boy Scout Movement in Staffordshire

David Montague de Silva, M.R C.S., L.R.C.P., D.P.H. Air Raid Precautions Controller, Ceylon.

James Dunlop, M B., Ch.B. Medical Officer for Civil Defence, Glasgow.

John Gilmour, F.R.C.S.Ed., D.P.H Regional Medical Officer, Department of Health for Scotland.

William Muir Howells, M B., Ch.B., D.P.H Colonial Medical Service. Deputy Director of Medical Services, Gold Coast

Mohammed Husnain, F.R C S.Ed., D.L O., D.O.M.S. Professor of Ophthalmology and Oto-rhino-laryngology, Prince of Wales Medical College, Patna, Bihar.

Madhav Krishna Kelavkar, M.B.E., M.B., B.S. Lieut.-Col., I.M.S. Assistant Director-General, Indian Medical Service (Stores)

Bernard Moiser, M.B., D.P.H. Leprologist to the Government of Southern Rhodesia and medical officer in charge of the Leper Settlement near Fort Victoria, Southern Rhodesia.

Charles Robert Philip, M.B.E., M.D. Colonial Medical Service Medical Officer, Kenya.

Henry Sacco, M.D. For public services in Malta.

Alfred Tennyson Smith, M.D. County Commissioner, St. John Ambulance Brigade, Hampshire and Isle of Wight. For services to civil defence

Prof Vittore Vassallo, M.D. Superintendent, Hospital for Mental Diseases, Malta.

M.B.E. (Military Division)

Narayan Vishwanath Karve, M.B., B.S. Capt., I.M.S.

James Leslie McCallum, M.R.C.S., L.R.C P. Capt. (temp Major), I.M.S.

Desmond Alan Dill Montgomery, M.B , B.Ch. Capt , R.A.M.C.

Frederick Grace Smith. Major, Ceylon Medical Corps

Ram Lall Soota, M B., B S. Capt., I.M S.

John Anderson Strong, M B , B.Ch. Capt., R.A.M.C

M.B E. (Civil Division)

Alexander Innes, F.R C S. Medical Officer in charge of the Surgical Division, Calderstones Emergency Hospital, Lancashire.

Pierre Ange Antoin Rostant, M B , Ch.B. Colonial Medical Service. Medical Officer (Surgeon), Trinidad.

Miss Margaret Sophia Sharp, M.B Centre Organizer for Bradford County Borough Women's Voluntary Services for civil defence.

Hon. M.B E. (Civil Division)

Dr. Moshe Wallach Principal of the Shaarei Zedek Hospital. Palestine.

PREVENTION OF CRIPPLING

The following statement has been issued by the Joint Standing Committee of the Empire Rheumatism Council and the British Orthopaedic Association, the chairman and vice-chairman of which are respectively Lord Horder and Mr G. R Girdlestone·

1. The Empire Rheumatism Council and the British Orthopaedic Association are in cordial agreement that their mutual co-operation in the diagnosis, prevention, and treatment of crippling conditions will be of the greatest service to the health of the community.

2. Both bodies aim at close liaison between the physician specializing in rheumatism and the orthopaedic surgeon, seeking to enlist the sympathetic co-operation of the general practitioner, the public health services, and social workers generally.

3. Orthopaedic hospitals and orthopaedic departments of general hospitals should include on their staffs a physician with special knowledge of the rheumatic diseases.

4. Rheumatism centres should include on their medical staffs an orthopaedic surgeon.

5. Since the application of methods of physical therapy and of occupational therapy for orthopaedic and rheumatic patients is largely identical, a joint out-patient clinic should, wherever practicable, serve for both classes of patients. In such joint centres the orthopaedic cases will be under a team headed by an orthopaedic surgeon; for rheumatic cases the team will be headed by a physician

6. In view of the growing appreciation of the regionalization of medical services the scheme for rheumatism centres should be planned to fit into such schemes as may be arranged for the future This has, in fact, already largely been done in orthopaedic schemes.

7. As in orthopaedic work the development of successful centres has been based upon the legal requirements of the notification of certain crippling diseases and upon the public responsibility for the provision and payment for their treatment, so in rheumatic disease a similar degree of responsibility should be assumed by the State or local authority.

8. Adequate provision for the training of young physicians and surgeons in research, diagnosis, and treatment should be associated with suitable encouragement to make the study of rheumatic disease a life-work.

9. To put into effect the agreed plan of co-operation, a Joint Standing Advisory Committee should be constituted of equal, or nearly equal, numbers of representatives of both organizations, with a secretariat of two, one from each organization.

The Standing Advisory Committee includes, in addition to the chairman and vice-chairman, Dr. Hugh Burt (acting for Lieut.-Col W. S. C. Copeman), Mr. Norman Capener, Mr. W. A. Cochrane, Squadron Leader W. D Coltart, Prof. L. S P. Davidson, Mr. A. G Timbrell Fisher, Mr. S. L. Higgs, Brig-Gen. F. D. Howitt, Prof H. J. Seddon Joint Secretaries—Mr. Norman Capener and Sir Frank Fox

Reports of Societies

INFLUENCE OF DIET DURING PREGNANCY

At a recent meeting of the Scottish Group of the Nutrition Society held at Edinburgh University the subject for discussion was the influence of diet during pregnancy on (*a*) the health of the mother, (*b*) the growth and viability of the foetus, and (*c*) the post-natal development of the offspring.

Prof. R. C. **GARRY**, who presided, pointed out that rational treatment of many of the disturbances of pregnancy must wait on a fuller understanding of maternal and foetal physiology during pregnancy. Although a physiological process, pregnancy was of necessity a strain on the maternal organism, and latent defects in the mother might become patent at this time. Unfortunately, too, pregnancy imposed an economic and physical strain on the mother and the entire family, which it should be the duty of a satisfactory social system to alleviate.

Prof. A. St. G. **HUGGETT**, discussing the part played by the placenta in foetal nutrition, said the placenta was a secretory, a storage, a transfusion, and an endocrine organ, reaching its maximum development comparatively early in pregnancy; 70% of the final weight of the human foetus was laid down in the last three months of pregnancy, when placental growth was at a standstill or even showing regression. Transmission of material across the placenta was controlled by factors as yet little understood. In experimental animals, restriction of carbohydrate intake in the mother's diet caused a fall in maternal liver glycogen while leaving the foetal liver glycogen uninfluenced. On the other hand, the administration of excess carbohydrate to the mother only slightly raised the glycogen content of the maternal liver, while the glycogen in the foetal liver increased markedly. Yet during all these changes the glycogen content of the placenta remained practically unchanged.

Vitamins, Calcium, and Iron

Dr. H. M. **SINCLAIR**, who reviewed the evidence for nutritional deficiency during pregnancy, said there were indications that supplementary feeding of vitamins A and D lowered the incidence of puerperal sepsis, but it was doubtful if the action was specific. There were conflicting reports on the importance of the vitamin B complex in preventing the toxaemias of pregnancy, gestational polyneuritis, and Wernicke's encephalopathy. Claims for the efficacy of vitamin E in the prevention of abortion had still to be substantiated, and it was not known if vitamin C and/or K played any part in preventing accidental haemorrhage during pregnancy and excessive bleeding at parturition. Epithelial hyperplasia of the gums was not uncommon in pregnancy, but did not yield to vitamin C therapy. There was evidence that this condition was due to excessive quantities of oestrogens in the tissues. Iron-deficiency anaemia was common during pregnancy, but the physiological hydraemia of pregnancy must be taken into account in assessing the severity of the condition. The demands of the foetus for calcium, particularly during the last months, were large and undoubtedly depleted the maternal reserves. Nevertheless, supplementary feeding of calcium must not be indulged in lightly, since it might prolong pregnancy and harden the foetal skull.

Prof. **DUGALD BAIRD** showed that stillbirths and neonatal deaths were more common in hospital practice than in specialist practice, 3.3% as against 0.6%. Since the standard of medical and nursing care in the two groups was practically the same, the social status, with its different dietetic background, was probably the operative factor. The same factor was possibly the cause of a greater percentage of premature labours in hospital maternity practice—9 as against 2 in specialist practice. On the standard of the League of Nations Technical Commission the diet of pregnant women was frequently defective, and evidence was accumulating that raising the diet to this standard decreased the incidence of prematurity and lowered the rate of stillbirth.

Mr. W. **GODDEN** said that stillbirths and neonatal deaths were only too common in farm practice, and there was little doubt that they were due to dietary deficiencies. There must be an adequate supply of energy, of protein, and of calcium and phosphorus. Iron deficiency, especially in the breeding sow, did not affect fertility but adversely affected viability during the suckling period. An adequate supply of vitamins A and D was essential for successful pregnancy in cattle, sheep, and pigs; the evidence concerning the vitamin B complex was equivocal, and there was no definite evidence that vitamin E deficiency occurred in mammals other than the rat.

Dr. I. **LEITCH** (Rowett Research Institute) discussing the incidence of stillbirths and neonatal deaths in England and Wales, in Scotland, and in New Zealand, said there was obviously something wrong with Scotland, with a figure of 80 per 1,000 total births as against 66 for England and Wales and 51 for New Zealand.

ADRENAL NEUROBLASTOMA

At the last meeting of the Section of Pathology of the Royal Academy of Medicine in Ireland, with the president, Dr. M. H. **O'CONNOR**, in the chair, Dr. A. **THOMPSON** described a case of neuroblastoma of the adrenal medulla. The patient, a girl aged 6 years, was admitted to hospital suffering apparently from an intracranial condition. She died twenty-four hours after admission. On admission she was in a state of very grave collapse, bleeding from the eyes, nose, and bowel. There was considerable protrusion of the eyes. Dr. Thompson had thought at first that the case might be one of chloroma because of the prominence of the eyes and the very severe degree of anaemia. Post-mortem examination showed a neuroblastoma of the right adrenal gland. The tumour was about the size of a billiard ball. According to the literature these cases were highly malignant, and the primary tumour usually did not attain a size large enough for palpation before the patient died.

Dr. **O'CONNOR** said that the striking feature of these tumours was the lymphatic spread. Dr. **THOMPSON**, in reply, said that no cerebral metastases had been found post mortem. The case had started as an unexplained anaemia and the child had been in hospital in the country for some weeks before her eyes had started to protrude.

At a recent meeting of the Maternity and Child Welfare Group of the Society of Medical Officers of Health, with the president, Dr. **CATHERINE MORRIS JONES**, in the chair, an interesting experiment—namely, the establishment within the boundaries of a factory of an ante-natal and gynaecological clinic—was described by Dr. L. B **BOURNE**, medical officer to the factory, and Mr. J. V. **O'SULLIVAN**, consultant to the works clinic. The clinic is in premises outside the workshops, and can be visited by women unknown to their fellow workers, and an appointment system prevents waste of time. The medical staff, by their knowledge of a woman's state of health, are able to modify her working hours immediately when necessary. Mr. O'Sullivan commented on the continued good health of most of the women, who carried on their work up to a late stage of pregnancy Fatigue was more usually due to the strain of shopping and to home duties in addition to the factory work, rather than to the factory work itself. Both speakers claimed that the experiment had already justified itself in lessened absenteeism and improved team-work. The clinic was very popular among the women who used it, and the extension of the idea to other areas was worth consideration by the authorities.

MERSEYSIDE HOSPITALS COUNCIL

The latest report of the Merseyside Hospitals Council announces a record income for 1941: employees' contributions came to £229,805, an improvement of some £36,000 on the year before, and employers' contributions to £52,721, an increase of £6,500. On the other hand, Hospital Sunday collections, subscriptions, donations, and the proceeds of special efforts were heavily down. In 1941 the Council came yet nearer to that state of affairs when it will pay 20s. in the pound to the hospitals for their services to its contributors. During the year £134,253 was distributed to 24 associated voluntary hospitals, together with £30,623 out of the balance brought forward from the previous year. A sum of £16,136 was paid to the medical staffs fund Twenty-one other voluntary medical institutions received £11,246, municipal hospitals £30,893, and civic charities £22,506 This last item follows upon an agreement during wartime that one-half the yield of the extra penny which was introduced should go to the war funds of the Lord Mayor of Liverpool and the civic heads of the other Merseyside local authorities. Of the post-war hospital position the report says that Merseyside hospital planning is considerably ahead of that of many areas. Merseyside "is ready geared to play its part in the co-operative effort which the Government contemplates for after the war."

Correspondence

Pasteurization of Milk

SIR,—In your leading article (Dec. 19, p. 727) the writer says: "By pasteurization we mean, it should be clear, the freeing of milk from pathogenic micro-organisms that might infect the consumer." Most people define pasteurization as the raising of milk to 150–160° F. for 20 minutes. The large retailers of milk pasteurize it on the day of collection in order that it may not be bad on the day of delivery—it is a commercial proposition, is it not?

Is not the real crux of the matter whether pasteurization kills tubercle bacilli? In my opinion and experience it does not. I am really appalled by the number of cases of active tuberculosis I see in abdominal glands at operation. I have gone into the matter carefully, and found that many of these cases have consumed pasteurized milk only. I am even more appalled by the number of *x*-ray films I see showing evidence of tuberculosis of the mesenteric glands. I now advise my patients to give their children T.T. milk or boiled milk only.

The writer of your article is entitled to believe in pasteurization, but he is not entitled to think that those who do not cannot think straight. Every problem has two sides, and what is right to-day is wrong to-morrow (*vide* the treatment of fractures by skin-tight plasters).—I am, etc.,

Rotherham ERIC COLDREY.

⁂ That in some instances tubercle bacilli are present in so-called pasteurized milk is an argument not against pasteurization but against inadequate pasteurization.—ED. *B.M.J.*

SIR,—In your leading article entitled "Do Doctors disagree about Pasteurization?" (Dec. 19, p. 727) there are points, I think, which should be followed. To begin with, Is raw milk better for the child than pasteurized milk? Sir Frederic Still on Dec. 28, 1938, wrote me: "I think in several ways raw milk is to be preferred to pasteurized milk if only we could exclude infection in raw milk." A county medical officer on July 24, 1932, wrote: "I have been consistently in favour of raw milk despite the almost insuperable difficulty of always getting milk of sufficiently clean quality."

The infant mortality in Toronto, where all milk is pasteurized, is double that in Victoria, Vancouver, where all milk is drunk raw. My own statistics dealing with large masses of children for 18 years show raw milk to be a good thing. At least one-third of these children, and all infants and toddlers, were on T.T. milk.

I have pointed out before that the credit does not lie wholly on raw milk The credit must be shared with the excellent health services of the L.C.C. and other counties, and their extra milk for school children and the plain hot dinners. These clinics were my right hand in my fight against death and disease.

It is said that of cows reacting to the tuberculin test only 22% give tuberculous milk, and that of the human tuberculosis population only 5% suffer from bovine tuberculosis. How, then, does T.B. get into milk? Largely through dung and dust, as does 99% of other pathological germs. Abortus and streptococcus can be eliminated, as they come direct from the cow.

W. S. Forbes in the *Journal* of March 24, 1934, says: "The only public health consideration is not pasteurizing but production of clean milk." We would then not have the taking of unmeasured doses of bacteria as an oral vaccine, but one under control.

Now a word about epidemics There is a tendency to lay too much stress on epidemics. They are accidental, like the water-borne typhoid outbreaks. I wonder how many practitioners have had cases due to *Brucella abortus*. In my 18 years among children I have had one; in 12 years of private practice none. To say these cases were not recognized won't do, for to do so casts reflection on our teaching schools—a continued fever leads to a blood test, and more often than not it is typhoid or malaria; not often is it abortus infection.—I am, etc.,

Eastbourne. A. H. MACDONALD.

SIR,—The leading article (Dec. 19, p. 727) asking the question, "Do doctors disagree about pasteurization?" showed up your *Journal* at its worst, and must have disgusted many readers. It was a nasty, totally irrelevant article, full of an ill-conceived and spurious cynicism, written by someone whose mentality was divorced from the basic aims which, even to-day, thank God, animate the minds and the ideals of the majority of our profession. Sir Henry Morris-Jones and his colleagues have put before His Majesty's Government a resolution based upon the highest principles which should actuate our profession, principles at which your leader writer sneers—namely, those which will lead to the ultimate prevention of a terrible disease.

No one in his sane senses would allow "typhoid bacilli to appear in the household drinking-water as a method of immunizing the susceptible population against enteric fever," but, as described in the same issue of your *Journal* (p. 719), Dr. R. J. Peters and Dr. D. H. Clutterbuck did not make an attempt to eliminate typhoid fever from Glasgow by pasteurizing the drinking-water of the affected area; they eliminated the source of the infection, and cleansed a butcher's shop where the motto was not apparently that "cleanliness was next to godliness." Helpful as antiseptics and sulphonamides may be, it is not by the use of these but by excision of dirty wounds that we have been able to save thousands of lives, thus getting rid of the dirt before it can do further mischief.

Pasteurization is right so long as you, Sir, are prepared to forget that tuberculous-infected cattle can be got rid of, that byres, milkers, and dairies can be kept clean; that cows' teats can be cleaned, and that the homes of our dairy workers can be made fit for human beings to live in and not the wretched huts in which we see our farm workers live, and which would shame, in many cases, an Indian's wigwam. If an Easter Ross farmer sold a bull for three thousand guineas for transport to the Argentine that bull would not be allowed to enter the Argentine did it possess the slightest taint of tuberculosis, but that same bull, at a much reduced price, would be allowed to live in this country and spread among our folk all the disease, misery, and pestilence which you, Sir, of all people, should use every ounce of your energy to get rid of; and you are satisfied to think that the cows which it would infect would have their milk pasteurized instead of the bull having its throat cut.

The elimination of infected cattle is not impossible if the powers that be had the guts to insist that it should be done, nor is it impossible to have clean byres, clean milkers, clean dairies, and decent homes for our farm workers; but it is you who believe "the world to be flat" if you think that it is pasteurization which is to remove the evils of which you write. If you wish to get a cart up hill put the horse in front, not behind; advocate getting rid of the root cause of this evil, and do not try, even with the help of Prof. Selby Wilson, to mislead the public that we are doing all when we are doing nothing. If you are in real difficulty call in to your help Sir William Beveridge or Lord Cooper. These men seem to have the knack of getting at the root of our economic problems; I think it would take either of them little time to get the worm out of the core of this evil. Their methods reach beyond the self-interested.—I am, etc.,

Tain. E. K. MACKENZIE.

SIR,—The majority of your readers will wonder still more at your moderation in the leading article (Dec. 19, p. 727) regarding this question. It seems almost incredible that two such responsible members of the profession should publicly disagree with the accepted views of the profession on this important matter.

If Sir Henry Morris-Jones were conversant with the legislation that has been in force in the Province of Ontario Canada, forbidding the sale of milk which has not been pasteurized, he would discover that surgical tuberculosis has been gradually eradicated from the Province. Prof. Gallie, professor of surgery in Toronto University, informed me in 1938 that he rarely saw cases of surgical tuberculosis in his wards or practice and that he considered that the enforced pasteurization of all milk for human consumption was responsible for this remarkable achievement. This was confirmed by many other authorities in Canada whom I interrogated.

It is well known that tuberculin-tested herds cannot be relied upon to produce milk free from tubercle bacilli, for the simple reason that cows acquire the disease in the intervals between the tests and therefore contaminate the milk from the herd. Milk even from tuberculin-tested herds, therefore, should be pasteurized, as it is the only reliable safeguard. Fortunately, all the large wholesale distributors of milk safeguard themselves and the public by pasteurization.

Dr. A. H. Macdonald is evidently not acquainted with the accepted theories regarding "immunity."

Legislation on this question is long overdue, and the sooner this question is definitely settled the better. Cows' milk, from any source, should be forbidden for human consumption unless it has been pasteurized. Economics and politics should not be considered when the health of the community can be safeguarded by such simple means.

I visualize in the future the invention of a wonderful machine in which grass will be put in at one end and milk will be extracted at the other. This will have one advantage, I trust, and that is it will be free of all germs, but I have doubts about its epicurean value. In the meantime let us proceed with compulsory pasteurization.—I am, etc.,

"BOVINE."

Control of Venereal Diseases

SIR,—Quotations divorced from their context are always misleading, so Dr. E. W. Assinder's doubts expressed in your issue of Dec. 19 (p. 740) as to the accuracy of my statement that "there is not the same sense of shame with regard to V.D. in Scandinavia as there is in this country" is not wholly surprising. I would be truly distressed if it were thought that my comments were directed against the ideals and mode of life in the Scandinavian countries. On the contrary, my admiration is so great that I constantly speak of their very real democracy, social conditions, and advanced medical standards with profound respect tinged with envy.

What I tried to say, no doubt ineptly, was that the Scandinavian attitude towards sex differed from that of the conventional Anglo-Saxon in being more forthright. For example, in more than one V.D. clinic women nurses staffed the male clinics, arranged irrigation apparatus, and so on, and in one electrical department (not connected with a V.D. clinic) I saw two women and one man lying under the one lamp for lupus treatment, with respectively neck, arm, and leg exposed. I believe that either of these conditions of work or treatment would be unusual in a British hospital; though given sufficiently true *pudor* as opposed to mere prudishness, there is nothing but what is natural in either situation. My impression was that, especially in Sweden, the desire to be healthy was so strong that treatment for V.D. was taken eagerly when required so as to re-establish health.

I have many times had to deal with the sense of shame of married women infected by their husbands, a shame so profound that they dislike the very thought of attending a V.D. clinic lest they feel further degraded by "having to sit with such women as are sure to come there." A very great deal of time, patience, and persuasion has often to be spent in women's clinics to get such married women to attend because of this deep-rooted elemental feeling. They have to be educated in the clinic so as to change that feeling for the constructive wish for health and freedom from infection.

Alongside this desire for health one would wish that in young people of both sexes self-respect and the ideal of continence could be inculcated by precept and example. But "false shame" is a deterrent to clinic attendance, and is in the end anti-social, leading too often to cessation of treatment when relief of symptoms has been obtained, without persistence till complete freedom from infection is secured.—I am, etc.,

London, W.1. MARGARET RORKE.

SIR,—Defence Regulation 33B is a move in the right direction, but I doubt if it will carry us very far. I have had many years' experience in the treatment of venereal diseases as surgeon in charge of several clinics, and it has always been my endeavour to get contacts under control. Several methods are employed, the chief being that of sending a note by the patient to the contact explaining the situation and asking him or her to attend the clinic for examination and treatment if found necessary. What is the result? We are told: the name and address of the contact are unknown; the contact cannot be found or has left the district; the note has been delivered but the contact refuses to attend; when the name and address have been given and a note posted it is returned marked "Name unknown" or "Gone away"; when a health visitor has called she finds that the wrong address has been given; she is often refused admission, or, when admitted, receives an indignant denial that he or she is involved. A few attend.

Several years ago I opened a discussion before the Society of Medical Officers of Health on the subject of the desirability of making venereal diseases notifiable and treatment compulsory. I stressed the point that there would be no publicity and that only those who refused to be treated or those who defaulted would be affected by the law. The opinion expressed was that it would drive V.D. underground and do more harm than good. The subject is difficult, but now, with so many of the population in the public services and under control legislation should be easier.—I am, etc.,

Hampstead, N.W.3 HAMISH NICOL, F.R.C.S

Preparation of the Hands for Operation

SIR,—When I did my surgical dressing in the old Royal Infirmary at Newcastle-upon-Tyne in 1896 gloves were not used and the surgeons relied entirely on the antiseptic technique Rutherford Morison was most particular, and tried out all the known methods of hand preparation. At that time he recognized the importance of smooth skin, and every night in life rubbed his hands all over with glycerin. His favourite antiseptic for the hands and the skin of the patient was 1 in 1,000 perchloride of mercury in watery solution. This always made my own hands desquamate, but I subsequently discovered that I could use 1 in 1,000 biniodide of mercury year in year out without producing any roughness. Morison's results in wound healing were wonderful. I have never seen better, but in addition to hand preparation he was most careful and punctilious about all the details of wound management. Nonetheless he did have runs of mild infection for which we could not account. About 1904, when I was assisting him regularly, we began to use the thick, heavy rubber gloves so largely employed by the French surgeons up to recent times. These were not boiled but sterilized by long soaking in antiseptic solution. Soon after the adoption of the thin rubber gloves, about 1906, boiling became the usual method of sterilization

Only those surgeons who have operated without gloves and with soft marine sponges instead of gauze swabs can have enjoyed the pure delight of operating. But I should be sorry to have to do without gloves because, since their adoption, satisfactory wound healing has been more uniform, and they are the best protection against infection of the surgeon's hands. If we must do without gloves it is more than ever important to take care of the hands by avoiding all unnecessary risks of contamination both in our work and socially (the late Prof. Garre of Bonn lamented that he could not help his wife in the garden because he had to put his hands in his pockets to keep them clean!). We must also keep the hands smooth. For antiseptics to be efficient they must soak into the surface skin, the nails, etc., and it takes some time and repeated use of chemical antiseptics for these structures to remain saturated. In the pre-glove days we used to notice that it was after the surgeon's holidays when he had been away from antiseptics for some weeks that he was most often annoyed by outbreaks of mild infection among his wounds.—I am, etc.,

British Postgraduate Medical School G. GREY TURNER.

Erythroblastosis Foetalis

SIR,—For the reasons given in his letter (Dec. 19, p. 738) I would support Dr. Herbert Levy's suggestion that the title "haemolytic disease of the newborn" is an even better and more accurate substitute for "erythroblastosis foetalis" than "haemolytic anaemia of the newborn," and I hope that this title will be universally adopted.

I am familiar with both the types of bone lesions mentioned by Dr. Levy. The first, in which the long bones show, as described by Follis *et al.* (1942), zones of increased and decreased density, occurred in one of my patients who suffered from congenital haemolytic anaemia, and who, in spite of treatment, remained anaemic until her death at the age of 8 months. A description of the *x*-ray appearances of this child's long bones, together with excellent illustrations, has been put on record by my colleague Dr. Teall (1939).

The other type of bone disease (osteitis fibrosa disseminata, or polyostic fibrodysplasia) was the particular form of bone change to which I referred when I wrote of the "ghastly sequelae" of haemolytic disease of the newborn. This sequel was first described by my colleague Dr. Frances Braid (1932), although this fact seems to be completely overlooked by most of the writers on the subject. In 1938, in a letter to the *Lancet* commenting on a paper by Robson and Todd (1938), I pressed Dr. Braid's claim for priority, and at the same time reported another case which was then under my own care. In 1940 Dr. Braid wrote a further paper having the title "Osseous Dystrophy following Icterus Gravis Neonatorum, Generalized Osteitis Fibrosa with Areas of Pigmentation of the Skin and Precocious Puberty in the Female," in which she included a full description of my patient. In the recent contribution by Falconer and Cope (1942) Dr. Braid's second paper is discussed, but there is not any reference to her first paper. Although the paper of Albright and his colleagues did not appear until 1937, Falconer and Cope refer to this condition as Albright's disease and do not accept it as a sequel of icterus gravis, although on the basis of 4 out of 27 cases showing this combination they do think, as stated by Dr. Levy, that "its frequency seems to admit more than a chance association."

I agree with Dr. Levy that since haemolytic disease of the newborn may occur without jaundice some examples of the association between it and this form of bone disease may have been overlooked; furthermore, unless this possible association is borne in mind inquiries into the patient's past history may not be as thorough as is desirable.—I am, etc.,

Birmingham LEONARD G. PARSONS.

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High Flying for Whoopers

Sir,—If, as seems possible, the success of this treatment (*Journal*, Dec. 26, p. 758) and that of exposure to a low-pressure chamber is due, as it may be, to want of oxygen by the infecting agent, exposure to partly de-oxygenated air may be equally effective; this is as easy to apply as is oxygen treatment. A cylinder of nitrogen with 10% oxygen can be obtained, and the mixture allowed to flow into a simple form of breathing mask.—I am, etc.,

Chalfont St Peter LEONARD HILL

The Dysentery Carrier

Sir,—I note that attention is gradually, if somewhat belatedly, being focused on the subject of dysentery in this country as though it were a newcomer. In actual fact bacillary dysentery—as well as malaria—was once rife here, and a state of residual endemicity may be found to-day in many rural areas. Its propagation is not by any means entirely due to carriers, and it may easily be acquired by townspeople in the course of an afternoon's picnic in an infected area or by eating uncooked salads grown on land manured by human excreta. I had several cases of the latter kind two years ago, all traced to their source. Only a few years ago the medical officer of health of a large rural district denied its prevalence in his area until I proved it both by culture and agglutination to his reluctant satisfaction. He described it as "epidemic diarrhoea."

I have no doubt whatever that the intractable disease known as chronic ulcerative colitis usually begins as an unrecognized acute bacillary dysentery, which, in the absence of efficient early treatment, develops into the resistant and often fatal condition with which many of us are familiar ("Ulcerative Colitis: What is it?" H. M. Stanley Turner, *Guy's Hosp. Gaz.*, 1936.) Why the ulcers should fail to heal and why certain cases should assume all the characters of chronic ulcerative colitis is another matter. It possibly depends on several factors, of which secondary infection and a failure to assimilate the small amount of vitamins (? B complex and C) contained in a necessarily restricted diet may be two.

Prof. Gustav Singer (Dec. 26, p. 765) is right, of course, to stress the need for sigmoidoscopy. It is often possible in bacillary dysentery to obtain positive swabs from the bases of ulcers even after repeated negative stool cultures.

I think the important thing is for general practitioners in this country to realize that acute bacillary dysentery is a disease which must be included in the pathological repertoire of this country and is not a monopoly of the tropical practitioner; that stool cultures are likely to be negative if specimens are transmitted to the laboratory by post unless emulsified with glycerin–saline; and that specimens should be taken as early as possible in the disease and preferably be transmitted at once by hand and kept warm in transit.

There are many villages where it is said that "diarrhoea goes through the village" once or twice a year and where on inquiry it will be found that a large proportion of cases show the distinctive syndrome of colic, frequent stools, passage of blood and mucus, and tenesmus. In such villages the prevailing type of conservancy is the earth closet and the defective domestic well in close proximity.—I am, etc.,

Brookwood, Surrey H. M. STANLEY TURNER.

Sir,—With reference to the letters of Dr. Ian Taylor (Nov. 21, p. 618) and Prof. Gustav Singer (Dec. 26, p. 765) may I report some experiences on the spread of dysentery during and after the last war. In a great number of post-mortem examinations I have observed that dysentery bacilli, even of the less virulent Flexner group, were often found in the patients' mesocolic glands, although the patients died of causes other than dysentery. Previously I had reported that occasionally the bacilli could be found in the blood and in the urine of a dysentery patient. It was important, as in the case of cerebrospinal meningitis, that the material should be examined as fresh as possible and be kept at body temperature. We always endeavoured to take it from the lesion as recommended by Singer, but it is not necessary to do it with a speculum, and the results are equally superior to the examination of the stools if simple swabs are taken from the rectum and plated out immediately. In a recent case the pathologist followed this suggestion, and immediately obtained a Sonne bacillus in a small epidemic where the routine examination of other cases had given negative results.

It was assumed that, apart from direct contact by bacilli carriers or dysentery cases, flies might transfer the germs from faeces and other infected material on to food. In pre-war times great care was rightly taken in many countries to prevent food from being contaminated by touch—both of shop assistants and customers—or by flies. Nobody was allowed to touch food in shops, and this was prevented either by wrapping the food (bread, biscuits, etc.) in transparent paper or by placing it under glass protection, which also prevented contamination by droplets (T.b!). Shop assistants were instructed not to handle food which was to be eaten without previous cooking—e.g., butter, cheese, ham, etc.—but to use instruments—forks, knives, and forceps. If proper supervision and a warning would be given to the food shops and to the public, I feel sure that the number of dysentery cases could be greatly reduced. I would further recommend wire netting or muslin of narrow mesh for protection against flies.—I am, etc.,

Buxton E. M. FRAENKEL

Joint Committee on Rheumatism and Orthopaedics

Sir,—The article in the *Times* of Dec. 29 giving notice of the formation of a Joint Standing Advisory Committee of the Empire Rheumatism Council and British Orthopaedic Association is one to be welcomed. Some wheels turn slowly, others, especially in wartime, fast.

The annotation in the *Journal* of April 26, 1941 (p. 633), called for just this kind of collaboration between orthopaedists and, for want of a better name, rheumatologists. Subsequent correspondence was anything but laudatory, especially from the orthopaedic group. Have they changed their "spots"? If so this is good news. Or are they dissenting among themselves? We notice, however, that there is no recognition or official representation on this advisory committee of the British Red Cross Clinic for Rheumatism, the pioneers of the movement

It is true that two of the members (one "acting for") of this committee are also physicians at the clinic in peacetime, but they are not on this committee representing the Red Cross. We also note that they say the committee "should be constituted of equal, or nearly equal, numbers of representatives of both organizations." The committee consists of 14 members, 8 of whom hold the F.R.C.S., and 5 medical qualifications rather than surgical. This is nearly a two to one representation.—We are, etc.,

M. B. RAY.
C. B. HEALD.
BERTRAM S. NISSÉ.

London, W 1

Tetanus

SIR,—I was interested in Dr. Leslie Cole's article on tetanus (Nov. 7, p. 550) and in the letter of Dr. J. H. Hannan (Nov. 21, p. 619). I thought the following case unusual and of sufficient interest to merit publication.

The patient, a healthy male of 58 years, consulted me in April, 1940, complaining of stiffness in the neck. After 7 days he developed tetanus with clonic spasms. There was a history of his pricking his thumb some weeks previously while planting rose trees, but no injury or foreign body could be detected. A.T.S. 200,000 units was given intravenously and recovery was rapid. Three weeks later he developed acute retention due to an enlarged prostate, and a de Pezzer catheter was introduced. Prostatectomy was not performed until Sept., 1940, as his general condition was poor.

On Oct. 12 he complained of stiffness in the jaws, and gradually this become generalized and eventually he got clonic spasms. It was not until Dec. 14 that I repeated serum. This time I gave it by the intramuscular route in small repeated doses until I had given 100,000 units. There was a good improvement in 48 hours, but it was several weeks before the tonic spasm had disappeared. The patient returned again in Oct., 1941, complaining of stiffness of the jaws, which developed into typical tetanus with clonic spasms. I repeated 100,000 units A.T.S. intramuscularly in gradually increasing doses and he was fully recovered in 14 days. I then laid open the suspected thumb and removed a thorn. Since then the patient has remained well.

This case completely disproves Dr. Hannan's idea of trusting to the body forming antiserum. It would also point to the advisability of giving serum in doubtful wounds and of not trusting to active immunization.—I am, etc.,

Larne, Co. Antrim. HUGH WILSON.

Stilboestrol in Cancer

SIR,—I thank Dr. J. A. Vaughan (Dec. 19, p. 737) for drawing attention to my letter in the *Journal* of July 27, 1940. She ought to know that the patient referred to therein ultimately died. His was a well-advanced case, and as the tablets of stilboestrol caused nausea he refused further medication. There is no doubt, however, about the rapid retrogression in the size of the growth. I believe I was rather timid about dosage and that larger amounts should be administered by the intramuscular route.

Briefly, I consider that what happens in the genesis of cancer is this: there is overactivity of the anterior pituitary with excessive secretion of the gonadotrophic hormone, which is offset by the production of oestrin, there being a physiological antagonism between the two. Indeed it is very likely that when the amount of oestrin reaches peak level it inhibits altogether for the time being further secretion of the pituitary hormone. After middle life, when the generative organs fail, the ovary no longer responds to the whip of the gonadotrophic hormone and there is little or no oestrin to restrain the activities of this. It thus finds other cells to respond to its stimulation—namely, the young and perhaps immature cells of some tissue which is continually being replaced as the result of prolonged irritation. These are forced to grow too rapidly and form a tumour, the immature cells of which in their turn are lashed by the gonadotrophic hormone to reproduce. There are two constituents of this hormone—prolan A and B; probably the one is concerned in the development of cancer and the other in that of sarcoma.

It is gratifying to find in late issues of the *Journal* further evidence of the beneficial action of stilboestrol in malignant disease.—I am, etc.,

Wigan. J. THOMSON SHIRLAW.

Adder Bite

SIR,—In his medical memorandum on adder bite (Nov. 21, p. 608) Dr. Paul Szekely asks: "Is there any specific or satisfactory polyvalent serum against adder bite in Great Britain, and, if so, is the serum to be administered in every instance?"

The answer to the first question is, unfortunately, in the negative. A certain amount of the Pasteur Institute polyvalent (viper) anti-venom serum used to be imported annually, but this source has dried up since the fall of France. None has ever been made commercially in this country so far as I know, but it is to be hoped that the matter will be taken up, as it is something of a minor medical disgrace that the recognized scientific antidote should be unobtainable in a country which abounds with adders and in which a small number of persons are bitten annually. Deaths are fortunately few, but they could probably all be prevented if serum were obtainable and administered within the first few hours.

All young children who are bitten ought to receive an injection, as the great majority of these have a very alarming illness, and it is in this age group that the majority of the deaths occur. In debilitated and elderly persons, also, serum is advisable. In the teens and early adult life milder reactions are the rule, as in the case of Dr. Szekely's patient, aged 23. As this case was not admitted until 23 hours had elapsed after the bite, it was too late for serum administration had it been available.—I am, etc.,

Hereford CHAS. W. WALKER.

Hand and Finger Lesions

SIR,—Surg. Cmdr. J. B. Oldham's letter (Dec. 12, p. 706) brings to light a state of affairs that is no mere myth and one that is worthy of immediate publicity. There is no doubt that much unfortunate surgery is performed on traumatic afflictions of the hand and fingers, and in explanation the following suggestions may be advanced: (1) Inadequate undergraduate teaching; (2) lack of knowledge of special mechanics of the hand; (3) unsuitable instruments and surgical technique; (4) misapplied radical surgery; (5) ignorance of recent advances in reconstructive surgery of this region.

The practical solution of this problem lies in the centralization, where possible, of these cases to units which are equipped to deal with them. The collective experience of these units should be crystallized and published, and a real advance in this neglected sphere will have been made.

Viewing the subject from the reconstructive angle it is no exaggeration to state that over 80% of late reparative surgery is made necessary by inadequate or misdirected primary treatment. These cases fall into four main groups: (1) Acute infections: misplaced incisions causing superficial and deep scar contractures. (2) Lacerations: failure to procure primary healing and to realize indications for skin grafting. (3) Fractures: disregard of established orthopaedic principles. (4) Burns: (*a*) delay in primary healing; (*b*) scar contracture due to avoidable secondary infection and uncontrolled oedema; (*c*) deformities due to indifferent splintage.

It can thus be seen that at a time when effective man-power is of paramount importance this constitutes a wastage which should be minimized by every possible means.—I am, etc.,

St. Albans JOHN N. BARRON.

Prevention of Blindness

SIR,—In your issue of Sept. 10, 1938, you kindly afforded me a little space in which I reported having drawn the attention of representatives of local authorities to certain aspects of the administration of the Public Health Act, 1936, Section 176, and the Blind Persons Act, 1938. Shortly after the publication of my communication the catastrophe of war fell upon us. In spite of this, public opinion and, I am glad to say, administrative opinion have become insistent that greater activity should be shown in an attempt to initiate further facilities for research in ophthalmology (prevention of blindness). The trend of public opinion is substantiated by the recent foundation of two ophthalmological research units: one in Oxford University and another, jointly, at the Royal College of Surgeons and the Royal Eye Hospital.

In view of the fact that much thought is being devoted to great changes in the organization of medical work after the war, may I refer to my letter of Sept. 10, 1938, and especially the suggestion that such authorities upon whom falls or will fall the burden of administration of the Blind Persons Act should be asked to contribute 1% of their annual expenditure on blind welfare to a central ophthalmological research board, representative of the contributing authorities and the ophthalmic branch of the medical profession, which would finance approved research units.

It is probable that some of the developing Regional Hospital Councils will desire to establish their own ophthalmological research units in local universities, but some co-ordination effort will be highly desirable, and this could be secured by a central ophthalmological research board. Pending the establishment of such a central authority—from experience I am well aware of the possible delay—local authorities, voluntary agencies, and private individuals are asked to contribute generously in support of progressive efforts of those research units already established.—I am, etc.,

Leeds C. G. KAY SHARP.

Phosphorus Poisoning and Blood Urea

SIR,—Mr. A. J. Blaxland and Dr. G. P. C. Claridge (Dec. 5, p. 664), in reporting their case of death following wounding with an explosive bullet, seem to have overlooked one important fact which should surely have influenced their diagnosis. This is the height of the blood urea (453 mg. per 100 c.cm.) on the day before death. In cases of hepatic failure both experiment and observation have shown that failure to "de-aminize" the blood amino-acids causes the level of these to rise markedly with a corresponding fall in the level of the blood urea, which may be so extreme that it vanishes from the urine. Not only is the high blood urea in this case against the diagnosis of liver failure, but the finding of what must have been fairly severe lesions in the kidney tubules would indicate that some form of renal failure had occurred. Whether this was due to incompatible transfusion or other causes it would now be difficult to say. The sudden onset of the anuria is puzzling, but so is the finding of liver necrosis microscopically.

To sum up, I feel that although this case was presented as one of acute phosphorus poisoning, without far more extensive investigations than have been reported it could certainly not be supported.—I am, etc.,

Coulsdon, Surrey R. E. REWELL

Periodic Medical Examination

SIR,—In his most valuable letter (Dec. 12, p. 709) Dr. S. T. Beggs has drawn attention to the increasingly important part played in the maintenance of maximum health by periodic medical examination. In the Friends' Ambulance Unit applicants are submitted to a short medical examination, and those whose health is obviously defective are weeded out. Some time later a much fuller examination is made. This includes functional tests, miniature *x*-ray of the chest, and study of the physical type together with a full clinical examination, taking in all about an hour.

This overhaul has revealed a number of progressive conditions such as bronchiectasis, bad teeth, chronic nephritis, and signs of maldeveloped physique. These persons have been either referred for specialist treatment or advised corrective exercise and games. Morbid interest in illness does not appear to be induced by examination under these circumstances, but rather is relief of mind experienced when some imagined trouble such as high blood pressure, tendency to hernia, or weak heart is shown to be absent. National fitness continues to be a matter of first importance in war and post-war planning. For this reason a method that detects cryptic disease and latent ill-health holds in medical planning a prime place.—I am, etc.,

London, W.C.1. H. F. BARNARD.

J. F. Sadusk and B. G. Anderson (*Amer. J. med Sci.*, 1942, **203**, 397), who record an illustrative case, indicate the rarity of chancre of the gum by the fact that it accounts for only 0.46 to 1.4% of extragenital chancres, and that only 157 examples are on record, very few of which are in the American and English literature. The present case was that of a woman aged 19 who denied any sexual perversion, but her partner was found to have secondary syphilis

Obituary

DAN A. POWELL, M.D.

Wales has suffered a great loss by the untimely death on Dec. 21, 1942, of Dr. Dan Powell, principal medical officer of the Welsh National Memorial Association for the Prevention and Treatment of Tuberculosis. Born at Bedlinog (Glam.) in 1884, he was educated at Pengam School and pursued his medical studies at the University College of South Wales and Monmouthshire, Cardiff, and Charing Cross Hospital, London. He was a University Exhibitioner at the hospital and graduated M.B., B.S.Lond. with honours in medicine in 1909, proceeding to the M.D. in the following year. He had qualified as L.R.C.P., M.R.C.S. in 1908. After holding a number of resident posts, including house-physician, obstetric house-surgeon, and R.M.O., at Charing Cross Hospital, he was appointed as one of the first tuberculosis physicians of the association in 1912, serving the area of Anglesey and Caernarvonshire. In 1921 he was transferred to the post of medical superintendent of the North Wales Sanatorium, Denbigh. In 1926 he became deputy principal medical officer, and when the principal post fell vacant, by the retirement of Prof. Lyle Cummins in 1927, he succeeded to it. He had served, first as lieutenant and then as captain, throughout the war of 1914-18, spending three years on the Western Front.

Powell was a man whose clinical capacity impressed itself on all who made contact with him early in his career. His administrative ability soon became manifest when he joined the association, and was responsible for the rapid promotion which brought him to its head. Indeed the two qualities have seldom been better exemplified in one person. He was not merely an office man. Throughout his fifteen years as P.M.O. he kept in constant personal touch with the association's widespread institutions and institutes, and with their officers, young and old. He had the administrative acumen to seek expert guidance wherever it could be found, and the judgment and character to form his own conclusions and take full responsibility for them.

During his term of office the progress of clinical knowledge brought about many changes in method and institutional procedure. The bed accommodation grew from 1,400 to 1,820. There was a great expansion of the consulting staff and of the facilities for radiological and bacteriological diagnosis, light treatment, and the surgical treatment of pulmonary tuberculosis. He had devoted much attention to miniature radiography and had worked out a plan of mass radiography for Wales before the Ministry's national scheme was inaugurated. He was a patriotic Welshman and rightly appreciated the importance of appointing officers native to the land and speaking its language, but only in so far as this policy would enhance the efficiency of the association. To an increasing extent in recent years he was serving on central bodies; he was chairman of the Joint Tuberculosis Council, member of the Standing Advisory Committee on Tuberculosis, the M.R.C. Committee on Industrial Pulmonary Disease, and the Prophit Bequest Committee of the Royal College of Physicians. In the Principality he was a member of the Councils of the Prince of Wales Hospital, the National Library of Wales, and the Welsh National School of Medicine, which latter body he also served as an honorary lecturer in the department of tuberculosis. He was an active member of the South Wales and Monmouthshire Branch and the Cardiff Division of the B.M.A.; he was chairman of the Denbigh and Flint Division in 1923-4, and when the Association met at Cardiff in 1928 he acted as vice-president of the Section of Tuberculosis; Powell was also a past president of the Welsh Branch of the Society of Medical Officers of Health. He found time among his other activities to make valuable contributions to the literature of tuberculosis, and his reports were models of clarity, brevity, and style.

Powell was a staunch friend and a most entertaining companion. He had a nice wit which he did little to exploit publicly, so that it came as a surprise to those who heard him for the first time as an after-dinner speaker. His place will be hard to fill, and there are many in Wales who mourn his death for personal as well as public reasons. Their heartfelt sympathy goes out to Mrs. Powell, who so ably and tactfully supported him in his work.

H. MEREDITH RICHARDS, M.D.

Dr. H. M. Richards, formerly medical officer at the Ministry of Health, died in his 79th year on Dec. 25 at Oxford.

Harold Meredith Richards was educated at University College, London, and qualified M.R.C.S., L.R.C.P. in 1891. He took the M.D.Lond. in 1892, qualifying for the gold medal, and M.D. State Medicine (gold medal) in 1893. Dr. Richards was a Fellow of University College. After holding various hospital appointments he was M.O.H. and School M.O. for Croydon, and M.O.H. for Chesterfield and Dronfield. When the National Health Insurance Act was introduced he was appointed by Mr. Lloyd George in 1911 as deputy chairman of the Welsh Insurance Commissioners, returning to his native city of Cardiff. In 1920 he was appointed medical officer at the Ministry of Health, and towards the end of his service did much of the groundwork in connexion with the Local Government Act, 1929, and the transfer of Poor Law hospitals to county councils. Although at Mr. Neville Chamberlain's special wish Dr. Richards's term of service was extended beyond his 65th year, he was compelled by ill-health to resign in 1930. He was a member of several departmental committees and the author of several articles and reports on public health subjects. A man of wide culture, he was excessively shy and modest, and was regarded with deep respect by his colleagues in the Public Health Service.

WILLIAM MacLENNAN, M.B.

We regret to announce the death on Dec. 24 at the age of 77, of Dr. William MacLennan, honorary consulting physician, Western Infirmary, Glasgow.

William MacLennan received his medical education at Glasgow University, where he graduated M.B., C.M. with first-class honours and gained the Brunton Memorial Prize awarded to the most distinguished graduate in medicine of the year. He pursued postgraduate studies at London, Paris, Bonn, and Berlin, and among his various appointments was that of resident physician to the Western Infirmary, Glasgow, and house-surgeon to the Glasgow Hospital for Skin Diseases. Dr. MacLennan was also university assistant to the chair of materia medica and therapeutics at Glasgow University, and was lecturer in the same subject. He was appointed assistant physician to the Western Infirmary, but after undergoing an operation on the throat some 25 years ago he decided to give up teaching and resigned his position, being thereupon appointed honorary consulting physician. Dr. MacLennan continued in private consulting practice and for a time acted as external examiner in medicine for Aberdeen University. During the last war he was a major in the R.A.M.C. and had charge of medical units at Oakbank and Yorkhill Military Hospitals. He published several articles in the medical press, especially on gastric diseases. He was the author of a *Manual of Diseases of the Stomach for Practitioners and Students.* Dr. MacLennan was married and had one son and three daughters.

COL. THE HON. MURRAY MacLAREN, P.C., C.M.G., M.D.

We announce with regret the death at the age of 81 of Col. the Hon. Murray MacLaren, formerly Lieutenant-Governor of New Brunswick.

Murray MacLaren, the son of Dr. Laurence MacLaren, was educated at the universities of New Brunswick and of Edinburgh. He qualified M.B., C.M. in 1884, and took the M.R.C.S.Eng. in 1885. In 1888 he proceeded to the M.D.Ed. The LL.D was conferred upon him by three universities, and he was also a Fellow of the American College of Surgeons. In the last war Col. MacLaren was Officer Commanding No. 1 Canadian General Hospital, with the First Canadian Expeditionary Force; he was also Deputy Director of Medical Services, Canadian Contingents in London. He was senior consultant surgeon to St. John General Public Hospital, and in 1914 was elected President of the Canadian Medical Association. In addition to his professional life he pursued an active public career, being elected M.P. for St. John City and St. John and Albert Counties, New Brunswick, 1931-4. He was also Minister of Pensions and National Health for Canada 1930-4. His distinguished record of public service was recognized in 1935 by his appointment as Lieutenant-Governor of his native Province of New Brunswick. He was Commander, Military Order of Avis, Portugal, and received the honour of C.M.G. in 1916.

L. R. BRAITHWAITE, F.R.C.S.

W. A. writes:

Your excellent obituary notice of Mr. L. R. Braithwaite lacks one acknowledgment which I am sure he would have wished to make—namely, to his chief teacher and inspirer in the art of surgery, Mr. Edward Ward, senior surgeon and professor of surgery in his time, under whom he served as dresser and house-surgeon. No one acknowledged Mr. Ward's great influence as an example and a teacher more heartily than Lord Moynihan himself. And yet all these passing and personal traditions are only phases of the great and perennial tradition of the Leeds School of Surgery.

Dr. James E. Outhwaite writes:

As a former dresser to the late Lord Moynihan, I came in contact closely with Mr. L. R. Braithwaite, whose obituary you published last week. Every word is true and deserved. There is, however, one unfortunate error. The hospital which Mr. Braithwaite adorned, and which mourns his loss, is described variously as the Leeds General Infirmary and the Leeds Royal Infirmary. Both descriptions are wrong. It is the General Infirmary situate at Leeds. Our predecessors, both in the flesh and in the craft, who laid the foundations of this noble charity chose rather to serve humanity than one township, even though that was their own. Their choice should not be forgotten, least of all when one of the last men ever to have forgotten it was Leonard Ralph Braithwaite.

WILLIAM HENRY PAINE was born in 1859 at Usk, Monmouthshire, of humble parentage. He attended the local grammar school, and in 1874 was apprenticed to a chemist at Newport, which accounts for his claim in recent years to have had "66 years of physic." After three years at Newport, he went as dispenser assistant to Mr. Sayers of Lewisham, S.E., whose daughter he later married. From there he entered University College and Hospital as a medical student in 1880. Working as dispenser in the evenings, attending lectures and hospital practice in the daytime, and burning the midnight oil, he worked steadily through the course, qualifying M.R.C.S. in 1885. An assistantship at Highbury followed and the diploma of L.R.C.P. in 1886. Then, with a little borrowed capital, Dr. Paine married and set up his plate in the newly developing district on the boundary of Tottenham and Hornsey. Hard work and patient attention to clinical detail built him a local reputation, especially for midwifery (he attended 200 cases a year for several years), and a solid family practice extending to the third generation of patients. For a time he was parish medical officer in West Green. A long illness seriously set back his prospects in 1907-8, but with the same dogged determination he came back to build up the practice again for the sake of his young family. He continued within a stone's throw of his original house till 1934, often walking 10 to 15 miles on his daily round after the days of horses. He never learned to drive a car and disliked being driven. Throughout this long period he kept abreast of medical developments by assiduous reading and attending clinical meetings of the B.M.A. North Middlesex Division and the N.E. London Clinical Society, each of which he served as chairman and as president for a term. Dr. Paine was an active member of the Middlesex Panel Committee, and his pharmaceutical experience was invaluable when he was appointed to investigate excessive prescribing in pre-R.M.O. days. He took an active interest also in municipal politics, was president of the West Green Ratepayers' Association for 25 years and an urban councillor for 4 years. One thing that always impressed his colleagues was his gift of the right words to those whom no professional skill could cure. A gentle, lovable nature endeared him to a wide circle of friends and patients. Some of them would not let him retire, so that he was consulting as recently as 1940. But after 1937 his health began to fail, and the deaths of his elder daughter and wife in quick succession were shocks he could not sustain, and he passed peacefully away on Dec. 13, shortly before his 84th birthday, sincerely mourned by all who knew him. A married daughter and a son in practice in Northamptonshire survive him.

Universities and Colleges

UNIVERSITY OF OXFORD

In a Congregation held on Dec. 12 the following degrees were conferred:

D M.—R. H S. Thompson
B M—R. G White.

UNIVERSITY OF LONDON

The University has been informed that an "Ordinance to govern the Establishment, Incorporation, and Regulation of a University in Ceylon" has been passed by the State Council of Ceylon, and steps are being taken for the early inauguration of the Ceylon University.

The following have been recognized as teachers of the University in the subjects indicated in parentheses: *London Hospital Medical College:* Dr. C. Wilson (Medicine). *King's College Hospital Medical School:* Drs. W. G. Oakley and R. S. B. Pearson (Medicine).

The regulations for the Academic Postgraduate Diploma in Medical Radiology have been amended. Details of the alterations were published in the *University of London Gazette* dated Dec. 4, 1942 (p. 71).

The Sanderson-Wells Senior Prize has been awarded to A. J. Wells Beard, M.B., B.S. (St. Bartholomew's Hospital). The subjects for essays for the junior and senior prizes in 1943 are "The Role of Iron in the Nutrition of Man" and "Permanent Stigmata of Dietary Deficiencies during Infancy" respectively.

UNIVERSITY OF LIVERPOOL

The following candidates have been approved at the examinations indicated:

M D—H. F. Harwood.

M B., Ch B.—[1,3]S M. Green, [1,2]S E Keidan, [1,3]R C. Nairn. *Part III:* D. Annis, Margaret J Blackburn, H. O M. Bryant, Eva V. Cooper, K. H Dalrymple, A. S. Davidson, J G. K. Dean, J. N Dearnaley, P. J. Devlin, J F. Doherty, K. E A Donnellan, Ann Donnelly, H G. Frank, H Friend, F. D Griffiths, F. E D. Griffiths, Elizabeth M Harper, F. A. H. Inman, A Jolleys, D A. Kininmonth, E. D G Kirkwood, H Lewis, R. H. Martin, E Martinez-Alonso, A F Murphy, J S. Redfern, R L. B. Roberts, A. J. Robertson, P. L. Robinson, M. J. R Ryan, J M. G Sarson, Betty Schofield, H. R Shepherd, G. H. Thomas, Doreen M Watt; H. O Williams, Margaret Woolfenden. *Passed in Separate Subjects:* Mary A Allan, Beryl R Bentley, K W Boggis, W G Canning, G Davies, J J. Lieben, I. P Madhok, and Margaret L Magee (Medicine; Obstetrics, and Gynaecology) Muriel C Andrews, I. H Foy, Eirwen M. Jones, Jean C. Miller, K. H Oldfield, K. H. Slatter, and Nora Taggart (Medicine and Surgery). E R Banner, A. W. Merrick, and E Scott (Surgery, Obstetrics, and Gynaecology). *Part II:* [5]J. Ainsworth, A. M Brenner, [5]Constance M Davis, P S Deardon, Margaret P Diamond, E G Donovan, P M. Edis, [5]K. B. N. Freeman, J. Gould, N. J. Gourdji, A Griffith, J E. Hall, D. A. Harbord, [5]Betty Hargreaves, E. T. Harrison, Ethel J Higgitt, H Holden, Winifred L. Hollick, C. Hopkins, J G Jones, J. D. King, R. V. Kinnish, J. W. Langley, Constance G. Lee, V Leitner, Margaret J Lezama, A. McPherson, W. E S. Marshall, J W. Maybury, J. K. Meiring, Janet B. Mercer, E. W. Parry, Sheila L Richardson, J J Rivlin, [5]W Sircus, Margaret Slater, A. Stone, A. H Swithinbank, Barbara K Thompson, D W Townley, J G. Warbrick, Elspeth M Whittaker, Margaret A. Williams, [4,5]R. S. Williams, F. B. Wright. *Passed in Separate Subject:* Simone J van Son (Public Health)

[1] Second-class honours. [2] Distinction in Medicine [3] Distinction in Obstetrics and Gynaecology. [4] Distinction in Forensic Medicine and Toxicology [5] Distinction in Public Health.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

Mr. R. Watson-Jones will deliver a lecture under the auspices of the Dr. John Burns Fund, entitled "Surgical and Rehabilitation Treatment of Bone and Joint Injuries," in the hall of the Faculty (242, St. Vincent Street, Glasgow) on Wednesday, Jan. 13, at 4 p.m.

The Services

The King has granted permission to Lieut.-Col. M. B. H. Ritchie, D.S.O., O.B.E., late R A.M.C., to wear the Order of George I, 4th Class, with Swords, conferred upon him by the King of the Hellenes in recognition of services in the cause of the Allies.

Col. (temp. Brig.) E. M. Cowell, C.B., C.B.E., D.S.O., T.D., has been appointed a Director of Medical Services, and has been granted the paid acting rank of major-general.

Flight Lieut. Thomas Henry Cullen, R.A.F.V.R., has been appointed M.B.E. (Military Division). The citation in the *London Gazette* of Dec. 29 reads as follows:

"A few days before the German invasion of Crete, this medical officer fell sick with dysentery at Maleme When the heavy air attack on Maleme began, although too weak to walk properly, he immediately attended to the wounded and continued to do so under fire until his post was captured Fl Lieut. Cullen then established a first-aid post in a near-by village and worked alone and without sleep for the next three days, when he was joined by two doctors of the New Zealand Forces. Over 1,000 wounded were passed through this medical post before it was finally taken over by an Australian field ambulance. Fl. Lieut. Cullen displayed devotion to duty and courage of the highest order."

Temp. Surg. Lieut. R. McF. Kirkpatrick, R.N.V.R., has been awarded the D.S.C. for great gallantry, leadership, and devotion to duty in the raid on Tobruk in Sept., 1942.

Surg. Lieut. A. L. Johnson, R.C.N.V.R., has been mentioned in dispatches for services in action with enemy submarines while serving in H.M. Canadian ships.

CASUALTIES IN THE MEDICAL SERVICES

Lieut. DAVID WALTON FELL, R.A.M.C., who died of wounds in North Africa in November, was the third son of Dr. and Mrs. A. N. Fell of Colchester. He was educated at the University of London, graduating M.B., B.S. in 1938, also taking the M.R.C.S., L.R.C.P. in the same year. He held posts at St. Mary's Hospital and St. Bernard's Hospital, Southall, before entering the R.A.M.C. in February of last year. He was a member of the B.M.A. He leaves a widow.

Wounded and Prisoner of War.—War Subs. Capt. A. C. P. D Thomson, R.A.M.C.

Missing.—Capt. C. W. Peck, R.A.M.C.

Prisoners of War.—War Subs. Capt. G. A. Anderson, R.A.M.C., Capt. M. G. Braham, R A.M.C., Major J. W. D. Bull, R.A.M.C., Lieut. R. G. Drummond, R.A.M.C., Major D. W. Gillies, R.A.M.C., Capt. J. B. Hannah, R.A.M.C., Capt. W. R. Jackson, R.A.M.C., Capt. E. R. S. Phillips, R.A.M.C., Capt. H. Silman, R.A.M.C., War Subs. Capt. B. J. Smith, R.A.M C., Lieut. J. C. T. Sykes, R.A.M.C

Medical Notes in Parliament

Call-up of Doctors and Protection of Practices

Sir E. GRAHAM-LITTLE inquired on Dec. 17 in how many instances the Minister of Health had overruled resolutions taken by the Central Medical War Committee on allocations of medical man-power. Mr. BROWN answered that in a comparatively few cases he had decided that recruitment of individual doctors for the Forces should be postponed for varying periods. With negligible exceptions the Committee had on reconsideration concurred in his view. No formal appeals were involved in this procedure. A doctor could apply for postponement of calling up on grounds of personal hardship or for registration as a conscientious objector in the same way as any other person.

Mr. Brown further stated that he had no power either to interpret or to enforce private arrangements made between practitioners for protection of the practices of their colleagues, although he had recommended insurance committees to assist in the operation of the scheme so far as it related to insurance practice. The right of a registered practitioner to join an insurance medical list could not be limited to participants in the Protection of Practices Scheme. The private scheme was enforceable by agreement between participating practitioners, and its general administration was undertaken by Local Medical War Committees. The scheme did not involve any infringement of the provision of the National Health Insurance Regulations as to free choice of doctor.

Medical Certificates.—Mr. ERNEST BROWN stated on Dec. 17 that insurance practitioners were required to give medical certificates only for the purposes of the National Health Insurance Acts. They were not forbidden to give and charge for certificates required for other purposes. Mr. HIGGS, who raised the matter, said that charges of 1s. or 2s. 6d. for each certificate of ill-health were made when these certificates were demanded by an employer.

Free Insulin.—Mr. ERNEST BROWN on Dec. 17 pointed out that a person insured under the National Health Insurance Acts was entitled to obtain insulin as part of his medical benefit if prescribed by the doctor attending him. Local education committees might provide insulin free or at reduced rates for children and young persons attending schools and educational institutions if the necessary sanction had been obtained. A general sanction was now being given. Local authorities had power, with the approval of the Minister of Health, to provide temporary supplies of insulin for poorer inhabitants of their districts. Mr. Brown said he was conveying his approval to the exercise of this power for the period of the war and issuing a circular drawing attention to it.

Treatment of V.D in the Army.—SIR JAMES GRIGG stated on Dec. 17 that all soldiers returning from leave were medically examined, and if found to be suffering from venereal disease were admitted to the venereal disease departments of certain military hospitals, none of which was designated as a venereal disease hospital.

Diphtheria.—Between Jan. 1, 1940, and June 30, 1942, approximately 5,000 cases of diphtheria were notified in England and Wales among immunized children under 15. The number of deaths from diphtheria among immunized children between Jan. 1, 1942, and June 30, 1942, was 17.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* decline in the notifications of infectious diseases has been general. The only exceptions were a rise of 14 for acute pneumonia and 21 for cerebrospinal fever.

The fall in the notifications of scarlet fever took place mainly in the South, though there were rises in London and Middlesex of 28 and 26 respectively; in the North the only notable difference in the trend was an increase of 27 in Lancashire.

The subsiding of the diphtheria outbreak in Middlesex, Edmonton M.B., where there was only 1 case compared with 111 in the preceding week, was the main factor in the decline of 71 for the whole country.

There were 166 fewer cases of whooping-cough than in the preceding week: the largest decreases were those of Lancashire 45, and Middlesex 25.

Although there were only 5 fewer cases of measles than in the preceding week there were large variations within the counties. Roughly, the South experienced an increase and the North a decline. The largest of the rises were Middlesex 177, Derbyshire 121, Essex 71, Nottinghamshire 64, Durham 60, and Wales 125. The counties returning the largest drops were Lancashire 365, Yorks West Riding 133, and Northumberland 58.

There were 14 more notifications of acute pneumonia than in the preceding week, but the only variation of any size within the counties was a rise of 34 in Warwickshire; 59 of the 81 cases recorded in this county were reported from Birmingham C.B.

The incidence of cerebrospinal fever, for which a relatively large increase of 21 cases was recorded, is now at a higher level than for the past six months. The largest totals during the week were Durham 10, Lancashire 16, and Yorks West Riding 9, accounting for 36% of the cases in the country; the remaining cases were scattered throughout 26 counties.

There were 20 fewer cases of dysentery than in the preceding week; the weekly total was the lowest since the beginning of September: 42% of the cases occurred in two counties—London 24 (an increase of 6 cases), and Lancashire 23 (a decrease of 11 cases); the remaining 66 were reported from 23 counties.

In *Scotland* the chief features of the returns were the fall of 70 cases in the incidence of scarlet fever, and the rise from 16 to 26 notifications of cerebrospinal fever. The downward trend for scarlet fever was fairly general throughout the country, while the rise in cerebrospinal fever was confined to the western area, where the total rose from 11 to 22. After an interval of twelve days another case of small-pox was reported on Dec. 30 in Edinburgh. The patient was the widow of a previous victim of small-pox. This was the 36th case since Nov. 1; of these, 8 patients have died and 12 remain in hospital.

In *Eire* 8 cases of poliomyelitis were reported during the week—a further drop. Typhus has reappeared in Co. Galway, where one case was reported from the rural district of Galway.

Quarterly Returns for England and Wales

The birth rate for the September quarter was 16.1 per 1,000. This was the highest rate recorded in this quarter since 1930 and 1.0 above the average of the third quarters of 1937-41. Stillbirths were 31 per 1,000 of the total births, this being the lowest figure since registration of stillbirths began. Infant mortality was 40 per 1,000 live births, 5 below the average of the ten preceding third quarters and equal to the low record of 1939. The general death rate was 9.3 per 1,000, and was 0.7 below the average of the five preceding third quarters. As a consequence of the lowered death rate and increased birth rate the natural increase (excess of births over deaths) was, at 71,362, considerably larger than in the immediately preceding third quarters. The chief feature of the notifications of infectious diseases during this quarter was the large number, 1,724, of cases of dysentery.

Quarterly Returns for Northern Ireland

The birth rate during the third quarter of 1942 was 24.1 per 1,000, 3.8 above the average rate for the third quarters of the five years 1937-41. The infant mortality was 65 per 1,000 registered births, 3 in excess of the average of the corresponding quarters of the five preceding years. The general death rate was 11.2 per 1,000, and was 0.3 below the five-year average. The death rate from all forms of tuberculosis was 95 per 100,000, compared with 86 for the average of the September quarters of the five preceding years. The increase was due to pulmonary tuberculosis, while other forms of tuberculosis declined; the deaths were 232 and 63, as compared with 206 and 71 for the five-years average.

Returns for the Week Ending December 26

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 2,054, whooping-cough 837, diphtheria 731, measles 10,888, acute pneumonia 671, cerebrospinal fever 64, dysentery 103, paratyphoid 3, typhoid 6.

No. 50

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Dec. 19.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1942					1941 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	96	5	26	3	2	126	12	23	3	7
Deaths		—	—				2	1		
Diphtheria	1,008	36	265	66	30	1,203	57	343	55	39
Deaths	27	2	3	3	—	29	2	5	2	3
Dysentery	113	24	44	—	1	105	4	45	—	—
Deaths			—	—	—			—	—	—
Encephalitis lethargica, acute	1	—	2		—	1	—	2		—
Deaths		—	—				—	—		
Erysipelas		—	69	15	2		—	57	7	4
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				24						
Deaths	51	6	8	17	5	37	2	13	9	2
Measles	13,282	498	569	55	28	886	44	39	48	3
Deaths	14	2	1	—	2	—	—	1	—	—
Ophthalmia neonatorum	76	5	12	—	1	76	5	19	1	—
Deaths										
Paratyphoid fever ..	9	1	2			17	—	6	—	
Deaths	—	—	—		—	2	—		—	—
Pneumonia, influenzal*	1,003	62	9	6	4	966	54	12	1	5
Deaths (from influenza) ..	26	—	4	2	2	21	2	2	—	1
Pneumonia, primary ..			232	31				232	10	
Deaths		—		19	10		29		8	14
Polio-encephalitis, acute	—	—				1	—			
Deaths		—					—			
Poliomyelitis, acute ..	12	1	1	8	—	18	2	—	6	—
Deaths		—	—				—	—		
Puerperal fever ..		2	7	5	—	1	1	10	1	—
Deaths		—					—			
Puerperal pyrexia ..	148	12	15		2	167	10	18		6
Deaths										
Relapsing fever ..	1	—			—	—	—			
Deaths										
Scarlet fever	2,620	176	383	95	50	1,392	45	279	61	25
Deaths	5	—	2	—	—	2	—	—	—	—
Small-pox	—	—	1		—	—	—	—		—
Deaths		—	—	—	—		—	—	—	—
Typhoid fever† ..	9	1	1	6	1	16	2	3	6	2
Deaths	—	—	—	1	—	—	—		1	
Typhus fever	—	—	—	1	—	—	—	—	—	—
Deaths			—	—				—	—	—
Whooping-cough ..	1,160	81	60	44	5	1,715	209	60	27	3
Deaths	7	—	1	6	—	11	1	4		—
Deaths (0–1 year) ..	348	49	69	71	23	397	38	66	25	27
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	4,567	672	615	240	129	4,462	580	621	194	156
Annual death rate (per 1,000 persons living)			13·8	16 0	‡			13 5	12·9	‡
Live births	5,901	679	828	322	249	4,910	457	731	248	203
Annual rate per 1,000 persons living .			17 1	21 5	‡			14 9	16·5	‡
Stillbirths	213	20	32			205	23	30		
Rate per 1,000 total births (including stillborn)								39		

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes paratyphoid A and B for Northern Ireland.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Medical News

We have much pleasure in recording an event which, to the best of our knowledge, is unique in the annals of the B.M.A.—namely, the completion by both a husband and wife of fifty years' membership of the Association. Dr. Andrew Maitland Ramsay of St. Andrews joined the B.M.A. in 1888 and his wife, Dr. Elizabeth Margaret Ramsay, in 1893.

A meeting of the Therapy Section of the Faculty of Radiologists will be held at 32, Welbeck Street, W., on Saturday, Jan. 16, at 10.15 a.m., when there will be a discussion on "The Treatment of Carcinoma of the Prostate," to be opened by Mr. E. W. Riches, Mr. I. G. Williams, and Dr. A. Haddow.

A series of talks under the heading "Reshaping Man's Heritage" will be broadcast on Fridays from 7.40 to 8 p.m., beginning Jan. 15 These talks form a counterpart to those broadcast during the autumn under the title of "Man's Place in Nature," and are intended primarily for discussion groups. The following is the full schedule as at present arranged: Jan. 15: Man's Heritage, by H. G. Wells; Jan. 22: Man's Food, by W. F. Crick and J. C. Drummond; Jan. 29: The Good Earth, by W. G. Ogg; Feb. 12: Fighting Man's Competitors, by J. W. Murro and James Fisher; Feb. 19: The Future of Food, by Sir Edward V. Appleton; Feb. 26: The Conquest of the Germ, by L. J. Witts; March 5: The Conquest of the Tropics, by H. W. Kauntze; March 12: The Banishment of Pain, by L. J. Witts; March 19: Preventive Medicine, by James M. Mackintosh; April 2: Reshaping Man's Heritage: Biology and Human Welfare; the Future, by Julian S. Huxley. The B.B.C. has also arranged a series of discussions on education under the title "Living and Learning," which will begin in the Home Service programme on Jan. 18 at 7.35 p.m. Among the issues to be discussed will be the education of young people between 14 and 20, the educational opportunities open to adults, the common school, and the place of religion in education. It is understood that medical men will take part in the discussion.

The Middlesex County Medical Society has formed a committee to initiate, encourage, and facilitate medical research. Seven big general hospitals (7,064 beds), two sanatoria (1,408 beds), one mental hospital (1,997 beds), as well as the tuberculosis and school medical officers and the central administrative staff, are represented on the committee. It is hoped to arrange teams to study especially the common and yet controversial problems of hospital medicine. The immense wealth of clinical material in the Middlesex County Service, and the excellent facilities of their pathological departments, should enable useful information to be collected.

Dr. Ronald Henry Tasker of the Burmah Oil Company is reported missing through enemy action at sea in November.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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TELEGRAPHIC ADDRESSES.—EDITOR, *Aitiology Westcent, London;* SECRETARY, *Medisecra Westcent, London.*

B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

QUERIES AND ANSWERS

Income Tax

Employment of Wife

"PHI'S" family live in the upper part of their house, the lower part being devoted to the practice. A caretaker lives downstairs but is away two half-days each week and is not responsible for night calls. He pays his wife £1 a week for the following duties: (*a*) taking messages, etc., on two half-days a week, (*b*) taking night calls in his own absence, (*c*) advising urgent callers, etc., as to his probable whereabouts, and (*d*) engaging and supervising staff and their work in the rooms used professionally. Is he entitled to deduct the £1 a week as expenses of the practice?

⁂ "Phi" does not mention whether and to what extent his wife receives "pin-money"; if the £1 a week is additional to a normal allowance his claim will be strengthened. Apart from this the case seems a marginal one. Professional men generally receive some assistance from their wives—solicitors and accountants have some professional and 'phone calls at their private residences—and the point at which this sort of arrangement amounts to an employment of the wife in the practice is difficult to fix, and may well vary according to the views of the persons attempting to do so. In this case the inspector of taxes takes the view that the payment does not comply with the statutory requirement that it shall be made "wholly and exclusively . . . for the purposes of the profession." There is a chance that Commissioners might take a different view on an appeal being made, but we should not regard the chance as a good one.

Allowance for Wife

M. R. asks: "As a doctor's wife with a 168-hour week am I entitled to a rebate on income tax to the value of £80?"

⁂ A married man is entitled to a "personal allowance" of £140, as compared with the bachelor's allowance of £80. The section (Finance Act, 1920, Sec. 18, as subsequently amended) provides also that "if the total income of the claimant [i.e., the husband] includes any earned income of his wife, the deduction . . . shall be increased by an amount equal to nine-tenths of that earned income but not exceeding in any case eighty pounds." M. R. does not mention any "earned income" of her own against which the claim can be made. By way of illustration, however, we may point out that if her husband pays her a salary of £2 a week as fair remuneration for assistance in his professional work her liability for 1942-3 would be as follows:

Amount of remuneration		£104 0 0
Deduct—Earned income relief (1/10th)	£10 10 0	
Special allowance	£80 0 0	
		£90 10 0
		£13 10 0

Tax at 10s in the £ £6 15s

LETTERS, NOTES, ETC.

First Aid for Fractured Spine

Dr. N. PINES writes: The vital importance of correct handling of a fractured spine by first-aiders prompts me to send the following note. (1) *Diagnosis.* I usually recommend members of my class to ask the injured man, if he is conscious enough for that, to move his fingers or his toes, but not his limbs. The reason is simple: if there is no movement and no pain with this attempt at movement the spine is fractured; in fracture of any other part of the body movements and pain occur. (2) *Transportation.* The greatest danger is at the moment of turning the injured man into the desired position. Once he is already turned the possibility of further injury is lessened. That is why two years ago I constructed a special stretcher, a description and drawing of which you published on March 30, 1940 (p. 546). It consists in principle of an ordinary board, with cross-pieces, which can be folded up or fixed across at any height, thus allowing the stretcher to be fixed to the patient in the same position as that in which he is found. Only after that is the patient turned round and carried away When fixing the stretcher one can of course arrange for the patient to be carried in the prone or the supine position.

Diphtheria with Perforation of Larynx

Dr. R. W. STEPHENSON senior medical inspector, Sudan Medical Service, writes: A child aged about 2 years was admitted to hospital with a history of two days' fever. Careful examination failed to elicit any physical signs, and as the temperature was fluctuating between 99° and 102° F. it was presumed to be a case of malaria, though blood slides were negative. Treatment with quinine was instituted and the temperature settled. On the fourth day after admission the child developed a slight cough, and later the same day emphysema of the neck. Each time the child coughed the tissues of the neck became distended with air. There was little distress or difficulty in breathing. Examination of the throat failed to reveal any abnormality and no membrane could be seen. A swab was taken and was found to contain Klebs-Loeffler bacilli. Anti-diphtheritic serum was given in full doses and the patient made an uneventful recovery.

Corrigendum

In the article entitled "Work of the Medical Corps in the U.S.S.R.," published in the *Journal* of Dec. 19, 1942, p. 734, under the cross-heading "Non-medical Personnel," faulty translation rendered incorrectly "the Red Cross and Red Serpent organizations." The name should have been "the Red Cross and Crescent organizations."

BRITISH MEDICAL JOURNAL

LONDON SATURDAY JANUARY 16 1943

ABDOMINAL WOUNDS IN WAR: TREATMENT OF INDIVIDUAL LESIONS*

BY

Sir JAMES WALTON, K.C.V.O., M.S., F.R.C.S.

Surgeon to the London Hospital

The wound of entry caused by a rifle bullet usually has a small more or less circular appearance. If inflicted at very short range, as in accidental or suicidal lesions, there may be much bruising and local trauma and a relatively large wound of exit. In such cases the blow of impact is very considerable and there is much shock. At an intermediate range there is less local trauma, but the patient is knocked out and brought to a complete stop at the time of wounding. Shock and collapse are still considerable, and are probably increased by internal haemorrhage. There is usually severe pain. At a long range the impact is much less, and it occasionally happens that in the excitement of the engagement the man may not even know that he has been injured. The velocity of the missile may be so diminished that there is no wound of exit, and in some cases it fails to enter the abdominal cavity but travels for a certain distance in the layers of the abdominal wall. In such cases the wound is relatively clean and sepsis is almost entirely dependent upon the presence of visceral injury. In the last two varieties any visceral wounds consist of small clean punctures which are more amenable to simple suture.

Lacerated and Bayonet Wounds

Injuries caused by fragments of H.E. shell are nearly always more disruptive, so that even a small fragment which makes a clean small wound of entry causes considerable laceration of the underlying muscle and irregular tears of the viscera. Such small fragments have a very high initial velocity, which, however, is soon lost against the resistance of the tissues, so that the fragment may not traverse the body but remains embedded within it. Larger masses having a much higher momentum will probably pass through the body and not only cause wide destruction of the viscera but form large jagged wounds of exit. All such fragments, being irregular, are much more prone to carry in pieces of clothing and sometimes even metallic and other bodies which have been present in the pockets. They are therefore, if not treated early, practically always followed by severe sepsis even if the gastro-intestinal tract is not injured.

Large lacerated wounds may occur from glancing blows by irregular missiles. Direct blows of this nature cause so much local injury and collapse that survival is as a rule short. Such lacerations may involve considerable destruction of the abdominal wall, either of all layers—in which case there is much prolapse with perhaps injury of the intestines—or of the cutaneous and muscular tissues only. In this and in past wars remarkable cases have been recorded of extensive prolapse of the intestines, in some of which the patient, supporting his intestines in his hand, has walked to aid and yet recovery has taken place. A satisfactory result will naturally depend upon the time at which treatment can be given. If seen at an aid post situated at a considerable distance from a hospital or mobile team, the intestines should be washed and replaced, the wound dusted with sulphanilamide, a few stitches inserted, and the patient sent on to hospital. If surgical attention can be given very soon, a dressing should be applied and operation undertaken at the earliest opportunity. Under general anaesthesia the intestines should be wrapped in a sterile towel wrung out in saline, and the wound cleaned in the usual way, with excision of all dead and severely lacerated tissues. The intestine is then carefully examined and, if uninjured, freely washed in saline and replaced. The peritoneum is sutured completely or closed so far as is possible. If the muscle has been much injured the cavity is dusted with sulphanilamide and the wound lightly packed with paraffin gauze. Antitetanic and anti-gas-gangrene sera should be administered. If recovery takes place there is of course considerable risk of subsequent obstruction from intestinal adhesions, and a large ventral hernia is almost certain to occur.

Bayonet wounds differ but little from stab wounds seen in civilian life, although, being incurred in the full fury of a charge and with all the strength of a powerful man, they are severe in character and have a very high mortality rate. Solid and hollow viscera are almost certain to be cut. There is severe shock and rapid collapse from the severity of the haemorrhage. If the patient is in a sufficiently good condition to stand operation this will be performed at the earliest opportunity and will follow the general lines, the chief attention being given to suture of the internal injuries and less to the cleansing of the superficial wound, which, being clean-cut, is less prone to become infected.

Crush Injuries

Severe crushes usually follow explosions of bombs and H.E. shells. They may be due to a direct blow from a mass of material hurled by the explosion, but more commonly occur, both in the field of battle and in injuries to civilians in air raids, when the patient is buried in masses of falling earth or masonry. In such cases the injuries are often widespread. There may be fractures of several limbs, crushes of the chest with fractures of ribs and injury to the lungs, or associated head lesions: with such a diversity of lesions and with the patient in a condition of severe shock an accurate diagnosis may be very difficult and sometimes impossible until a certain amount of recovery has taken place. In this type of lesion rupture of the solid viscera is more common and hence intra- or extra-peritoneal haemorrhage is more frequent than the escape of gastric or intestinal contents, but this may occur, as may rupture of a distended bladder. The symptoms of haemorrhage have been discussed in the first lecture, and it is on their presence and on the steady deterioration of the patient that the decision to operate will be made. Unless the patient is going downhill, as shown by an increase in the pulse rate, abdominal pain and distension, and a marked anaemia, it will often be better to delay operation for a short period. In some cases the haemorrhage will cease, the fullness, mild rigidity, and tenderness of the abdomen become more localized, and later a firm well-defined mass be formed as the blood becomes encapsulated. It may become so sharply defined that it simulates a large abdominal neoplasm. Such changes are more likely to occur with extraperitoneal haemorrhage around a kidney. The swelling will gradually decrease, taking perhaps 4 to 5 weeks to disappear, but in the end the patient may recover completely, although until the blood is absorbed there is always the risk of its becoming infected and forming a large abscess, which may have to be opened. If the haemorrhage is persisting, or if complete absence of abdominal movement on respiration, increase of pain, the presence of definite rigidity, or evidence of free gas in the peritoneum suggest a perforation of a hollow viscus, the abdomen will have to be opened. Access will as a rule be best obtained by a paramedian incision.

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* The second of two lectures on abdominal surgery in war given at the British Postgraduate Medical School, Hammersmith, the first one covering the same ground as the article by Sir James Walton in the *British Medical Journal* of Feb. 21, 1942.

Haemorrhage

Whether the abdomen be opened as a step in the treatment of a perforating wound or on the diagnosis of internal haemorrhage with a crush, its presence will be evident from the amount of blood in the peritoneum. Its source must be located as rapidly as possible. With a penetrating wound the course of the missile will be known either by the presence of a wound of exit or by the radiological examination. With a crush the site of internal injury may be indicated by bruising of the abdominal wall. If absent, the most common sites—liver, spleen, kidney, and mesenteric vessels—must be examined in turn.

The liver is one of the commonest viscera to be injured. It occupies a relatively large area and is of a soft consistency, so that it is easily ruptured. Irregular tears may run from the free margin into the substance and bleed very freely. Much has been written on the assumed difficulty of suturing this organ owing to its softness, and many suggestions have been put forward of methods to facilitate the closure. The use of decalcified plates, the suturing in of omentum, or plugging with gauze have all been advocated. In my experience none of these complicated methods are ever necessary. The wound can always be closed by the use of sutures, and since the blood pressure is low bleeding is controlled. It is true there is a tendency for the sutures to cut out, but this can be overcome by the use of thick catgut as a suture material and the use of mattress sutures. When a wide tear is present a long needle loaded with No. 6 catgut should be passed from in front backwards through the whole thickness of the liver on one side of the laceration, across the gap, and up the other side from behind forwards. On this same side it is passed back again from in front backwards about an inch down from its point of emergence, crosses the gap again, and returns on the first side from behind forwards. A large mattress suture is thus passed with one complete loop on one side of the tear and with the two ends ready to be tied as the other loop on the other side. Before tying these ends a second piece of thick catgut is laid under the loop, across the tear, and under the two ends to be tied; these two ends are now steadily tied and, having a wide bite of the whole thickness of the liver, will not readily cut out. The mattress suture, however, approximates the posterior edges but leaves the anterior gaping. The two ends of the second piece of catgut which passes under both loops are now tied; this tightens up the mattress suture and approximates the anterior edges. I have never known this suture cut out or fail to control the haemorrhage. For a large tear several such sutures may be required.

Perforating wounds made by a bullet or piece of H.E. shell can be closed by simple sutures, but in the latter case care must be taken to see that the piece of metal is not lodged in the liver. If so, it can usually be felt with a probe and extracted with long forceps. At times it may be impossible to extract, but its retention is always apt to be followed by abscess formation. The suture of a simple tear and the control of haemorrhage are unlikely to be followed by any complication.

The other most common source of haemorrhage is a rupture of the spleen. In many cases this organ has been torn after quite slight accidents. Patients have tripped over an uneven surface and, falling on the left side of the abdomen, have suffered from a severe internal haemorrhage due to an injury of this nature. In some cases there has been a curious delay between the injury and the onset of the symptoms of haemorrhage. The explanation of this is believed to be that the spleen pulp ruptures and forms a large haematoma under the relatively tough capsule, which gives way only after some hours or days; free haemorrhage into the peritoneum then occurs. The site of the haemorrhage can usually be determined from the fact that the blood is seen to be passing down from the left upper quadrant, and the tear in the spleen can usually be felt. By hooking two fingers over the gland and round the pedicle it can usually be drawn forward and inspected; if fixed, as it frequently may be if the site of previous disease, the paramedian incision should be carried up to the xiphisternal notch and, if right-sided, the falciform ligament should be divided between ligatures. If access is still insufficient the surgeon should have no hesitation in cutting the left rectus across in an upper and outer direction; this T-shaped incision always gives a good view. No attempt should be made to suture the organ, as its substance is much too friable. Fortunately its loss is readily compensated and no ill effects follow its removal. Haemorrhage can be easily controlled by gripping the pedicle, dissecting the vein and artery free, and ligaturing them in turn. The vessels may sometimes divide before they reach the hilum, and thus several have to be tied. By ligaturing the vessels independently the risk of injuring or removing a portion of the tail of the pancreas is reduced to a minimum. After removal the pedicle and the bed of the spleen should always be carefully inspected to make sure that the haemorrhage is controlled and to ascertain that the left lobe of the diaphragm has not been lacerated or ruptured. If a tear be found in it, it should be closed with a few sutures. It is in this type of lesion that the insertion of one pint of sterile saline into the peritoneal cavity before its final closure will often be found beneficial, but it should only be used if the injury was a crush, and not with penetrating wounds.

The amount of haemorrhage with a ruptured kidney is very variable. If the cortex has alone been torn there may be only extensive retroperitoneal haemorrhage, causing pain and some rigidity and tenderness in the loin on one side of the abdomen. Sometimes there is no haematuria, the presence of which means that either the pelvis or one of the calices has been injured. In such a case it may be very extensive and may, indeed, cause the bladder to fill with clot and give rise to clot retention. The peritoneum over the front of the kidney may be torn or cut by a missile, in which case the blood will pass freely into the peritoneum and the loss may be much more extensive. In some of these cases the decision as to the need for operation may not be easy, but will be based upon the amount of bleeding, whether internal or external. Since there may be doubt as to the site of the haemorrhage and of the presence of other lesions, especially if there be a perforating wound, access is usually best obtained by an abdominal approach. If the bleeding is coming from a renal area and if there has been haematuria, the peritoneum over the kidney is divided on the outer side of the colon and the kidney itself turned forward. At times the wound may be sutured and the organ saved; at others a nephrectomy is necessary: generally speaking, the indications for nephrectomy are a tear or injury of the pelvis or main vessels. In such cases the artery, vein, and ureter should preferably be tied separately. If the cortex be alone injured it should be sutured with thick unchromicized catgut, which should be passed as simple sutures. Mattress sutures are not necessary, and should not be used as they may cause wide areas of necrosis.

Rarely with crushes and frequently with penetrating wounds a relatively large vessel in the mesentery or omentum may be injured and lead to severe haemorrhage into the peritoneum. If only partly divided the artery will continue to bleed freely and its ends will not retract, so that it will not usually be difficult to locate; when divided completely the ends may retract from view and, with the patient in a state of collapse and shock, bleeding may temporarily cease. The source of the haemorrhage may then be more easily overlooked, but the tear of the mesentery or omentum will be visible, and in all such lesions divided vessels should be looked for carefully and securely ligatured. With the division and ligature of vessels in the mesentery there is the risk that an adjacent loop of gut has been deprived of its essential blood supply. It must be carefully examined, and if its condition is dubious it must be excised, the resected area passing well beyond the doubtful segment. In cases of doubt a small cut may be made in the doubtful area, free bleeding indicating that the blood supply is satisfactory.

Perforation

Perforations of the hollow viscera may be of all sizes and shapes, and are often multiple: in crush injuries several loops may be caught in the compressing force and cut completely across or show bursting wounds. With penetrating wounds a bullet or piece of H.E. shell may pass through several coils of gut or through the stomach. With a rifle bullet fired from a distance the wounds are more commonly small round punctures through which the mucosa has prolapsed. If inflicted at close quarters or by a ragged piece of H.E. shell there are more commonly large irregular lacerations, and in some cases several inches of the gut may be absent or represented only by a narrow strip of the muscular coat. The amount of shock in these cases is considerable, but only a short time must be allocated to overcoming it; for the results of treatment for all perforations are, as is the case with a perforated ulcer, dependent upon the time at which operation is undertaken after infliction of the injury. For this reason the mortality among patients who have to be transported for a considerable distance is extremely high. When a penetrating wound is present the abdomen will be opened during the necessary exploration of the abdominal wound. Perforations or rupture following a crush injury are not as a rule difficult to diagnose. The pain is severe, respiratory movements of the abdomen are absent, and almost without exception there is a degree of abdominal rigidity far in excess of that which would be caused by a tender and bruised muscle. In some cases there is evidence of free gas in the peritoneum. Here, as in all cases in which there is no penetrating wound, access is best obtained by a paramedian incision. When the peritoneum is opened there will usually be an escape of free gas and a considerable quantity of fluid. In the majority, however, this does not contain visible gastric or intestinal contents. The muscular wall of the gut is so paralysed by the injury that only enough escapes to cause severe irritation and infection of the peritoneum. The fluid is of a slightly mucoid type containing flakes of lymph, which in the later stages rapidly becomes purulent. It is in these cases more than all others that a rapid comprehensive survey is so essential; for not only are the perforations so frequently multiple but there may be additional damage to the solid viscera or other structures. Care must always be taken to examine for the presence of retroperitoneal lesions, which are especially common with the duodenum.

A wound of the stomach will generally be in the neighbourhood of the greater curvature, and may consist of a round or irregular perforation passing through both walls; it is very necessary, if a wound be seen on the anterior surface, that the posterior wall be carefully examined. In other cases a notch may be cut out of the greater curvature. The area posterior to the stomach must also be examined, for the pancreas or other structures may also be injured. The gastric wounds can generally be easily sutured by two layers of continuous chromic gut, the first passing through all coats, and the second, acting as an embedding suture, passing through sero-muscular coats only.

Wounds of the small intestine may be small perforations through both walls, cuts through the mesenteric or antimesenteric borders, or larger and more destructive lacerations. If multiple they may be close together so that there are several wounds in a foot or less of the gut, or they may be more widely separated. Generally speaking, better results follow the suture of several perforations than a resection; therefore, whenever it is possible to close the opening and to leave viable gut with an unnarrowed lumen, this method should be chosen. In order not to narrow the lumen the opening should of course always be sutured transversely to the long axis of the gut. When a portion of the intestine has been severely lacerated, when the mesentery has been severed or so injured that the blood supply has been destroyed, or in some cases where there are multiple wounds in a small area, resection may be necessary. After removing the injured segment widely enough to traverse normal tissue the surgeon may restore continuity by end-to-end suture or by closure of the ends and the performance of a lateral anastomosis. My own preference is always for end-to-end suture, as it can be rapidly performed and leaves no blind ends which might give subsequent trouble.

Injuries of the large gut are of the same general types as those of the small intestine, but the faecal contamination is more likely to be followed by serious infection of the peritoneum and wound. The wall of the large intestine is very thin, and, indeed, one is often struck with wonder, during an operation upon the colon, that an action of the bowels ever takes place; yet this thin-walled viscus is capable of the most powerful contractions. The highly infected contents, which may be solid or semisolid instead of fluid, the powerful muscular contractions, and the thin walls make an aseptic union much less certain than with injuries of the stomach or small intestine. For this reason many surgeons view an excision of a portion of the colon and end-to-end suture with trepidation.

Small wounds should be sutured, and the suture line may be reinforced by the application of near-by appendices epiploicae or a piece of omentum; but larger lacerations are often best treated by trimming up the edges and bringing the injured loop or the separate ends to the surface in the form of a temporary colostomy. Wounds of the lower pelvic colon or rectum should always be sutured, if possible, and an iliac colostomy usually performed above them. In most wounds of the colon the risk of infection is so increased that drainage with a rubber tube should be provided. If there has been a wound of entry or exit through the pelvis this must also be treated on general principles.

The fundus of the bladder may be wounded by penetration of bullets or pieces of H.E. shell if the viscus be distended, and when in a similar state it may be ruptured by a crush injury. Penetrating wounds through the pelvis may also injure the base of the bladder. With these injuries the presence of urine may be recognized in the peritoneum, or the nature of the lesion may have been diagnosed by the presence of haematuria or the inability of the patient to pass urine. Whenever possible wounds of the bladder should be sutured with catgut, but often it will be safer to drain the viscus with a suprapubic tube.

Abdomino-thoracic wounds present a serious problem. The treatment of these dangerous lesions has been admirably described in the comprehensive appendix on chest casualties by Mr. Tudor Edwards in the Emergency Medical Services instructions. He points out that it is essential to operate as soon as the patient is fit enough. These and all other war injuries of the abdomen are also fully discussed in the fascinating monograph *The Abdominal Injuries of Warfare*, by Gordon-Taylor.

If the missile has traversed the lower chest and the *x*-ray plate shows the piece of metal to be lying just below the diaphragm, so that it is certain that the lesions do not extend below the upper abdomen, it is best to deal with the injuries within the thorax as the first step, and then, by excising the wound in the diaphragm and perhaps enlarging it, to repair the visceral lesions within the abdomen, after which the diaphragm is carefully sutured. In many cases, however, the abdominal injury cannot be sufficiently explored by this method, so that after repair of the thoracic injury and the wound of the diaphragm a separate abdominal incision should be made. This is particularly true if the missile has passed downwards into the abdomen.

In some cases the thoracic wound may be of but slight importance but there is evidence of severe abdominal injury; the abdomen should then be opened as a primary measure. In yet others the wound may be at the level of the lower ribs in front, and access may be most readily obtained to both the abdominal and the thoracic cavities by cutting through the costal arch and, if necessary, the diaphragm.

This discussion has of necessity been brief, and I can only hope that I have given you a lead as to the methods you will find most useful. With a rush of casualties you will have to make quick decisions. Like all of us, you will make mistakes, but these will be reduced to a minimum by those who make one orderly investigation, arrive at a certain decision, and act rapidly upon it. Uncertainty and indecision are fatal errors.

L. H. Klinger and S. A. Blauner (*Amer. J. Dis. Child.*, 1942, 64, 462) record the occurrence of amaurotic family idiocy in identical twin girls. They have been unable to find a similar example in the literature.

CALORIE CONTROL

A NEW DIETETIC TREATMENT OF DIABETES MELLITUS

BY

A. C. CROOKE, M.D.

AND

ELLA SCOTT, S.R.N., S.C.M.

(From the Diabetic Departments of the London Hospital and Oldchurch Hospital, Romford)

Before the discovery of insulin the treatment of diabetes mellitus was essentially dietetic. It consisted in a severe restriction of the total calorie value of the food, with a relatively high proportion of protein and fat and a low proportion of carbohydrate. Subsequently a change in the diet of the diabetic patient requiring insulin was effected very slowly; indeed, 10 years after the discovery of insulin many patients were still being given diets similar to those of the pre-insulin period. In the last 10 years or so they have generally been allowed to increase the total calorie intake and the proportion of carbohydrate to protein and fat. It has long been our custom to give patients who are not excessively obese a diet which corresponds as nearly as possible to that which each individual might be expected to take if he had not got diabetes mellitus. The patient is encouraged to say if the diet is adequate or not, and adjustments are made accordingly. The total intake of carbohydrate, protein, and fat is controlled so that it does not vary from day to day, and the amount of insulin required to balance the patient is then determined by trial.

The dietetic restrictions necessitated by war have demanded a reconsideration of the problem of diabetic diets. The Government has allowed diabetic patients extra protein and fat but less sugar, yet it has not been possible for them to continue with their pre-war diets. In June, 1941, we began to try a new diet system which aimed at keeping the total calorie value of the food constant from day to day while allowing complete freedom of choice of food. Thus the patient can take a protein-and-fat breakfast of bacon one day and a carbohydrate breakfast of cereal the next. The new diet has proved to be very much easier for the diabetic to use, because the system eliminates the necessity for dividing different foods into carbohydrate, protein, and fat varieties, and because a much wider choice is available for each meal.

The Diet

TABLE I.—*Sample Diet of 2,000 Calories*

	Calories
Breakfast (450 calories).	
Tea or coffee, with milk ¼ pint	50
Oats or cornflakes, 1 oz.	100
Bacon, 1 oz, or 1 egg plus ½ oz margarine or butter	150
Bread, 1½ oz.	100
Butter, ¼ oz	50
....	
Mid-morning.—Tea or coffee, with milk ¼ pint, and 1 biscuit (¼ oz)	75
Dinner (500 calories):	
Lean meat, cheese, or fish to the value of	150
Fat meat or butter, ¼ oz.	50
Cabbage, cauliflower, sprouts, leeks, marrow, onions, lettuce, tomatoes, or radishes as desired	—
Potatoes, 4 oz.	100
Bread, ¾ oz, or vegetables to the value of	50
Rice, tapioca, or sago, ½ oz., or fruit to the value of	50
Milk, ½ pint	100
....	
Tea (425 calories):	
Milk, ¼ pint in tea	50
Bread, 3 oz.	200
Butter or margarine, ¼ oz	50
Jam, 1 oz	75
2 plain biscuits (½ oz)	50
....	
Supper (550 calories):	
Fish, cheese, or meat to the value of	150
Potatoes, 4 oz.	100
Vegetables as at dinner	—
Bread, 2¼ oz.	150
Butter, ¼ oz.	50
Fruit to the value of	50
Milk, ¼ pint in tea or coffee	50
....	

You can take the whole of your dinner in the form of sandwiches: bread 3 oz, butter ¼ oz., meat or cheese to the value of 150 calories; milk, ½ pint. In a temporary emergency you can take each of your four meals in the form of bread—five 1-oz. slices, and butter or margarine ½ oz.

If you are unwell and cannot eat your usual diet continue to take your habitual dose of insulin at the usual time and, in place of each of your four meals, take 20 lumps of sugar in tea or water.

The principle of the diet is to arrange each meal on the basis of a given number of units of food each equivalent to 50 calories. The patient is given a sample diet of 2,000 calories, which is typed on a sheet of foolscap paper (Table I). The diet can be readily increased by adding other units on the dotted lines provided for this purpose beneath each meal, or reduced by striking out unwanted units. On the reverse side of this diet sheet is typed a large variety of alternative foods in alphabetical order (Table II). Against each food is given the amount, in ounces, which yields approximately 50 calories. These figures are based on the food values given by McCance and Widdowson (1940).

TABLE II.—*The Following Quantities of Food each yield 50 Calories*

	oz.
Apples, English eating, with skin and core	4½
„ cooking, raw	4½
„ stewed without sugar	8½
Apricots, dried, stewed without sugar	2½
„ fresh	5½
Arrowroot	½
Bananas, without skin	2
Beans, baked	1½
„ broad, cooked	4
„ butter, boiled	1½
Beetroot, boiled	3½
Biscuits	½
Blackberries, raw	5½
Bournvita	½
Bread	¾
Carrots, boiled	8½
„ raw	7
Cherries, cooking, raw, with stones	4
„ eating, with stones	4
Cocoa	½
Cornflour	½
Cranberries	10
Currants, black, raw	5½
„ red, raw	7
„ dried	¾
Custard powder	½
Dates, without stones	¾
Figs, dried, raw	¾
Flour	½
Golden syrup	½
Gooseberries, dessert	4½
Grapes, black	3
„ white	2½
Honey	½
Horlick's	½
Jam	¾
Kellogg's cornflakes, All-Bran	½
Leeks, boiled	7
Lentils, raw	½
Loganberries, raw	10
Macaroni	½
Marmalade	¾
Melon, yellow, with skin	12½
Milk (¼ pint)	2½
Oatmeal	½
Oats, Quaker	½
Onions, boiled	12½
„ spring, raw	4½
Orange juice	4
Oranges, without peel or pips	4½
Ovaltine	½
Parsnips, boiled	3
Peaches, dried, raw	½
„ fresh	4½
Pears, cooking, stewed without sugar	6½
„ eating	4½
Peas, dried, boiled	1¾
„ fresh, boiled	3½
Pineapple, fresh	3½
Plums, eating, with stones	4½
„ cooking, raw, with stones	7
Potatoes, boiled	2
„ chip	¾
Prunes, stewed without sugar	2½
Raisins	¾
Raspberries, stewed without sugar	10
Raspberries, raw	6½
Rice	½
Sago	½
Strawberries, raw	6½
Sugar	2 lumps
Sultanas	¾
Swedes, boiled	10
Tapioca	½
Tomatoes	12½
Cheese	
Cheddar	½
Dutch	½
Gorgonzola	½
St. Ivel	½
Fats	
Butter	¼
Clotted cream	¼
Cream	½
Margarine	¼
Meat fat	¼
Fish	
Bloater, with bone and skin	1
Cod, steamed	2½
Eel, stewed, with bone	1
Haddock, smoked and fresh	1½
Hake	1½
Kipper, with bone and skin	1½
Lemon sole, steamed	2
Mackerel, fried	1
Plaice, steamed	2
Salmon, fresh	1
„ tinned	1½
Sardines	¾
Skate, fried	¾
Sole, steamed	2
Whiting	2
Meat	
Beef, sirloin, lean, roast	¾
„ steak, stewed	¾
Chicken	1
Corned beef	¾
Duck	½
Goose	½
Ham, boiled, lean	¾
Kidney, sheep, raw	1½
Liver, fried	¾
Mutton chop, lean, raw, with bone and fat	2½
„ leg, roast	¾
„ scrag neck, stewed	½
Pork, leg, roast	½
Rabbit, stewed	1
Tongue	¾
Tripe, stewed	2
Turkey	1
Veal, fillet, roast	¾

Egg 50 calories

Bacon 1 oz fried—150 calories

Unlimited amounts of the following: Asparagus, brussels sprouts, cabbage, cauliflower, celery, cucumber, endive, French beans, globe artichoke, gooseberries (stewed without sugar), lettuce, lemon juice, mushroom (stewed), mustard and cress, rhubarb (stewed without sugar), spinach, turnip tops, watercress

Results of Treatment

We have examined the records of all cases which have attended the diabetic departments of the London Hospital and Oldchurch Hospital since September 1, 1941. We chose this date because it was the day on which we first began to treat large numbers of cases with the new diet. Altogether 766 patients have attended, and 528 of these are using the calorie control diet. The cases have been subdivided into groups, which will be referred to as severe, mild, and old. All cases requiring 60 or more units of insulin daily have been classed as severe. Cases under 60 years of age requiring less than 60 units of insulin a day have been classed as mild. Cases aged 60 years or more requiring less than 60 units of insulin a day have been classed as old. The group of 528 cases using the calorie control diet have thus been subdivided as follows:

(A) Cases requiring insulin		477
Severe	107	
Mild	239	
Old	131	
(B) Cases not requiring insulin (all ages)		51

The general health of the patients in all groups has been as good on the new diet as on the old. There has been no increase in the frequency of insulin reactions or of diabetic coma; indeed, some of the most unstable cases have been more stable on the new diet. The difference in efficiency which exists between the calorie control diet and the old one is slight, and an accurate estimate of it can only be made by comparing the condition of each patient before and after starting the new diet. We decided, therefore, to take for this comparison only those cases requiring insulin which had attended the clinics regularly for a period of three months before and three months after first receiving the new diet. This excluded a large number of fresh cases which started using the new diet at the beginning of their treatment, many old cases which had not been seen for a long time owing to evacuation or other causes and which started the new diet immediately they returned, and some patients who did not attend regularly. Altogether only 192 out of 477 cases requiring insulin were suitable for further analysis. In this group a comparison was made between the body weight, insulin requirement, and amount of glycosuria during the three months before and the three months after starting the new diet. The results have been recorded as increased, unchanged, or decreased—representing the change that has occurred since the diet was altered. They are shown in Table III, in which the figures represent the number of cases in each group.

TABLE III

	Cases		Weight	Insulin	Glycosuria
Severe ..	47	Increased	20	24	7
		Unchanged	19	10	27
		Decreased	8	13	13
Mild ..	92	Increased	46	36	7
		Unchanged	37	29	58
		Decreased	9	27	27
Old ..	53	Increased	20	25	8
		Unchanged	20	22	32
		Decreased	13	6	13
Total ..	192	Increased	86	85	22
		Unchanged	76	61	117
		Decreased	30	46	53

The figures show a significant increase in the body weight in all groups. The number of cases requiring more insulin is nearly double the number of those requiring less, but there is a significant decrease in the amount of glycosuria in all groups. The changes in body weight and in the amount of glycosuria are therefore satisfactory, but the increase in the amount of insulin required might appear at first to be an unsatisfactory feature. Actually this is not so, because there is a natural tendency for diabetic patients to need more insulin in the course of time. We investigated the alteration in insulin requirements during a similar period of six months in a group of 100 unselected cases which were having the old type of diet throughout this period. In 39 cases the insulin requirement had increased, in 34 it was unchanged, and in 27 it had decreased. These figures may be compared with the figures in Table III. In the whole group of 192 cases the insulin requirement had increased in 44%, was unchanged in 32%, and had decreased in 24%. Another explanation of the increased insulin requirement is to be found in the greater total calorie value of the new diet compared with the old one. We analysed the calorie value of the diets in all the 192 cases requiring insulin and recorded it as increased when the new diet was more than 50 calories in excess of the old one, unchanged when it was within 50 calories of the old one, and decreased when it was less than the old one by more than 50 calories. We found that the diet had been increased in 98, was unchanged in 58, and had been decreased in 36 cases. We then compared the number of cases in each group with the change in insulin requirement; the results are shown in Table IV, the figures representing the number of cases in each group.

TABLE IV

	Insulin		
	Increased	Unchanged	Decreased
Diet increased ..	49	30	19
„ unchanged ..	21	18	19
„ decreased ..	15	13	8

In the group in which the calorie value of the diet had been raised the insulin requirement had increased markedly, but in the other two groups it had increased only slightly. This increase is less than would be anticipated from a comparison with the above-mentioned 100 cases, whose insulin requirement was observed for a period of six months while they were on the old diet.

Discussion

There is no adequate explanation of the effectiveness of the calorie control diet that can be based on our present knowledge of the physiological action of insulin. It is often assumed that when the carbohydrate value of a diet is increased the insulin requirement will also be increased. The idea conforms with the old conception that a fixed amount of insulin is necessary to utilize a fixed amount of carbohydrate. Actually when the carbohydrate value of a diet is raised the insulin requirement generally falls, provided the total calorie value of the diet is not altered. This effect was shown in a remarkable way by Prof. Ellis at the London Hospital in 1934. He found that severe cases of diabetes mellitus receiving daily 600 g. of glucose alone developed a marked temporary improvement in carbohydrate tolerance, necessitating the use of smaller doses of insulin. In the most notable instance in his series the reduction of insulin was from 192 units daily before the administration of glucose to 9 units daily on the twenty-first day after this treatment was begun. This interesting observation has received scant attention; but it forms a rational basis for the present treatment of diabetic coma with 4-hourly glucose and insulin, and offers an explanation of the effectiveness of our calorie control diet. It explains why the insulin requirement is actually less than anticipated in those cases in which the calorie value of the new diet is the same as that of the old one. It even suggests that patients might become reactionary as a result of taking the extra carbohydrate which is made available to them, but there has been no increase in the number of reactions reported by our cases.

The rate of change in the carbohydrate tolerance which occurs when carbohydrate foods are interchanged with protein and fat foods of the same calorie value by patients using the new diet is not rapid enough to cause instability, but in order to test the extent of permissible variation in the proportion of carbohydrate to protein and fat in the daily diet an experiment was undertaken at Oldchurch Hospital. Eight cases were chosen, including three of the most unstable diabetic patients attending either hospital. Each case was treated as an in-patient and was given a diet in which the proportion of carbohydrate, protein, and fat was kept constant at a normal level. The patients were made as stable as possible with insulin. The diet was then changed to an almost completely carbohydrate one of the same calorie value for two days. After this for another two days it was altered to one of the same calorie value consisting mainly of protein and fat. The carbohydrate diet was then repeated for two more days and the protein and fat one for a further two days. After this the patients returned to their normal diet. The blood sugar was estimated every two hours for 12 hours at the beginning of the experiment while the patient was on a normal diet. This was repeated on the second day after each subsequent change of diet, ending on the second day after returning to normal diet again. The six blood-sugar curves thus obtained were compared, and it was found that the range of values was of the same order in each case. The variation in the proportion of carbohydrate, protein, and fat in these diets was far greater than is ever likely to occur under normal circumstances. The experiment confirmed our belief that the unlimited interchange of these different foods which is allowed by the new diet is permissible even for the most unstable diabetic patients.

The calorie control diet has proved to be as satisfactory in every way as the older type of diet in use in these clinics. It is more simple to use, and it allows patients to replace foods that are scarce with foods that are plentiful. This has also meant that the diet is cheaper, since the carbohydrate foods in general are cheaper than the protein and fat foods which they have replaced. Finally, a group of patients, including some severe cases, have agreed to forgo the extra rations allowed to them by the Government, and they have remained just as stable and well without them. We believe, therefore, that even if the food rations have to be still further reduced and the diet of diabetic patients is affected they could be maintained in good health on the new diet.

Summary

A diabetic diet is described in which the total calorie value is kept constant but an unlimited variation in the proportion of carbohydrate, protein, and fat is permitted.

The effect of this diet has been examined after one year's trial on a large series of cases and found to be satisfactory.

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THE ACTION OF RADIANT-HEAT CRADLES

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The Physical Action of Cradles

The cradles used were those issued by the Ministry of Home Security, consisting of a sheet of polished metal bent in the shape of a horseshoe, and fitted with 12 carbon filament bulbs of 230 volts and 16 c.p. (about 65 watts) controlled by two switches. Each switch controls 6 bulbs and is so arranged that 2, 4, or 6 bulbs can be switched on. The object of the cradle is to supply heat to patients, and our primary aim was to investigate how this end was achieved by this type of cradle. It was also hoped that an analysis of the factors involved might suggest improvements in the apparatus.

The usual method of employing such cradles is to place the patient inside, covered with a blanket, and to drape another blanket over the whole cradle so as to retain the heat. The radiation emitted by the bulbs consists almost exclusively of infra-red rays of long wave-length, the remaining small percentage being emitted as visible light and short-wave infra-red rays. This radiation either falls directly on the blanket-covered patient or is reflected without change of constitution from the polished surface of the metal background. A certain amount is absorbed by the background, and the latter is gradually raised in temperature until it forms a source of long-wave infra-red radiation on its own.

Before reaching the patient, however, the radiation encounters the blanket, which becomes warmed on its upper surface and radiates heat as long infra-red rays on its own account. A certain amount passes through the blanket to the patient; but since the blanket is a good insulator, this is a very inefficient method of transferring heat. The energy which reaches the patient is thus much reduced in amount, but has been converted by the action of the blanket into very long infra-red rays. Some such convertor mechanism appears to be necessary; for, as we shall see, when a patient is placed in the unshielded cradle without the protection of a blanket he soon begins to suffer from burns. A mode of conversion was therefore adopted which involved a negligible loss of energy.

The metal background of the cradle was blackened[†] and the bulbs were covered with strips of thin metal which cut off the direct radiation completely, but which rapidly became hot and acted as a source of long infra-red radiation like the cradle background (Fig. 1). The blackening of the background ensured 100% absorption of the direct radiation incident upon it from the bulbs, so that in this "shielded" cradle the heat transmitted to the patient is furnished only by the thermal radiation of the cradle background and the shielding strips.

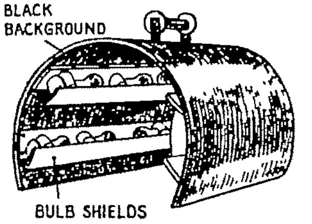

FIG. 1.—Modified cradle.

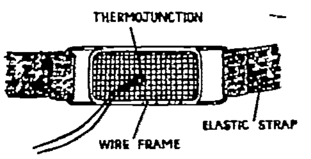

FIG. 2.—Skin thermometer.

In order to measure the radiation a small blackened square of copper was used, the temperature of which was measured by means of a thermo-junction fixed to its back. As this is heated by the incident radiation, which it absorbs completely, the radiation emitted from its surface is also increased, until after a few seconds the receiver is in equilibrium with its surroundings and emits as much as it absorbs. The temperature of the receiver is then the same as the effective temperature of the radiation field, provided that no heat conduction takes place.

For the physiological part of the investigation a suitable skin-temperature thermometer had to be devised. The form adopted (Fig. 2) consisted of a small grid about 4 cm. by 2 cm. of fine copper mesh carrying a thermo-junction on the side in contact with the skin, the whole being protected by a thin coat of shellac varnish The junction thus gave a mean value of the skin temperature over the whole area covered by the mesh because of the good heat conductivity of the latter. The skin was exposed to the air and was free to sweat, while the area obstructed by the wires of the mesh was sufficiently small not to interfere with the full access of the radiation to the skin. Three such instruments, of mesh sizes from 1 mm. to 2 mm., were found to give consistent readings over a wide range of radiation temperatures and air temperatures.

Experiments were carried out with a blanket over the cradle and all 12 bulbs switched on. The radiation meter was placed a few centimetres above bed level in the centre of the area covered by the cradle. Fig. 3 shows graphs of the observed temperatures of the receiver plotted against time. The receiver is affected by radiation from the bulbs and from the metal background, as well as by conduction through the air. The room temperature is represented by OA and the cradle is switched on at A. In the unshielded cradle the curve ABC is followed. At C the bulbs are switched off and the temperature immediately falls to F and dies away along FG as the cradle begins to cool.

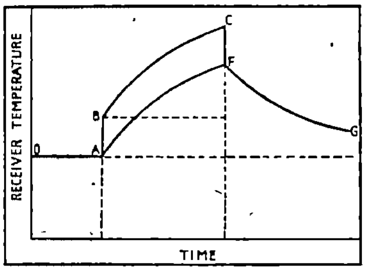

FIG. 3.—Radiation from shielded and unshielded cradle. For details see text.

In the shielded cradle, in which direct radiation from the bulbs is absent, the curve AFG is followed. Thus the contribution AB must be due to the direct radiation from the bulbs. This component of the radiation remains constant in time, as is evident from the fact that when the bulbs are switched off at C the drop in radiation recorded, CF, equals the initial rise, AB. The curves AF and BC are almost identical,[‡] and this implies that the amount of heat supplied by the bulbs to the cradle background is the same whether the bulbs are shielded or not. This is also corroborated by the fact that a few minutes after the bulbs have been switched off the radiation recorded in the shielded and that in the unshielded cradle are identical. This means that the direct radiation from the bulbs plays only a very small part in the total energy supply to the patient. The radiation from the background, however, which is represented by AF, increases steadily. Thus we have been able to separate the two components of the radiation from one another.

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[*] With a personal grant from the Medical Research Council.

[†] A thin coat of any flat black-out paint, not water-soluble, is suitable.

[‡] This is strictly true in an energy–time diagram, and is almost exact in our temperature–time diagram because of the very small range of temperature involved.

We have so far omitted from our discussion the question of heat conduction by the air in the cradle. In fact, such conduction does take place, and even plays a considerable part in the heat transfer between cradle background and patient. The existence of this conduction, however, does not affect our conclusions, since there exists no direct heat conduction between the filaments of the bulbs and the patient, and heat conduction through air, as well as convection, takes place only between the cradle background and the patient. These effects are thus the same in the shielded and unshielded cradles.

Thus it appears that during the first few minutes the shielded cradle delivers rather less energy than the unshielded, but the amount of energy which can be delivered to the patient is very much greater in the former, since the conversion to long-wave radiation has already been carried out, whereas in the unshielded cradle the patient will only get what can eventually filter through a blanket.

The Physiological Action

The skin temperature of volunteers was measured in the two cradles. In each case a blanket was draped over the whole cradle and *the volunteer placed naked inside.* As was to be expected, the skin temperature rose in the first few minutes more rapidly in the unshielded cradle, but in both cases the same temperature (about 45° C.) was reached after about 15 minutes. While, however, this was very unpleasant under the unshielded cradle, no discomfort was felt in the shielded cradle. In the subsequent few minutes in the unshielded cradle first-degree burns developed, but no ill effects were suffered in the shielded cradle.

It is therefore clear that burning must be due to the direct radiation from the bulbs, which is present only in the unshielded cradle. As we have seen, this direct radiation forms a comparatively small fraction of the total heat output of the cradle, and it is evident that the burns are caused rather by the particular constitution of the direct radiation, which contains a certain amount of short-wave infra-red rays (0.4 to 4 μ), than by the amount of energy supplied. The shielded cradle emits thermal radiation with a maximum at 7 μ. It is not the total amount of thermal energy supplied by the unshielded cradle which limits its application, but the fact that the direct radiation from the bulbs can be tolerated by the skin for a comparatively short time only. This is, in fact, the reason why it has been found necessary to insert a blanket between the patient and the cradle. Though this acts as a convertor from short-wave to long-wave radiation, it cannot fulfil this purpose as efficiently as the blackened cradle background.

It was clear that the new shielded cradle could safely be used without protecting the patient with a blanket, while the old unshielded cradle could not. In order to test the efficiency of the two cradles as heaters a comparison was made between *the unshielded cradle with a single blanket over the patient and the shielded cradle with the patient naked.* In both cases blankets were draped over the whole cradle. Volunteers were placed in each of the cradles in turn on different days and heated with 12 bulbs until the oral temperature reached 100° F. or until the oral temperature remained constant for so long that it was clear that no further rise would take place. It was found that the best position was when the upper edge of the cradle was level with the lower end of the sternum. Observations of oral temperature and of skin temperature on the abdomen and thigh were made. Altogether 6 volunteers were heated, giving a total of 12 experiments. Two of the 6 cases were not conclusive. In one an oral temperature of 100° F. was reached in both cradles, and in the other this temperature could not be reached in either cradle. In the latter instance the cradle was placed considerably lower than the height which we have since found to be the optimum.

A typical result is shown in Fig. 4. In the shielded cradle the skin temperature rose to a roughly constant value of just under 45° C., although the temperature of the radiation field was almost double this. The oral temperature rose rapidly after about 30 minutes. In the unshielded cradle the skin temperature follows the same trend, but remains at a slightly lower level. The oral temperature could not be increased above 99° F. even by heating for 90 minutes. In this particular case the oral temperature reached 100° F. in the shielded cradle after 47 minutes' heating. This was almost the shortest time taken to attain this level with the shielded cradle, the shortest being 42 minutes.

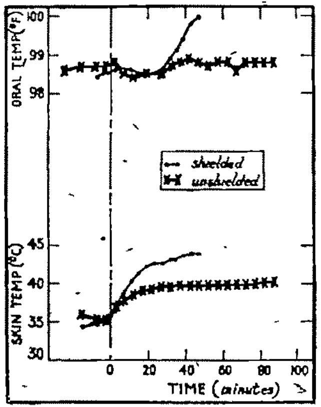

FIG. 4.—Oral and skin temperature of a patient heated in the two cradles. The shielded cradle is a more efficient heater owing to absence of necessity for skin protection.

It will be seen that there was a drop in the oral temperature after the cradle was switched on. This phenomenon occurred in both the shielded and the unshielded cradles. In 9 out of the 12 cases observed there was a decrease of oral temperature of 0.3 to 0.5° F., which took place in from 5 to 20 minutes after the heat was turned on, and thereafter the temperature rose steadily. The blood pressure, both systolic and diastolic, also fell slightly during the first 20 minutes. After that the systolic pressure and the pulse rate usually rose above the initial values; the diastolic pressure tended to remain low.

Comparing the two types, we find that the shielded cradle is definitely more efficient as a means of raising the body temperature than the unshielded. There is a very considerable scatter in the results, but we have plotted for each experiment a point representing the rise in body temperature during the experiment against the time for which the heat was applied (Fig. 5). The mean of all the shielded results falls well above the mean of the unshielded results, the slope of the dotted line in the former case being over twice the slope of the latter. All the inconclusive cases are included in this diagram—a representation which does less than justice to the shielded cradle, since an unshielded case in which the temperature refused to rise above a certain level would have been represented by a still lower mean rate of rise if the experiment had been continued longer.

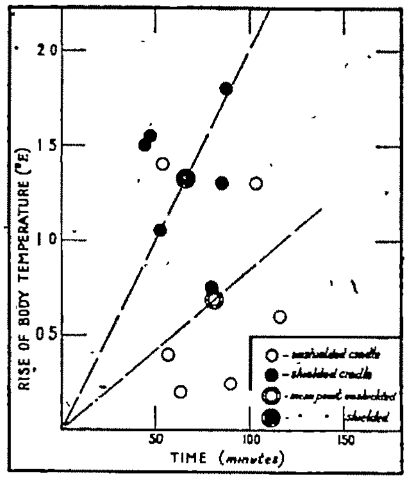

FIG. 5.—Rise of body temperature plotted against time of exposure for 12 experiments.

Even with the shielded cradle it was found that if the heating was continued at full strength for a considerable time a burning sensation was experienced and erythema developed. This is due to the fact that the cradle background gets steadily hotter and delivers a steadily increasing amount of energy; in fact, the system shows no sign of reaching equilibrium after more than two hours' heating. This means that under these conditions the patient is subjected to an ever-increasing flow of heat and that sooner or later the threshold for tolerance must be reached. The ideal situation would be one in which the patient received a constant flow of heat of tolerable strength. This can be achieved by switching off a number of the bulbs after an initial boost with 12 bulbs.

Investigations with a radiation meter were carried out in order to determine how many bulbs are needed to maintain a constant heat flow at various levels. Experiments were made by switching on 12 bulbs for a standard time (20 minutes) and then changing to the required number of bulbs. After falling for a short time the heat flow then became constant. For instance, when two bulbs only were left on after the boost, the temperature eventually fell and remained at 37° C. During the boost with 12 bulbs this level had been reached after about 8 minutes, and it was found that using 12 bulbs for 8 minutes and then switching to 2 produced the final equilibrium conditions in a few minutes, without at any time exposing the patient to more radiation than was needed.

Instructions for Use of the Shielded Cradle

It is suggested that the shielded cradle should be used by boosting for a certain time with 12 bulbs and then turning down the heating so as to maintain a heat flow of the desired strength. The accompanying table shows the times recommended for this procedure as suggested by these experiments (Fig. 6).

Boost Time with 12 Bulbs in Minutes	Final Radiation Temperature (° C.)	Number of Bulbs for Final State
8	37.0	2
12	47.5	4
32	63.5	6
60	73.0	8

It should be added that boosting with 12 bulbs for more than 40 minutes sometimes caused the patient's skin to become irritated. The kinder way is to apply 12 bulbs for 25 to 30 minutes, then 10 for about 20 minutes, and 8 thereafter. This is very little slower, and it causes far less discomfort. Irritation and erythema develop in the region of the groin at much lower rates of heating than anywhere else on the skin, and we have made it a standard practice to cover this region with a folded towel. To protect a restless patient from contact with the hot cradle we have used a guard of strong wire, similar to those ordinarily employed to lift the weight of blankets off the legs and feet. The wires of the guard were covered with two layers of white bandage, which kept it sufficiently cool, and distance pieces were fitted to hold the guard in the correct position.

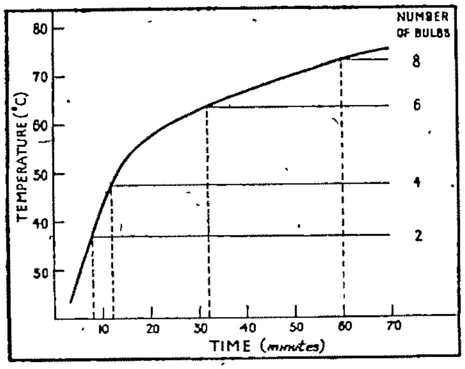

FIG. 6.—Chart showing boosting-times for the shielded cradle.

Some Further Investigations

A female patient suffering from arthritis was treated at various heating rates. Four experiments were made with 4, 6, 8, and 8 bulbs respectively, the boosting-times being regulated as above. Using 4 bulbs, the body temperature rose from 98.4° F. to 100° F. in 1 hour 55 minutes, including the boosting period. With 6 the rise was from 98.0° F. to 100.1° F. in two hours; with 8, rises from 99.5° F. to 101.8° F. in 1 hour 15 minutes and from 97.8° F. to 100.8° F. in 1 hour 35 minutes were secured. Thus the temperature can be raised quite comfortably at a fairly considerable rate. It immediately suggested itself that there might be a relation between the rate of rise of temperature and the heat input. The observational material was analysed by taking each period over which the heat input was constant and noting the rise of temperature in that time. The mean rate of rise was thus obtained for each heating rate, and from the observational records of this patient 8 points were obtained. A scatter diagram was plotted (Fig. 7), and it was found that all the points lay on a narrow band passing through the origin.

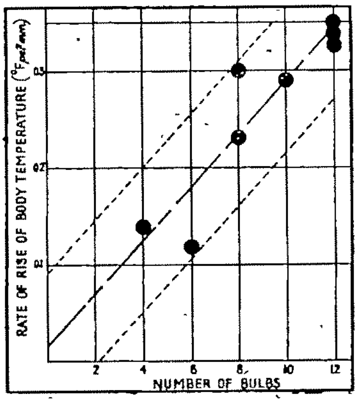

FIG. 7.—Diagram showing correlation between heat input and rise of body temperature.

While the results are certainly too scanty for a definite opinion to be formed, it is possible that such a correlation may exist for each individual case. If this is true a single determination of the rate of rise of body temperature at a given heating rate would form a valuable guide to the heat response and further treatment of the patient, since it would thus be possible to predict the rise in body temperature for any other heating rate. It should be noted, however, that the observed correlation relates only to the region between normal temperature and 102° F. and may not be continued to higher temperatures.

Discussion

This investigation was undertaken after two serious burns had occurred with the use of the Ministry of Home Security heat cradle. Questioning of senior sisters revealed no standard procedure in the heat-cradling of cold or shocked patients, and none was found in the literature. Aside from this lack of knowledge concerning the proper use of a powerful instrument, it was obvious that the cradle was needlessly dangerous, and that the customary procedure which made it tolerable—the protection of the patient by a blanket—greatly reduced its efficiency. Heat administration should be as carefully controlled as the administration of drugs or oxygen.

By simple modifications which a handy-man can carry out in an hour or so, a heat cradle has been devised which gives complete protection from early burns and which heats the patient much more quickly. The near infra-red component of the radiation has been converted with negligible energy loss to far infra-red, a type of radiation for which the skin has evidently a greater tolerance. This permits the withdrawal of the protection afforded by the blanket. The ability to control the dosage of heat accurately has resulted in the elimination of late burns, and is of obvious value in careful treatment. With the shielded cradle it is possible to expose the patient in a heat bath at any desired temperature without ever exceeding that temperature.

There remain certain dangers. With the unshielded cradle the risk of burning the skin, or actual burns, must often have prevented the introduction into the body of a dangerous amount of heat. When that costly safeguard is removed, more careful supervision of heat treatment is demanded. Under some conditions we have found that the patient's temperature rose at the rate of 2° F. in 20 minutes. This is a state which demands skilled observation, and we are firmly convinced that medical officers should supervise the use of the heat cradle more closely and not regarded it as an instrument which can be left without instruction to the nursing staff.

The question of the place of heat in the treatment of shock is made more urgent by the more efficient cradle. There is little doubt that it can be overdone. Blalock and Mason (*Arch. Surg.*, 1941, **42**, 1054) have found that exsanguinated and traumatized animals survive longer if they are cooled rather than warmed, and our own observations show that soon after the application of heat the blood pressure falls. Vasodilatation of the skin and enlargement of the vascular bed may well be harmful in shock. Some experimental work is being carried out to elucidate this point, but there is need for more observations on shocked patients.

Summarized Instructions for Use of the Shielded Cradle.—(1) Place the upper end of the cradle at the level of the lower end of the sternum. (2) Cover the cradle and its open ends with two blankets, and do not disturb these unless absolutely necessary. (3) Leave the patient naked except for a small hand towel to protect the groins, and if the patient is restless insert the guard (see above). (4) At first turn on all 12 bulbs. (5) After not more than 30 minutes reduce the bulbs to the number required to maintain the air temperature at the desired level (see Fig. 6). (6) Determine the oral temperature at least every 15 minutes.

Summary

The heat cradle issued by the Ministry of Home Security has been modified by shielding the bulbs and blackening the reflector.

As a result of the conversion of the short-wave infra-red radiation into long-wave infra-red the risk of burns is almost eliminated and the patient can be heated at least twice as rapidly.

The danger of overheating the patient is emphasized.

Instructions are provided for using the new cradle.

We should like to thank Prof. Witts for his interest and suggestions. Our thanks are also due to the volunteers who were used in the experiments, and to Mrs. V. Launchbury, who gave technical assistance.

SYPHILIS TREATED WITH DAILY MULTIPLE INJECTIONS OF MAPHARSIDE

BY

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When Norway was invaded by Germany in April, 1940, a large part of the Norwegian Merchant Navy was isolated from its bases and eventually made its way to this country. In spite of dangers and hardships these ships continue their hazardous work, and it is not difficult to understand why, under prevailing conditions, the crews become easy victims to venereal disease when they are in port. There has been a serious increase in syphilis and other venereal diseases amongst the crews of these vessels; this constitutes a grave problem for the authorities at the present time and points to future difficulties in our social welfare. Before the war fresh cases of syphilis in Norway were very rare, and in 1938 there were only about 200 new cases amongst the whole population.

Routine treatment of syphilis is possible only if a sailor stays ashore for any length of time; but in most cases this cannot easily be arranged; and, furthermore, life ashore often has a demoralizing effect upon the men. Many who contract venereal disease come to the clinics only at irregular intervals, and treatment is necessarily unsatisfactory. These conditions obtain not only in the Merchant Navy but also in the smaller vessels of the Navy proper, and the smaller Army groups, none of which has a doctor on the staff.

At the beginning of 1942, following a review of syphilitic cases treated in the clinic, it was found that less than 30% of the patients were being adequately treated, and it was decided to start intensive arsenical treatment at the Norwegian Naval Hospital. Continuous intravenous drip therapy, using neoarsphenamine, has been tried in America (Chargin *et al.*, 1935), but the drug proved to be too toxic, peripheral neuritis being one of the most frequent complications. Later it was found that "arsenoxide" (mapharside), given in massive doses by the intravenous drip method, caused appreciably fewer toxic effects than neoarsphenamine (Chargin, 1940). Even so, the method presented difficulties, and massive arsenotherapy, using multiple-divided doses, eventually came into use. Gordon (1941), and later O'Malley (1941), in South Africa, employed a course of treatment consisting of five doses, each of 0.02 g., of mapharside at two-hourly intervals daily for a period of five days. At the same time 25 oz. of a 10% solution of glucose by mouth, spread over the day, were given during the period of treatment. Similarly, other workers in America have administered the drug by multiple doses, but, for the most part, have given two injections daily for a period of five days.

Method of Treatment

It was decided to follow the South African method, but to give larger doses of mapharside. On Feb. 2, 1942, treatment was begun, and by June 25 one hundred patients had completed the course. In this preliminary report consideration will be given to five groups of patients, all of whom have received the intensive course, special reference being made to the complications and reactions noted during treatment.

At the outset only untreated cases of syphilis in the first and second stages were given massive arsenotherapy. As the earlier patients tolerated the treatment so well it was decided to use the intensive method in cases in which either neoarsphenamine had been given previously and had not been well tolerated or the conditions were such that the patient was unable to follow routine treatment with weekly injections. Before starting the course the patients were carefully examined clinically and the urine investigated. On the day preceding the beginning of treatment each patient had an enema, and 300 to 500 c.cm. of glucose (6%) was given orally.

TABLE I.—*Scheme of Dosage*

Mapharside

	8 a.m.	12 noon	4 p.m.	8 p.m.
1st day	0·04 g.	0·04 g.	—	0·04 g.
2nd „	0·04 g.	0·04 g.	0·04 g.	0·04 g.
3rd „	0·04 g.	0·04 g.	0·04 g.	0·04 g
4th „	0·04 g.	0·04 g	0·04 g.	0·04 g.
5th „	0·04 g.	0·04 g.	0·04 g.	0·04 g.

Glucose Solution 6%

Daily for 5 days (total per day, 1,500 c.cm.):

7 a.m.	250 c.cm.	2.30–3.30 p.m.	300 c.cm.
8 a.m.	250 c.cm.	6–7 p.m.	200 c.cm.
10.30–11.30 a.m.	300 c.cm.	7–8 p.m.	200 c.cm

The total amount of mapharside administered over a period of five days was 0.76 g., but in the 83rd and subsequent cases each dose was increased to 0.06 g. on the third, fourth, and fifth days, making a total of 1 g. of the drug given during the five-day period. In the earlier cases the patients received 1,500 c.cm. daily of a 6% solution of glucose orally, and they were instructed to sip the solution over a period of one hour. When the dosage of mapharside was increased the amount of glucose was also increased to 1,800 c.cm. daily, in 6 doses of 300 c.cm. On the first day of treatment the 4 p.m. dose of mapharside was not given because this period of the day usually coincided with the time at which a Herxheimer reaction might occur. During treatment the patients were kept in bed and the urine was tested every morning and evening.

TABLE II.—*Complications and Reactions occurring in Five Groups of Patients*

Group	No. of Patients	Pyrexia	Nausea	Vomiting	Headache	Dizziness	Dermatitis	Cerebral Symptoms	Jaundice after Hospitalization	Albuminuria	Serological and Clinical Relapse
I	70	36	17	8	20	2	—	—	—	1	1
II	10	—	—	—	—	—	1	1	—	—	—
III	14	—	2	—	4	—	—	—	1	—	—
IV	1	—	—	—	—	—	1	—	—	—	—
V	5	—	—	—	—	1	—	—	—	—	—
Total	100	36	19	8	24	3	2	1	1	1	1

Results

Group I: Primary and Secondary Cases not Previously Treated.—In 36 of the 70 cases pyrexia occurred on the first day of treatment only. Occasionally the temperature rose to 103.4° F., but in the majority of cases it lasted only from three to five hours and did not exceed 100° F. Generally this increase in temperature caused no inconvenience to the patient and was so slight that it was recognizable only by taking hourly thermometric readings. Nausea, vomiting, and headache were experienced in those cases in which the temperature exceeded 100° F. One of the patients showed a trace of albumin in the urine on the last day of the course.

Group II.—These 10 patients had previously had one injection of neoarsphenamine at a clinic, where syphilis had been diagnosed. This group had no reactions or complication, with the exception of one patient (No. 82) who developed dermatitis and cerebral symptoms. Nevertheless, some of these patients had had a Herxheimer reaction before being admitted to this hospital.

Group III.—Five of the patients in this group were given intensive treatment with mapharside because they were intolerant to neoarsphenamine. The remaining 9 were unable to follow routine treatment with weekly injections.

Groups IV and V.—These two groups consisted of 1 patient with tertiary syphilis and 5 patients with latent syphilis.

Comments on Individual Cases

Case 7.—This patient had sero-positive primary syphilis. He differed from the other patients as he developed general lymphadenitis and exanthema macula papulosa; but recently he has been given a fresh intensive course of mapharside.

Case 13.—An initial course of neoarsphenamine was interrupted owing to dermatitis, nausea, and vomiting, and the persistence of severe headaches after each injection. On the completion of the course the patient developed jaundice. A fortnight after the jaundice had disappeared he was given a complete intensive course of mapharside without ill effects.

Case 19.—This patient had been given a course of neoarsphenamine in a V.D. clinic, but each injection was followed by severe vomiting, headache, and pyrexia. Towards the end of the course he developed a severe dermatitis with pyrexia, and was seriously ill for two weeks. After an interval of three months he was given a further injection of neoarsphenamine 0.3 g. and bismuth 0.2 g. at a V.D. clinic, but the dermatitis recurred. He came into this hospital a fortnight later and, although dermatitis still persisted, was given an intensive course of mapharside, which was completed without reactions.

Cases 35 and 96.—Both these patients were very sensitive to neoarsphenamine, and trouble occurred after each injection. One had previously had a course of mercury inunctions. This patient had slight vomiting on the first day of the intensive treatment with mapharside, but the other finished the course without reactions.

Case 63.—The first course of neoarsphenamine given at a V.D. clinic had to be interrupted several times owing to severe reactions following each injection. During treatment the patient lost weight and his condition deteriorated. A second course was started two months later, but again a severe reaction followed the first injection. He was admitted to this hospital, and the routine intensive course of mapharside was given. Slight vomiting occurred on the first day of treatment and the patient complained of headache, but he finished the course without further reactions until eight days later, when he developed jaundice.

Case 82.—The only patient amongst the series of 100 cases who had a serious reaction was Case 82, a rating aged 20 who had been exposed to infection about April 20. On May 25 he presented himself at a V.D. clinic on account of a penile ulcer of eight days' duration. *Spirochaeta pallida* was found by dark-ground illumination, and he was given neoarsphenamine 0.3 g. and bismuth 0.2 g. He reached this hospital about three hours after receiving the injections. On arrival he had a marked Herxheimer reaction. The presence of *Sp. pallida* was confirmed, and a blood test taken on May 27 showed a strongly positive Meinicke clarification reaction and a negative Wassermann. On May 29 the patient began intensive treatment with mapharside, the course being continued without reactions until the fifth day. That evening his temperature rose to 100° F., but he made no complaint and the full course was completed. On June 3 his temperature rose to 101.2° F. and he developed a morbilliform erythema. The temperature was 102° F. on June 4; during that day he complained of severe headache, and became more and more lethargic, and at times, confused. At 8.30 p.m. the same evening he suddenly shrieked and exhibited strong convulsions of the clonic type which lasted about three minutes. There were no further convulsions, but he remained unconscious until 10 a.m. the following day. During the next 24 hours the condition cleared up and the temperature fell to normal. The erythema which had made its appearance on June 3 disappeared 48 hours later, but severe headaches persisted for some days. The cerebrospinal fluid, collected shortly after the convulsions, was not under marked pressure, and contained 3 cells per c.mm. and protein 160 mg. per 100 c.cm. Gold test, 0012321000. The Wassermann reaction was very weak or doubtfully positive. On June 11 protein in the spinal fluid had decreased to 60 mg. per 100 c.cm. Possibly in this case the erythema was of a type that usually appears about the ninth day after starting arsenical treatment, and toxic encephalitis combined with this form of dermatitis is occasionally seen. Concerning the reaction in this patient it should be noted that the mapharside was dissolved in distilled water, which was almost certainly contaminated owing to a leakage in the distilling apparatus.

Serological Results

Thomas and Wexler (1941) found that on an average it requires 4 to 6 months after massive arsenotherapy for the blood Wassermann test to become negative, and in some instances it may be a year or more before complete serological reversal is achieved. According to these workers the longer a patient has had syphilis the longer it takes for the Wassermann reaction to become negative, although there are exceptions to this rule.

The serological findings for the first 100 cases in this series are shown in Table III. It has been the custom in this hospital to use the Wassermann and the Meinicke clarification reactions.

TABLE III.—*Serological Results*

Group	Total No.	Wassermann Negative			Meinicke Negative			Serological Relapse	Untraced
		Before Course	Immediately after Course	4 to 24 Weeks after Course	Before Course	Immediately after Course	4 to 24 Weeks after Course		
I ..	70	23	16	49	14	8	29	3	6
II ..	10	7	6	9	4	3	6	—	—
III ..	14	10	11	12	8	9	10	—	—
IV ..	1	1	1	1	1	—	—	—	—
V ..	5	3	2	2	1	—	—	—	—
	100	44	36	73	28	20	45	3	6

Among the first 100 patients there were 3 serological and clinical relapses.

Discussion

Experience in this hospital has demonstrated that *Sp. pallida* disappears from the chancre in less than 24 hours after treatment with mapharside. Primary and secondary lesions heal very quickly. In no instance during treatment of these 100 cases has there been any difficulty in giving 19 injections over a period of five days. Only males have been treated, and in many cases the patients also had gonorrhoea. With one exception there have been no serious reactions, and in most cases pyrexia occurred only for a few hours on the first day. The procedure has been to dissolve the mapharside in redistilled sterile water in the proportion of 0.01 g. in 1.5 c.cm., according to the number of cases to be treated. With this intensive treatment it is necessary to have nurses who are acquainted with the procedure, and the patients should be under their constant observation.

Summary

A series of 100 cases of syphilis treated with multiple injections of mapharside is described.

The first 82 cases received 0.76 g. of mapharside within a period of five days. The remaining 18 received a total of 1 g. during this period. These injections were combined with the oral administration of glucose.

The reactions, which with few exceptions were mild, are described. Only in one case was there a serious reaction.

This series of cases is too small for any definite statement to be made regarding this method of treatment, but these results indicate that in a time of emergency massive arsenotherapy is of the utmost value, although the method is fraught with more risk than the orthodox treatment.

I wish to express my appreciation of the services of my assistant, N Bonsaksen, and the nursing staff of the hospital.

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THREE COMMENTS ON THE PREVENTION OF STERILITY

BY

E. SCHLEYER, M.D.

The falling birth rate is giving rise to serious concern, and many committees and societies are studying its causes. Sterility is of course one important cause. Special sterility clinics have been formed for the purpose of examining and treating sterile couples, but those seeking advice are established cases of sterility, only some of which can be cured. Most investigations dealing with sterility have been concerned with its causes and treatment, but my object is to indicate the importance of its prevention. Three conditions which may lead to sterility are here discussed—namely, hypoplasia of the uterus, gonorrhoea, and chronic constipation.

Hypoplasia of the Uterus

There are two types of hypoplastic uterus. In the first of these, in which the foetal form is maintained, the cervix is longer than the fundus, the uterus is acutely ante- or retroflexed, the os is pin-point, and the tubes are usually tortuous. Owing to the persistence of a foetal condition this may be called *primary hypoplasia,* and it is due to insufficient stimulus of the gonadotrophic and ovarian hormones. Hypofunction of the thyroid may also be a causative factor. In the second type the uterus presents the adult differentiation but is smaller than normal (*secondary hypoplasia*). It develops only in adult life following amenorrhoea, severe illness, or prolonged feeding of a baby when the mother is not in good health. It is an atrophic condition of the uterus, and its main symptom is sterility.

The chief sign of primary hypoplasia is disorder of menstruation. The menses usually begin regularly but become infrequent and scanty, and finally cease. Some patients may have scanty periods at one time and profuse at another. Dysmenorrhoea is also very common in hypoplasia. Sterility usually follows, and is to be attributed to causes such as insufficiently developed endometrium or anovulatory cycles, ectopic pregnancy, or abortion.

In the adult woman primary hypoplasia is rarely curable. It is important, therefore, that the condition should be recognized in time, and proper measures taken to correct the faulty development. Any abnormalities of menstruation at puberty and during adolescence should receive serious attention, since they may be danger signals showing that development is not progressing normally (Kurzrok, 1937). Every girl who has not established a regular, normal, and relatively painless menstrual habit before the age of 15 needs inquiry into her general health and endocrine condition. The secondary form of hypoplasia might be prevented by adequate treatment of amenorrhoea and removal of the causes leading to the atrophy of the uterus.

At the present time, when thousands of girls still in their teens are engaged in war work, special attention should be given to these questions. Medical officers should be trained to recognize the early symptoms of endocrine disorders. The influence of every kind of war work on young girls should be studied. The experience of the last war showed what harmful effects improper feeding might have on young people. Spaeth (1917) and Vaerting (1918) have observed atrophy of the internal genital organs in women who, not properly nourished, were exposed to severe factory conditions. An adequate quantity of protein and vitamins is most important.

Gonorrhoea

It is well known that sterility may follow gonorrhoea, but since the discovery of the sulphonamide group of drugs the treatment of the latter has been revolutionized. Nowadays acute gonorrhoea can often be cured in a few weeks, but this advantage may be offset by the danger of overlooking slight inflammation of the Fallopian tubes, a lesion which may show no acute symptoms but may be the cause of later sterility if neglected.

The first case I observed was that of a young woman of 29 who contracted acute gonorrhoea. She underwent a course of treatment with sulphapyridine, and became negative to tests within three weeks. She was kept under observation for another two months, after which she married. Three months later she returned seeking advice because no baby was yet on the way. Examination by tubal insufflation revealed blockage of both Fallopian tubes. There was no sign of inflammation, so two weeks later I carried out another insufflation, during which the pressure, which first rose to 200 mm., suddenly dropped to 110. This suggested that the tubes had become patent, evidence for which was also provided by the fact that the patient complained of shoulder pains. Three weeks later she became pregnant. This is one of several cases in which I have found blockage of the tubes three to six months after acute gonorrhoea. It looks as if the gonococci, having lost their virulence owing to the chemical treatment, may cause only a slight inflammation of the tubes, which heal up in such a way that the walls adhere together slightly without being blocked. Under those conditions insufflation, performed in time, may prevent definite blockage and consequent sterility. King (1939) expressed the view that the sulphonamide group of drugs are not directly lethal to the organisms, but modify their metabolism so that the body defences are enabled to get the upper hand. Similar inflammatory reactions are observed in the prostatic gland after chemotherapeutic treatment (Lloyd, 1939; R. Lees, 1939). I would therefore suggest that no woman with gonorrhoea should be declared cured until the tubes have been examined. If they should be closed within three to six months after apparent cure then repeated tubal insufflation should be performed. The first insufflation should not be made before the third month and not later than the sixth month after the last negative specimen. Before performing the insufflation the following precautions should be taken: (1) the cervical secretions must have been free from gonococci for at least three months; (2) the blood sedimentation rate must be normal; (3) there should be no detectable sign of inflammation of the tubes; (4) there should be no focal or general reaction after the provocative treatment with gonococcal vaccine.

Constipation

After a special study (Schleyer, 1937, 1938) of the interrelationship between the pelvic colon and rectum and the female genital organs I reached the conclusion that inflammation of the rectum and pelvic colon may spread to the pelvic organs, leading to salpingitis and salpingo-oophoritis. One of the most common causes of proctitis and sigmoiditis is chronic constipation. Habitual disregard of the call to defaecation results in blunting of the sensation for defaecation and to accumulation of faecal masses in the rectum and sigmoid. This stagnation leads to damage of the mucous membrane and dilatation of the lower bowel, so that intestinal bacteria may invade the tissues and cause inflammation of the intestine. The anatomical situation of the lower intestine makes it possible for this inflammation to spread to neighbouring organs and thus cause salpingitis. Salpingitis often ends in sterility. Prevention of constipation and proper treatment of procto-sigmoiditis may thus be important factors in the prevention of sterility.

Summary

Sterility is an important cause of the falling birth rate. Once established it is difficult to cure, but prevention is sometimes possible. Three conditions are described which may lead to sterility—hypoplasia, acute gonorrhoea, and chronic constipation. Timely treatment of each of these might lessen the danger of subsequent sterility.

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Medical Memoranda

Haemothorax due to Strangulated Diaphragmatic Hernia

Haemothorax as the predominant clinical sign following acute strangulation of a diaphragmatic hernia is unusual enough to warrant record.

CASE HISTORY

The patient, a farm labourer aged 37, gave a history of previous good health, although he had complained to his family of occasional indigestion. On Jan. 14, 1942, he felt severe abdominal pain immediately after supper. He was seen by one of us (S. M. S.), who found him shocked and restless, with temperature 97°, pulse 100, and respirations 20. There was tenderness on deep palpation below the left costal margin but no rigidity. Dullness with diminished air entry was found at the left base, suggesting effusion. He was neither dyspnoeic nor cyanosed. He had been sick once, the vomit appearing normal.

He was admitted to Evesham Hospital on Jan. 15, and at 11 a.m., because the physical signs indicated a rapid increase in the amount of fluid and his condition was deteriorating, an exploratory needle was introduced into the fifth space in the left mid-axillary line, and 10 c.cm. of normal-looking venous blood was withdrawn. A radiograph of the chest revealed that the heart and mediastinum were well over to the right, and there was a dense uniform opacity over the whole of the left lung field. When seen by another of us (S. D.) on the 16th the patient was orthopnoeic and had begun to vomit a little blood. The physical signs all pointed to the thorax: abdominal examination did not suggest anything abnormal there. 27 c.cm of apparently normal venous blood was then removed from the chest. A second radiograph taken immediately after this showed that the heart and mediastinum were still over to the right; no fluid was now apparent on the left side, although there was diminished translucency. In the upper part of the left lung-field could be seen what appeared to be a loop of intestine, and irregular opacities were noted immediately above the left diaphragm. The left lung was collapsed against the mediastinum. At this stage the patient was seen by Dr. Haslett of Cheltenham, who diagnosed a ruptured diaphragmatic hernia. The patient's general condition deteriorated rapidly, the respiration rate rose although the vomiting became less frequent, and he died in the early hours of Jan. 16.

Necropsy.—This was performed 36 hours after death. On opening the chest it was noticed that the left lung was collapsed. This collapse was old-standing. The pleural cavity was occupied by a mass of blood clot and what turned out to be omentum. In addition there was a loop of gangrenous stomach which had herniated through the diaphragm with a portion of omentum. The right lung showed oedema of the base and a little emphysema at the apex. The hernial orifice was well up towards the mesial attachment of the muscle in the oesophageal opening. The herniated portion of the stomach was in the form of a well-marked diverticulum. No gross ulceration of vessels could be found in the stomach wall, and there is little doubt that there had been a generalized oozing from the strangulated portion of the stomach and omentum. Histologically the mucous membrane of the stomach was necrotic, but there was a distinction between the abdominal and thoracic portions, the glandular structure being preserved in the former, although nuclear staining was imperfect, while in the latter the mucosa had virtually gone, the whole appearance being one of necrosis with extravasated blood extending throughout the wall. At the point of strangulation there was considerable fibrosis of the stomach wall. Sections through the neck of the strangulated portion of the omentum (which weighed 148 g.) showed arteries and veins to be distended with blood clot; in some instances organization had started, but the nuclei of the adipose cells had disappeared, as had also an appreciable proportion of the cells of the vessel walls. There was diapedesis through the damaged vessels, and altered blood pigment was found in the adipose-tissue spaces.

DISCUSSION

We have been unable to find a parallel case in the literature. Blood in the pleural cavity was noted, but only as a fortuitous finding by Alderson (1858), Boysen (1921), Schaper (1925), and Collier, Hurst, and Sheaf (1929). In our case the haemothorax was presumably due to a diffuse oozing from the gangrenous mesentery and incarcerated portion of the stomach, but one or more vessels of larger calibre may have contributed towards the haemorrhage. In this connexion Knaggs (1904) stated: "The ulceration that occurs in strangulation of the stomach seems to be different from ulceration in strangulation of the intestine. In the latter it begins on the mucous membrane surface and extends to the outer coats. In the case of the stomach the available evidence points to extreme distension producing splits through the peritoneal and muscular coats, perforation being staved off for a time by the integrity of the sodden and rotten mucous membrane. Further, ulceration does not appear to have been noted at the seat of constriction, the most common place for it in the intestine."

Jankelson and Morein (1940) have enumerated the pre-operative and post-operative complications of diaphragmatic hernia. Anaemia, they claim, is frequent, and is due to repeated small haemorrhages or oozing from congestion or erosions of the mucous membrane of the lower oesophagus or stomach. Profuse haemorrhages originating from multiple fissures in the constricted portion of the stomach have been observed gastroscopically by Jankelson. Other complications are rupture of oesophageal varices, oesophageal or gastric ulceration, diverticulation, and carcinoma. In addition, volvulus would appear to be a not infrequent cause of incarceration, and in our case torsion of the herniated portion of stomach and mesentery may have contributed to the fatality.

The victims of diaphragmatic herniation thus go through life with many potential dangers threatening them, and it is pertinent to ask if, when discovered by routine examination (and by mass radiography!), they are to be subjected to surgical operation for repair. Our patient's congenital weakness of the diaphragm might have been disclosed earlier had his dyspepsia been investigated radiologically, but his symptoms were of so slight a degree as not to cause him to seek medical advice.

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Pfeiffer's Bacillus Meningitis: Recovery after Sulphapyridine

Before sulphonamide therapy, meningitis due to Pfeiffer's bacillus had a very high mortality rate, especially in children. Aleman (1940) collected records of 478 cases in infants aged 2 years or under. The mortality rate was 97%. Sulphanilamide only slightly improved the figures—82 cases, with 87.8% mortality (Aleman, 1940). But sulphapyridine has given much better results, and Mitchell (1941) found records of 33 patients who recovered after treatment with it: 16 of them had received specific serum also, and 10 of the 33 were aged 30 months or less.

The following brief report shows certain interesting features of a case treated with sulphapyridine: (1) the ease with which a high sulphapyridine level in the C.S.F. was obtained, (2) the high degree of tolerance of the drug; (3) the relapsing of meningitis.

CASE RECORD

A boy aged 3 was playing in the garden on the morning of May 28, 1942, and ate his dinner normally. In the late afternoon he was found in convulsions in his pram. He had never been ill before and was an only child. Both parents were healthy. When seen he was almost comatose, and was twitching constantly. Apart from slight neck rigidity, physical examination was negative. The C.S.F. was turbid and contained many polymorphs. Sulphapyridine was started. Phenobarbitone soluble, gr. 1/2 by injection, was necessary to control the fits. Next day Pfeiffer's bacillus was grown in the C.S.F. The sulphapyridine dosage was 4 g. in 24 hours—one 0.5 g. tablet every 3 hours.

After 48 hours the temperature, which was 102.4° F. on admission, reached normal, and he seemed quite well apart from some neck stiffness. On the third day the C.S.F. still showed Pfeiffer's bacilli on culture and 8 mg. of sulphapyridine per 100 c.cm. The drug was continued. Next day only one colony was grown from the C.S.F., in which the sulphapyridine level was 11 mg. per 100 c.cm. Neck rigidity remained and sulphapyridine was continued for 8½ days, the C.S.F. level on the last day being 5.8 mg. The total dosage was 23.75 g. A blood count on the fifth day showed 4,000,000 red cells, 76% Hb, and 14,500 white cells, of which 70% were polymorphs. On the ninth day the C.S.F. was turbid but sterile, and contained 65 cells per c.mm. (50% polymorphs and 50% lymphocytes) and 40 mg. of protein per 100 c.cm. He was discharged on the sixteenth day, having been clinically normal for 6 days.

Next day he was brought back with neck rigidity and a temperature of 101.4° F. The C.S.F. was turbid, and contained 2,600 cells per c.mm. (50% polymorphs and 50% lymphocytes); its total protein was 70 mg. per 100 c.cm., and it was sterile on culture. He was given another course of sulphapyridine, the total dosage being 10 g. in 3½ days. His temperature was normal the following day and has remained so. 20 days after the initial onset the C.S.F. was clear and colourless and contained 25 cells per c.mm. (90% lymphocytes); total protein 25 mg. per 100 c.cm., chlorides 760 mg.; sterile on culture. He was then quite normal and has continued so. There was no evidence at any time of sinusitis, otitis, or upper respiratory infection. No vomiting occurred throughout the illness.

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Reviews

TREATMENT OF WOUNDS AND FRACTURES

Wounds and Fractures. A Clinical Guide to Civil and Military Practice. By H. Winnett Orr, M.D., F.A.C.S. (Pp. 227; illustrated. 27s. 6d.) London: Baillière, Tindall and Cox.

The Winnett Orr method is now firmly established in surgical practice in the treatment of chronic osteomyelitis and infected compound fractures. The author of the method has been preaching and practising his principles since the last war, but it is only during the last ten or fifteen years that the method has been widely tested and proved. The two essentials in treatment are that effective immobilization of the limb must not be prejudiced by the presence of an open discharging wound and that meddlesome interference with the wound should be avoided by the "no dressings" technique of the closed plaster.

The first section of the book deals with these fundamental principles of the Winnett Orr method and describes in detail the technique of its application. In the treatment of compound fractures a wound excision is performed in the usual manner, the fracture is reduced accurately on a fracture table, and a plaster cast is applied. Two pins, one above and one below the fracture, are incorporated in the plaster to obtain complete immobilization of the fragments, and vaseline gauze is used to dress the wound. The plaster is closed and there need be no interference to inspect and dress the wound unless pain, swelling, or a raised temperature occurs. The author stresses the importance of a thorough preliminary excision; and in the case of wounds already infected and in osteomyelitis adequate drainage must be ensured by the operation before the closed plaster is applied.

The succeeding chapters deal with special problems in fracture treatment which illustrate the application of the Winnett Orr method. Fixed skeletal traction by means of two or more pins figures prominently in the cases illustrated, but wiring and plating of the fracture itself is not advised. No attempt is made to deal systematically with the whole field of fracture treatment, and the cases are chosen largely for their value in illustrating the principles which the author seeks to emphasize. The book is written in a dogmatic fashion, and some of the statements made would be better if they had been qualified in some way. For instance, in the very short section on fractures of the spine it is stated that if the fracture is reduced at once in anatomical position "symptoms of cord injury may be expected to disappear at once." Surely even the Winnett Orr method cannot do this.

The book is well produced and illustrated by a large number of photographs and *x*-ray pictures. Each of the chapters is written round a small collection of selected clinical cases chosen to illustrate views expressed, and this makes the book very practical and readable.

THE LABORATORY RAT

The Rat in Laboratory Investigations. By a staff of Thirty Contributors. Edited by John Q. Griffith, jun., M.D., and Edmond J. Farris, Ph.D. (Pp. 488; illustrated. 45s.) Philadelphia, Montreal, and London: J. B. Lippincott. 1942.

This book deals fully with the rat and its behaviour under normal conditions and under all types of laboratory experimentation to which it has yet been subjected. Probably no other animal has been used in such large numbers or for such a variety of purposes, which is chiefly due to its size and ease of handling, its readiness to eat nearly anything (but in quantity only sufficient to satisfy its hunger), and its speed in reproduction. The editors of this book even claim that the rat "can be readily standardized," which suggests that rats can be expected to respond in equal degree to the same treatment. This is far from the truth; the variation between individuals, even within the same litter, is always large and sometimes appallingly so. Hence large groups of rats are used and comparisons drawn from average results whose reliability may be estimated statistically.

The different chapters in this book have been written by different specialists. They deal with breeding of the rat (and housing, etc.), general methods (of handling for injection, etc.), gross anatomy, experimental methods and rat embryos, dietary requirements, teeth, digestive system, metabolism, central nervous system, techniques for the investigation of psychological phenomena, circulatory system, use of the rat in biological assay of hormones, doses of drugs for rats, haematology of the rat (methods and standards), radiological considerations, surgery of the rat (23 operations), histological methods adapted for rat tissues, the osseous system, the eye of the albino rat, protozoan parasites of the rat, metazoan parasites of the rat, spontaneous diseases of laboratory rats. Each chapter has its own bibliography, and there is a good index; the book contains 1,863 references (unfortunately those for the chapter on the digestive system (1-11) are missing). The diagrams, photographs, and *x*-ray plates are excellent. All experimenters who work on rats will wish to have access to this book and will find in it much of interest on their own subject and much that will be enlightening on subjects of other workers.

PHYSIOLOGY FOR MEDICAL STUDENTS

Handbook of Physiology and Biochemistry. By the late W. D. Halliburton, M.D., LL.D., F.R.C.P., F.R.S., and R. J. S. McDowall, M.D., D.Sc., F.R.C.P.Ed. 37th edition. (Pp. 977; illustrated. 21s.) London: John Murray.

As indicated by the author and on the cover, this book is primarily and essentially meant for the use of medical students. Consequently it could not be expected to be deep or exhaustive in any senses of these terms, and, in fact, it is not. It would be expected to be as clear as possible and as accurate as its brevity would allow, and for the most part these merits must be conceded, though in places it bears marks of slipshod handling. This is perhaps to be attributed to the acknowledged impossibility of any one man being a master of the whole subject, though it often seems that the hapless student is expected to have such knowledge. However, the student's object is to pass his examination, and the author's to put him wise to the task. The long-continued success of this work as a student's book is proof enough that mutual satisfaction has been reached. In future editions it may be worth the author's while to alter Figs. 101 and 104, which depict neurones without cell bodies—a dangerous seed to sow in the mind of a candidate—and we would be glad to see Fig. 197 a little modified too. The index is helpful and complete and the paper and general get-up are of the best.

Notes on Books

To mark the bicentennial conference of the University of Pennsylvania, the University Press have published a pamphlet on ***Problems of Intestinal Obstruction*** (Philadelphia: University of Pennsylvania Press; London: Oxford University Press, 1941, pp. 56; 3s. 6d.). It consists of four papers: the first, on electrolyte balances in the obstruction of the gastro-intestinal tract, is by Dr. J. P. Peters, the John Slade Sly Professor of Internal Medicine at Yale. The next, on distension in intestinal obstruction, is by Owen H. Wangensteen, the second edition of whose book on intestinal obstruction we recently reviewed (1942, 2, 696). Decompression of the intestinal tract is discussed by W. O. Abbott of the University of Pennsylvania, while A. O. Whipple and J. A. Nelson are joint authors of the last paper on the end-results of decompression of the intestinal tract with and without operation. Such problems as transperitoneal absorption, the systemic effects of obstruction, and the effects on the intestinal wall of sustained distension are considered. Expressions like "scout radiographs of the abdomen" (Section III, p. 31) are perhaps rather unusual to us, but how much more graphic is this one than the straight or plain "*x*-ray" which we have been accustomed to ask for? Most abdominal surgeons will value this little book. It is unfortunate that its attractive appearance in clear type on matt paper is marred by the fact that the pages have been put together in wrong order. This should obviously be corrected if, as we hope, a reprint is called for.

The National Baby Welfare Council has just published a leaflet, "The Stammering Child and How He can be Helped," priced at 2d. per copy or 1s 9d. a dozen. Another of the Council's leaflets, "Should we have a Baby in Wartime?" is sold at 2s. per hundred copies. Orders for both leaflets should be sent to the N.B.W.C., 29, Gordon Square, London, W.C.1.

Nova et Vetera

BODIES FOR DISSECTION IN DUBLIN IN 1818

We are indebted to Dr. W. B. Heywood of Newbury for the sight of an interesting letter written in beautiful handwriting by Dr. John Cheyne (1776-1836) to Dr. Edward Percival, son of Thomas Percival, the Manchester physician and author whose *Medical Ethics* is still a book well known in professional libraries. John Cheyne was one of the founders of the Dublin School of Medicine and his name is linked with that of William Stokes in "Cheyne-Stokes respiration." The letter, written from his house in Merrion Square, Dublin, on Dec. 2, 1818, is too long to quote in full. It is largely concerned with the morbid appearances in cases of fever during one of the frequent epidemics. Discussing the post-mortem findings Dr. Cheyne writes:

> "From Macartney's habits of careful observation, I receive his statements with confidence, but I cannot help objecting to the source from which he derives his information, which he says was obtained from an examination of the subjects who were brought into his Theatre with Petechiae on the surface. By the way Petechiae were as rare in the winter as they were common in the summer and autumn, and some kinds of Petechiae can scarcely be distinguished from flea bites. But as the mortality among the poor during the winter was chiefly caused by the Epidemic I am willing to allow that these subjects were really victims of fever. But still I allege that they were not calculated to afford a fair representation of the havock of that disease on the human frame, and the process of disinterment, when explained, will show that my objection is not frivolous.
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> "The Bodies used in most of the dissecting rooms are derived from the great cemetery for the poor called the Hospital Fields—vulgo Bullys Acre; these, there being no regular resurrection men, are procured by the pupils who, fixing upon a grave, are influenced by the appearance of fresh earth scattered around it, by the freshness of the sods if there are any, and by the looseness of the substratum of soil, which is probed by a pointed iron instrument called 'a poker.' But notwithstanding great enterprize and exertion and disregard of danger which sometimes is also great, the work being done by amateurs, and not by regular members of this part of the profession, disappointments ensued, and the subjects raised were often in an advanced stage of putrefaction and certainly the dissecting rooms are often supplied with bodies which have been under ground for a fortnight or three weeks. In the work of exhumation the upper part of the grave is cleared, the corresponding part of the lid of the coffin is torn up, and then by means of a noose round its neck the body is extracted by main force. The bodies tied up in a sack, neck and heels, are subject to great violence during their transport from the Burying ground—as for example, they are dropt from a high wall, by which as is well known fractures of the cervical vertebra not unfrequently occur. To conclude, the cadaver is roughly handled in the dissecting room, being often left with the head hanging over the table, by which means the blood gravitates and *congestion* of the brain to a great extent is the consequence. With regard to the colour of the intestines I rather think, when putrefaction is advanced, extravasation takes place and a more uniform dark colour than natural. From the foregoing account which is not exaggerated it may be affirmed that the condition of the capillary system cannot well be learnt from an examination of the bodies which are usually brought into a public dissecting room.
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> "As to our own proceedings at the House of Industry from which conclusions so different have been drawn. The body is removed to a deadroom in a coffin—the dissection is made in almost every instance within 24 hours after the patient's death and the particulars of the dissection are committed to writing as a sequel to the case which generally is regularly reported."

HISTORY OF BLOOD TRANSFUSION

A note on the history of blood transfusion by Eric L. Cooper (*Austral. New Zeal. J. Surg.*, 1941, 11, 84) reminds us that it is not a modern innovation. In 1490 three small boys gave their blood, at the rate of 10s. a head, to Pope Innocent VIII. All three donors died, but whether their blood was actually transfused is doubtful, Dr. Cooper believing that the patient probably drank a mixture containing blood and stimulants. In 1615 Andreas Libavius, and in 1653 Robert des Gabets, a monk of Cluny, described procedures for blood transfusion. In 1657 Christopher Wren and Robert Boyle tried the effect of injecting various substances into the veins of animals. Then, in 1665, Richard Lower, at Oxford, successfully transfused blood from one animal to another by joining the vertebral artery of the donor to the jugular vein of the recipient. Jean Baptiste Denys, in Paris, is said to have been the first to transfuse blood into a man when, in 1666, he injected 9 oz. of lamb's blood into the veins of a youth suffering from a prolonged fever. A year later Richard Lower transfused the blood of a lamb into a Mr. Arthur Coga, with the result that he "kept back impending insanity." After his fourth patient to be transfused had died as the result of an incompatible transfusion, Denys was charged with murder, but was acquitted, the Parlement of Paris forbidding further experiments on human beings. A Papal Edict in 1675 forbade the further transfusion of blood. Work on blood transfusion then had a setback for a hundred years, and towards the end of the eighteenth century interest was revived by, among others, Erasmus Darwin, the grandfather of Charles Darwin. Matters were carried much further by the eccentric James Blundell, who was obstetrician and anatomist at Guy's and St. Thomas's. In 1818 he invented a syringe with a three-way tap for direct transfusion. It is interesting to recall that in 1857 Higginson performed seven successful transfusions with the syringe which still bears his name. Virchow and Bischoff, in 1835, had used defibrinated blood, and this was subsequently also used at Bart's in 1873 by Thomas Smith. Attempts were made to delay clotting by adding ammonium sulphite in 1867 and sodium phosphate in 1868. A turning-point in the history of transfusion was the introduction of paraffin-coated transfusion apparatus. Then, in 1915, citrated blood was used for the first time. Apart from the prevention of clotting, the other essential step to make blood transfusion safe was taken when Landsteiner, and also Shattock, in 1900 demonstrated the presence in the blood of iso-agglutinins and established three blood groups, to which a fourth was subsequently added.

TWO PIONEERS OF AMERICAN MEDICINE

Doctor Bard of Hyde Park · The Famous Physician of Revolutionary Times, the Man who Saved Washington's Life. By John Brett Langstaff Introduction by Nicholas Murray Butler. (Pp. 365. $3.75.) New York · E. P. Dutton & Co., Inc. (302, Fourth Avenue, New York, N.Y.).

There were two Dr. Bards—John the father and Sam the son—both of them outstanding men of their time; and while this volume chiefly deals with the latter, there runs through it a constant reference to Dr. John Bard, the father, who set himself to elevate the medical profession in America. He founded the American Medical Society and became first Health Officer of New York. In the eighteenth century quack doctors, who were his pet aversion, "abounded like locusts in Egypt: they were mere pretenders to a profession of which they were entirely ignorant." Dr. John Bard, born in 1716, lived 83 years, and was proud of the achievements of his son Dr. Sam Bard, who is the subject of this biography.

In 1761 Sam embarked for England. On reaching London he studied anatomy under William Hunter and then went north to Edinburgh, where he became a distinguished student and medallist, graduating in 1765 and returning to New York a year later. During these years the father's enthusiasm was a constant spur to his son's activities. When Sam came back his father handed over his practice, the foremost in the city, and retired to the family estate of Hyde Park. The next 40 years were for Dr. Sam Bard full of social, cultural, and political activities, but he ever kept the advancement of scientific medicine in the forefront; he even found time for study and the writing of books and monographs. He lived in the stirring historical period of the American Revolution and the Declaration of Independence. He worked hard to found the New York Medical School (Columbia University), which four years later had the distinction of granting the first American degree of M.D. He organized other scientific societies, founded a State medical library, and inaugurated the New York Hospital.

Sam Bard was the Osler of his day, and the same could be said of his father. The author, Mr. Brett Langstaff, spent six years of research in compiling the biography of these two eminent eighteenth century doctors. American readers will find this book intensely interesting: British readers also will enjoy its quaint lore and historical accuracy. The book is a model of how a medical biography should be written.

C. J. Brim (*Arch. Derm. Syph.*, Chicago, 1942, 45, 371) suggests that Job's illness, which has been variously identified with syphilis, leprosy, and other skin conditions, was really pellagra, and draws attention to the similarity of the symptoms in Job's case with that of a typical example of the disease.

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TREATMENT OF MALARIA UNDER WAR CONDITIONS

With the Allied armies operating in many tropical and subtropical malarious countries and the certainty that men from these armies will return infected to this country, not to mention other sources of malarial infection brought about by the war, it may be taken as certain that many medical men who have never had anything so far to do with malaria will find themselves called upon both to diagnose and to treat this disease. To make things more difficult, the old and familiar quinine salts so long used in this connexion will, from lack of adequate supplies, almost certainly under present conditions have largely to give place to treatment by new and unfamiliar synthetic compounds. Ideas of treatment, too, have changed a good deal lately, and drug prophylaxis has assumed an importance which it never before had. Yet, all things considered, the treatment of malaria in recent years has become much simplified. Indeed, treatment and prophylaxis of malaria are in practice by no means so complicated as the mass of detail in the literature might lead the beginner to suppose. In relation to the war there are short helpful pamphlets issued by the War Office[1] and the Ministry of Shipping[2] relating to Army treatment and malaria among seamen respectively. Recently a paper read before the Royal Society of Tropical Medicine and Hygiene by Sir Rickard Christophers,[3] the President, has dealt with the elements of treatment in special relation to the use of the new synthetic drugs. We may note also a paper read at the same meeting by Major T. Rowland Hill, R.A.M.C., dealing with malignant tertian (*falciparum*) malaria among troops engaged in military operations.[4]

What, then, are the chief points the beginner should know? In the first place it is necessary to distinguish between treatment of an attack of malaria and so-called prophylaxis or, more correctly, drug prophylaxis. The only drug for both treatment and prophylaxis, apart from quinine, is the synthetic drug mepacrine (the pharmacopoeial name for atebrin). This is the only completely satisfactory substitute that will in practice be available. Mepacrine is a British-manufactured drug. It is made available in two forms—namely, the drug as ordinarily used in small tablets of 0.1 gramme, and as an extra-soluble form in ampoules for injection. Mepacrine is not to be regarded as a mere second-best substitute for quinine. It is a drug as potent as, if not more so than, quinine, and it is one that can be used safely and even with some advantages over quinine. In all cases in which there is no serious reason to the contrary, both with quinine and with mepacrine, administration should be by the oral route. Another British-manufactured drug, pamaquin (the pharmacopoeial name for plasmoquin), is likely also to be available, but it is not a substitute for mepacrine or for quinine and is now not used alone either in treatment of the acute attack or in prophylaxis. It is thought by many to aid treatment by reducing the liability to relapse or to be an adjuvant in after-treatment and prophylaxis. This need not unduly concern the beginner, for it cannot be said that pamaquin is a necessary drug in the sense that mepacrine is, and its use can be left to be decided upon as experience may suggest. Pamaquin is much more toxic than mepacrine, and is used in doses not exceeding 0.02 gramme often combined with quinine (quinoplasmin, etc.). It should not be given at the same time as mepacrine but may follow or alternate with this. The curative dose of mepacrine—i.e., the dose used in treatment of an attack of malaria (we refer only to the adult dosage)—is 0.3 gramme taken in three spaced doses (three 0.1-gramme tablets) a day, preferably after food (or with milk), as there is a slight tendency to minor gastro-intestinal symptoms. Usually after a mild purgative this dosage is begun early and continued for seven days. If the fever has not subsided by the end of this period it is to be suspected that some other condition than malaria is present. The reasons why administration is not continued in any one course for a longer period than seven days are (1) that it is not necessary, and (2) that mepacrine has a rather marked cumulative effect. There is no objection, however, to a repetition of such a course after an interval, say, of a week's time.

This simple procedure constitutes the essentials of the treatment of a malaria attack—namely, the temporary destruction of the parasites. It is very doubtful whether with either mepacrine or quinine more prolonged treatment at this time will effect any more complete destruction, and one must trust ordinarily to treating as a further attack any relapse which may subsequently develop, though something may be done in the way of after-treatment to reduce the chances of this. Much attention has been given to methods of reducing liability to relapse by after-treatment. But without invaliding to the base or home it is not very probable that in war conditions much more than treatment of attacks as they occur and the usual prophylactic dosage can be carried out in the field. Quinine is sometimes used to start a treatment by mepacrine, and many modifications have been recommended by different authors, but these again are a matter for personal predilection and experience. One consideration in treatment is very important and requires constant vigilance and prompt action: this is, when dealing with *falciparum* infection, to anticipate the onset of coma or other pernicious manifestation indicating serious danger of death. *Falciparum* infection, or so-called malignant tertian, is the common malarial infection contracted by Europeans in the Tropics. In spite of the name attacks are not necessarily severe, but the parasite has the property not possessed by any other malarial parasite of giving rise, often rather suddenly or insidiously, to pernicious manifestations the normal end of which, unless promptly countered, would be death. The indication in such an event is to get the specific drug at all costs at once into the circulation, and it is usually taught that an immediate injection should be given intravenously, this being the quickest known route of administration. Intramuscular injection is also recommended by some authorities, but in the case of quinine there is a divergence of opinion. With mepacrine the local necrotic effects produced by the quinine salts usually used appear to be absent, and intramuscular injection, which need not be into the gluteal region, has been widely employed and apparently without objectionable effects. If intravenous injection is difficult, intramuscular administration of mepacrine may therefore be substituted, but intravenous injection is perhaps more rational and better practice. The precaution should be taken to inject slowly.

The usual prophylactic dose of mepacrine is 0.2 gramme (two 0.1-g. tablets) a day, given on two successive days each week. This is roughly the equivalent of the usual 5 grains of quinine daily. As pointed out by Major Rowland Hill in the paper referred to above, malaria has often decided the course of a campaign, and the only practicable way to prevent malaria where troops are operating in the face of the enemy is drug prophylaxis. It is therefore vital that this should be appreciated by all, including the ranks themselves. In our present armies the intelligence of the private soldier is high, and his education and instruction in self-protection should be more effective in bringing about the desired result than reliance solely on the old and very imperfect mechanism of the quinine parade. Mepacrine in certain amount produces a yellow coloration of the skin. This is quite harmless and merely due to the colour of the dye. It is in no way related to jaundice, nor is it evidence of constitutional disturbance. Some harmless temporary yellow coloration, even if it affected every individual in the Force, would be a small price to pay for immunity to malarial attack and success of a campaign which might otherwise have failed.

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[1] War Office: Notes on Treatment of Malaria in Individuals Returning from Malarious Areas. H.M.S.O., 1941, London.

[2] Ministry of Shipping Malaria among Merchant Seamen. Memorandum for the Use of Ships' Surgeons Notice 195, 1940, London. Also Notice No. 178 drawn up for captains of ships and laymen.

[3] *Trans. roy. Soc. trop. Med. Hyg.*, 1942, 36, 49; and discussion, p. 66.

[4] Ibid., p. 75.

AGAINST TETANUS

Passive immunization of the wounded man with tetanus antitoxin served us well in the war of 1914-18. This method is still current in the German-controlled areas, but in most of the Allied armies active immunization is now the custom. The technique of active immunization is not yet uniform. British authorities and the American Army use formol-toxoid; the American Navy favours tetanus alum-toxoid, which has remarkably high immunizing potency. All give at least two injections about a month apart. In the English Army immunization is voluntary. Most armies practise re-immunization, and it is understood that the British give further injections at intervals. The Americans re-stimulate with a third dose of toxoid after six months or before embarkation or entry into active fighting, and periodically thereafter. Practice also differs somewhat when the wounded soldier first comes under medical care. The British give a prophylactic injection of tetanus antitoxin to all accessible wounded irrespective of previous immunization. The Americans and Canadians trust to the rapid increase of immunity after an "emergency stimulating immunization" with an extra dose of toxoid, reserving antitoxin for the treatment of clinical tetanus.

To what degree are our men protected against tetanus? The experience of the B.E.F. in Flanders and France was suggestive. The published figures show that some 80 to 90% of about a quarter of a million men had received immunizing injections of tetanus toxoid. Among the 10 to 20% not immunized, 8 cases of tetanus occurred during the Dunkirk period; there were no cases among the immunized. As no method of active immunization gives absolute protection against the highest possible risk, it is reasonable to expect an occasional case of tetanus in the present heavy fighting, and, according to Col. Boyd,[1] cases have occurred. His paper will be studied with much interest. The outstanding points are clear. Tetanus is rare in the Middle East fighting zone, but the risk is there, for in wound swabs from 494 soldiers not suffering from tetanus 2 cultures of tetanus bacilli were found. Among large forces from the United Kingdom, India, and New Zealand, who were the most highly immunized, the incidence of tetanus was 0.13 per 1,000 wounded; among the South African Forces, among whom immunization was not in vogue in the early part of the war, the incidence was 1.6. The figures are small—11 British cases with 4 deaths, and 7 prisoners of war with 5 deaths—but, analysed in every way, they "afford evidence of the value of inoculation," though 5 actively immunized men suffered and 3 died. None of the 5 had, on being wounded, received the prescribed dose of prophylactic antitoxin. There was no convincing evidence for or against the utility of chemotherapy.

We do not know what precisely is the complex relation in the immunized animal between the toxin of the developing tetanus bacillus on the one hand and the antitoxin-producing cells and the highly receptive local nerves on the other. It is easier to understand what happens in the unimmunized animal when in the laboratory toxin is injected into the tissues. The dose of toxin is limited and is not being added to continuously by fresh toxin made by the living bacillus. If the animal thus injected with diphtheria or tetanus toxin has in its blood sufficient antitoxin to overwhelm and neutralize the whole of the toxin, it does not suffer any ill effect. But if it has no antitoxin or an insufficient amount, the toxin at once attacks or is absorbed by the cells susceptible to it. We know from the timed-Schick-test experiments of Glenny and Hopkins[2] in guinea-pigs that some of the toxin is attached to the cells in thirty minutes, for no amount of antitoxin after that time will prevent some small reaction in the skin. After three to six hours all the toxin is absorbed by the susceptible cells, for even a large excess of antitoxin injected intravenously will not avert the appearance in due course of a full-sized Schick-positive reaction. Similarly, if a fatal dose is injected subcutaneously it is all absorbed within eight to twelve hours, and death will occur despite huge amounts of antitoxin injected intravenously.

In the immunized animal conditions are more complex Zuger[3] and his co-workers have studied what happens when tetanus spores and irritant are, later, injected. They protected guinea-pigs by two spaced doses of tetanus alum-toxoid. After intervals of some months they injected a lethal mixture of tetanus spores into immunized animals. The group of animals thus treated possessed considerable immunity, for only 17 of 76 showed symptoms of tetanus, though the dose of spores was sufficient to kill all of 20 unimmunized control guinea-pigs. Into 75 immunized guinea-pigs there was injected an additional dose of tetanus toxoid at the same time as the tetanus spores; the effect of the additional toxoid was apparently to reduce the incidence of tetanus, for only 8 of the 75 developed local, non-lethal tetanus. In the immunized animal infected with tetanus spores, toxin may be formed slowly or rapidly, depending on the amount of injured or necrosed tissue and on the intensity of infection. If it develops slowly, as it presumably did in Zuger's experiments (for 64% of his animals did not develop rigidity until the seventh day), the production of antitoxin by the appropriate cells, trained to their work by the original immunization, may be moderate or great. An additional dose of immunizing toxoid given at the time of infection or wounding apparently much hastens and magnifies the production of antitoxin, but this process may not operate quickly enough to overwhelm toxin generated immediately after the injury. In Boyd's apt phrase, the toxin outpaces the antitoxin. Zuger's results and Boyd's cases are consistent with the deduction we can draw from the earlier experimental work. This strongly indicates that the fate of the infected immunized animal depends primarily on the amount of antitoxin ready formed and present in the circulation at the time of infection. This antitoxin is ready to seize on and neutralize the first toxin produced.

Experience of passive immunization in the American Fourth-of-July tetanus campaign and in the war of 1914-18 indicates that a dose of 500 to 1,500 units of tetanus antitoxin (=1,000 to 3,000 international units) gives high protection against tetanus. After this quantity the blood shows an early concentration of about 0.1 to 0.2 unit per c.cm. This titre has been aimed at by many investigators of active immunization, though figures ranging from 0.01 (Boyd[4]) to 5.0 (Peshkin[5]) are found in the literature. Evans[6] found that most of his adults four months after immunization against tetanus had more than 0.01 unit per c.cm., and Marvell and Parish[7] found 0.1 unit or more in 40 of 61 people bled about six weeks after two spaced doses of tetanus toxoid. The immunologist would expect titres of this kind to confer solid protection. Yet Zuger's figures make us pause. Of 49 immunized guinea-pigs with more than 5 units at the time of injection of spores, one which received no additional toxoid developed general tetanus and 4 suffered from local tetanus. For further evidence we must await further experience. Meanwhile two clear conclusions emerge. We must aim at the highest possible concentration of tetanus antitoxin in the blood of every soldier exposed to risk; this can be attained by periodical re-stimulation with tetanus toxoid of all soldiers; the argument for giving prophylactic antitoxin to wounded men seems at present cogent. With regard to surgery, Boyd, like all with experience, stresses the paramount call for immediate and adequate surgical attention to damaged or necrosed tissues. Naturally, these same lines of argument are in general applicable to gas gangrene.

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[1] *Lancet*, 1942, **2**, 745.

[2] *J Path. Bact.*, 1925, **28**, 2611.

[3] *J. Immunol.*, 1942, **44**, 309.

COLLAPSE AND BRONCHIECTASIS

The finding of bronchiectasis in association with pulmonary collapse has given rise to much speculation on the nature of the relation between these two conditions. Tannenburg and Pinner[8] have produced collapse of a lung in rabbits both by means of a rigid bronchial plug and by bronchial ligation, and they have studied the condition of the bronchi in lungs so collapsed. They found that the first change after the bronchus had been blocked was rapid deflation of the lung owing to absorption of its contained air. This phenomenon was first demonstrated by Lictheim[9] in 1879, and it is interesting that Tannenberg and Pinner found that the lung could become completely collapsed in less than 20 minutes. The bronchi took part in this process and were at first constricted. In the absence of infection the lung could remain in this condition for many weeks, but in most animals the bronchi in the collapsed lung were found at necropsy to be dilated and full of muco-purulent secretion. Sections of the bronchial walls showed them to be thinned and infiltrated with inflammatory cells but not ulcerated. The introduction of infected material into the bronchus before ligation produced gross septic bronchiectasis with ulceration and destruction of the bronchial walls. Removal of the bronchial plug after 7 to 10 days usually resulted in complete re-expansion of the lung with restoration of the bronchi to their normal condition. These authors conclude that the chief factor which causes bronchiectasis in collapsed lung is infection. If this is mild the bronchi are merely distended with exudate and not damaged; but if severe an irreversible deformity results. As they obtained similar results in the presence of a pneumothorax they state that the negative pressure in the thorax is not a factor in the production of bronchiectasis. This explanation is probably true of those cases in which a large bronchus is firmly and completely obstructed, but such an occlusion is comparatively rare in the human subject. Instances are common in which bronchography has demonstrated bronchiectasis in a collapsed lobe very shortly after the occurrence of the collapse, thus showing that the bronchus supplying the lobe is not obstructed but widely open and dilated. Some other explanation must be found for these cases, and that advanced by Lee, Lander, and Davidson,[10] [11] and also by Andrus,[12] seems the most probable. These authors consider that the obstruction in such cases is due to a plug of viscid secretion which is sucked gradually out towards the periphery until it finally becomes split up into a number of tiny plugs which occlude the finer bronchioles. These effectively prevent aeration, and the lung remains collapsed. The large bronchi in the collapsed area are not cut off from the outside air and are subjected to atmospheric pressure, while the negative pressure in the thorax is increased owing to the shrinkage of the lung. This suction is transmitted directly to the bronchi through the inelastic collapsed tissue around them and therefore they dilate.

Thus it seems that in those instances of pulmonary collapse in which there is not complete obstruction to the main bronchial supply the collapse is probably due to peripheral obstruction, and bronchiectasis is caused by the increased negative pressure in the thorax. On the other hand, in those rare instances where the main supplying bronchus is completely occluded the bronchi are at first constricted, owing to the absorption of the air within them, but later become distended with inflammatory exudate. In both conditions severe infection may ensue and cause a permanent bronchiectasis by ulceration of the bronchial walls

JAUNDICE AND YELLOW FEVER VACCINE

The occurrence of jaundice in patients a considerable time after they had been inoculated with a yellow fever vaccine and immune serum was described by Findlay and MacCallum[13] in England in 1937 and by Soper and Smith [14] in Brazil in the following year. The available data indicated that the disease was not yellow fever in any form. It was later suggested by Findlay and MacCallum[15] that the causative agent of this condition might have been a virus which was present in the human serum used either for growing or suspending the virus or in the immune serum inoculated with the vaccine. Both the above groups of workers restarted their cultures with a clean strain of virus, and all serum used was heated for at least 30 minutes at 56° C. No further cases have followed the use of vaccine made in England since November, 1937. After over a million people had been inoculated in Brazil the condition reappeared again in October, 1939, in about 27% of a group of 304 persons all inoculated by Fox *et al.*[16] with one lot of vaccine about four months previously. In May, 1940, more cases appeared, related to a small number of different lots of vaccine. Out of approximately 107,000 people injected with the incriminated batches there were 1,072 who became icteric after an incubation period of 12 to 20 weeks. The most recent and astounding example of this phenomenon occurred in 1942, when 28,585 cases with 62 deaths were reported[17] in the American Army after the use of a similar vaccine. Clinically many of these cases closely resemble those of infective hepatitis (catarrhal jaundice), but in the latter the incubation period is usually between 20 and 32 days in contrast to that of 8 to 20 weeks in the post-inoculation cases. In earlier reports,[18] in spite of the difference in incubation period, it was suggested that these two conditions might be caused by the same virus, but the accumulation of information as a result of these recent large outbreaks has provided evidence of a much greater incidence of joint pains and skin lesions of different types than have been recorded in infective hepatitis. Fox and his colleagues also noted a much higher incidence in the older age groups in their vaccinated population. Fortunately all information available at present indicates that in the average patient hepatic damage is slight and repair prompt and complete. As the tendency is to incriminate the human serum used for suspending the virus in the vaccine, the serum has been eliminated from use in both North and South America, and the vaccine is now merely an extract of finely ground infected chick embryos diluted with distilled water. A somewhat similar condition occurring in children after the use of measles convalescent serum and adult serum was described by MacNalty[19] in 1937 and Propert[20] in 1938. There was a long incubation period of 8 to 12 weeks, followed by hepatitis of varying severity but in general more serious than in the post-vaccine cases. This latter may have been the result of the very much larger quantity of serum which the children received. Neither in this instance nor in the use of vaccine in England or in South America was there any history of jaundice in any of the donors of the serum. The view that this condition is caused by an infective agent has not as yet received any experimental or clinical proof. All attempts at animal transmission have been unsuccessful, and there have been no recorded instances of suggestive contact cases except by Propert. The view that the disease is caused by the action of some toxic agent or peculiar property of certain human sera receives some support from accounts of similar happenings in horses many weeks after the inoculation of horse serum in immunization against horse sickness,[21] equine encephalomyelitis,[22] and anthrax.[23] It is desirable that physicians should make sure that their cases of so-called catarrhal jaundice may not have some other origin.

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[4] *J. R.A.M.C.*, 1938, **70**, 289.
[5] *Amer. J. Dis. Child.*, 1941, **62**, 309.
[6] *Lancet*, 1941, **2**, 628.
[7] *British Medical Journal*, 1940, **2**, 891.
[8] *J. thorac. Surg.*, 1942, **11**, 571.
[9] *Arch. f. exp. Path. u. Pharm.* 1879, **10**, 54.
[10] *Brit. J. Radiol.*, 1938, **11**, 65.
[11] *British Medical Journal*, 1938, **1**, 1047.
[12] *Amer. Rev. Tuberc.*, 1937, **36**, 46.
[13] *Trans. roy. Soc. trop. Med. Hyg.*, 1937, **31**, 297
[14] *Amer. J. trop. Med.*, 1938, **18**, 111.
[15] *Proc. roy. Soc. Med.*, 1938, **31**, 799.
[16] *Amer. J. Hyg.*, 1942, **36**, 68.
[17] *J. Amer. med. Ass.*, 1942, **119**, 1110.
[18] *Trans. roy. Soc. trop. Med. Hyg.*, 1939, **32**, 575

LIVER PUNCTURE

The differential diagnosis of hepatomegaly or jaundice rests only too often on the results of laparotomy or the findings at necropsy. Cullinan[24] has pointed out that there is very considerable risk that death may follow from haemorrhage or liver failure if the abdomen is opened in subacute necrosis of the liver. Iversen and Roholm[25] have recently elaborated a method of liver biopsy which enables them to study the histology of the liver during life without opening the abdomen. A liver puncture is made with a trocar through the 9th intercostal space and a column of liver tissue is obtained by aspiration. The specimen is one to two centimetres long and about two millimetres in diameter. The procedure itself is usually painless, though a few patients experienced severe pain, and two had minor reactions with sweating, pallor, and nausea. Two also had a rise of temperature lasting a day or two. The real danger of the method lies in the risk of haemorrhage. Iversen and Roholm record no fatalities in 116 aspirations, but at necropsy on one patient with obstructive jaundice, who died 9 days after the puncture, 1½ litres of blood-stained fluid was found in the peritoneal cavity, and in another there was a large clot at the site of the puncture. Baron[26] and Köfler[27] have also used liver puncture but prefer a subcostal approach, as they consider there is less danger of bleeding from capsular tears. Baron had one fatality from haemorrhage, and in one case a piece of colonic mucous membrane was aspirated, although, surprisingly, no evidence of perforation could be found at operation. Köfler used both methods of approach, and among 100 aspirations there were two deaths from haemorrhage.

Although this is obviously a risky method of investigation, it has proved to be of real use. Roholm and Iversen[28] studied infective hepatitis, obtaining a clear picture of the histology at all stages of the disease where jaundice was present. They found well-marked inflammatory changes with destruction of the trabecular structure and disintegration of the parenchyma cells. There was a varying amount of proliferation of the connective tissue, which in three cases suggested a cirrhosis. The interlobular bile ducts were unaffected. Köfler confirmed their findings. Roholm and Krarup[29] studied the changes in obstructive jaundice. Obstruction due to gall-stones or to cancer caused the same type of change. Cirrhosis was late in appearing and was marked only after the 180th day of jaundice. In cholelithiasis the changes subsided rapidly if the jaundice was of short duration. Baron showed that this method was also useful as a purely diagnostic procedure. Among 18 cases of hepatomegaly he was able to prove secondary carcinoma in 12 cases, and to diagnose such comparative rarities as congenital cystic disease and cavernous angioma as causes of enlarged liver. Aspiration failed to reveal carcinoma in only two cases in Baron's series, although Iversen and Roholm recorded 22.5% of aspirations as complete failures. The risk of haemorrhage appears to be highest in severe anaemia and haemorrhagic diathesis, and here liver puncture should be avoided. The tendency to bleed in obstructive jaundice can be overcome by the use of vitamin K. In spite of its dangers, this seems to be a really valuable procedure, which could throw new light on the development and pathology of many obscure conditions.

THE PRIME MINISTER'S PHYSICIAN

All members of the profession will wish to join us in congratulations to Sir Charles Wilson on the high honour conferred upon him by the King. His services to medical education and in particular to St. Mary's Hospital are widely recognized, and his acute and alert mind must be of benefit to the House of Lords. But the appreciations printed so far have scarcely touched upon the outstanding fact that the President of the Royal College of Physicians of London, now in his second year in that chair, is the personal physician to Mr. Churchill and as such has flown with the Prime Minister to at least three far-distant Allied capitals on missions of great consequence to the united war effort. The elevation of Sir Charles Wilson to the peerage may well be regarded as a public acknowledgment not only of his merit as an adviser on medical policy at No. 10, Downing Street, but also, and far more important in these momentous times, of his value to our country and our allies in safeguarding the health and energy of the statesman who leads and personifies the British will to victory. This is a very responsible key post, though unmentioned in the official New Year Honours list, and no praise or reward can be too high for its successful holder

"Aids to the Investigation of Peripheral Nerve Injuries" is the title of M.R.C. War Memorandum No. 7, compiled by the Nerve Injuries Committee of the Medical Research Council (H.M.S.O., York House, Kingsway, London, W.C.2; 2s. net). After a short introduction of a page and a half the remaining 46 pages consist of photographs and diagrams designed to show those "less experienced in the examination of patients with lesions of peripheral nerves" how to diagnose these. This admirable atlas has been prepared by the staff of the Department of Surgery, University of Edinburgh.

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[19] *Ann. Rep. Chief Med. Off. Min. Hlth.* for 1937, H.M.S.O., London, 1938.
[20] *British Medical Journal*, 1938, **2**, 677.
[21] 5th and 6th reps. of Director of Vet. Res., Union of S. A. Dept. Agric., 1918, 7.
[22] *J. Amer. vet. med. Ass.*, 1938, **93**, 285.
[23] *Norsk. vet. Tidsskr.*, 1938, **50**, 69.
[24] *St. Bart's Hosp. Rep.*, 1936, **69**, 55.
[25] *Acta med. scand.*, 1939, **102**, 1.
[26] *Arch. Intern. Med.* 1939, **83**, 276
[27] *Z. klin. Med.* 1940, **138**, 744
[28] *Acta path. microbiol. scand.*, 1939, **16**, 427.
[29] *Acta med. scand.*, 1941, **108**, 48.

CONTINUING RESEARCH ON CANCER

The nineteenth annual report of the British Empire Cancer Campaign is less bulky than its predecessors, but in smaller type it gives probably the same amount of information. It was presented to the annual general meeting of the Campaign on Dec. 15, the Duke of Gloucester presiding. Reports from some twenty-four research departments or branches of the Campaign in this country and eleven over-seas, as well as from a number of individual workers, are embodied. The Campaign has spent £100,000 since the war began, and has subsidized to the fullest extent every associated research centre.

Nutrition in Relation to Cancer Incidence

Bittner found that there exists in the milk of female mice of high-breast-cancer strains a factor concerned in the development of spontaneous breast cancer. In the Department of Experimental Pathology and Cancer Research of the University of Leeds this observation has been used in studying the effects of oestrogenic stimulation upon male mice. The newly born young of high-breast-cancer strain were transferred as soon as possible after birth to mothers of low-breast-cancer strain, and vice versa, and in the young males after weaning injections of triphenylethylene were made and continued until death. The results so far indicate that there is an almost complete reversal of the expected incidence of breast cancer in the treated males. Of the mice which have died only one high-breast-cancer mouse suckled by a low-breast-cancer foster-mother developed breast cancer, whereas all but three of the low-breast-cancer mice suckled by a high-breast-cancer foster-mother have died of breast cancer. The untreated female litter-mates have also been observed, and again the effects of deprivation of the milk factor are very marked. In another laboratory, at the Royal Victoria Infirmary, Newcastle-upon-Tyne, by fostering mice of low-cancer strain on females of high-cancer strain, the incidence of mammary carcinoma in the former has been raised from about 5% to nearly 60%.

Again at Leeds an attempt to induce lung cancer in mice by intranasal administration of methylcholanthrene and 1:2:5:6 dibenzanthracene has produced an interesting and unexpected result in the appearance of breast tumours in several of the experimental animals, and when pure inbred strains were used it was found that mammary cancer occurred in two strains in which it had not been known to occur spontaneously. It is suggested that the most probable explanation is that the carcinogen reaches the breast via the nipple and exerts a genuinely local effect on the mammary epithelium.

Other work on carcinogenesis comes from the Sir William Dunn School of Pathology at Oxford, where it has been shown that there are substances which, although incapable of producing the pre-carcinogenic state, are yet capable, when applied to skin already rendered neoplastic by other means, of precipitating the development of papillomata, and also, when allowed to act on papillomata already established, of facilitating their conversion into malignant tumours. It seems, therefore, that carcinogens may be resolved into three independent components, and the substances concerned in the process may be divided into "complete" carcinogens, when they are able to induce all three actions (that is, pre-, epi-, and meta-carcinogenic), and "incomplete" carcinogens when, like croton oil, they can induce only one of the processes. The existence of "incomplete" carcinogens may have important clinical implications.

A very interesting piece of work in general pathology comes from the Glasgow Royal Cancer Hospital. Last year two workers there reported that rats fed on an adequate basal diet to which heated lard was added developed vitamin A deficiency and papillomatosis of the fore-stomach, a lesion which could be prevented or cured by the addition of raw carrot to the diet. It has now been shown that similar protection is afforded by adding cod-liver oil, and further that the change from white bread to national bread has stopped the occurrence of gastric papilloma in rats on a diet poor in vitamin A.

Clinical Research

Finally, passing over much other work of interest, including progress in the correlation of the quantities of energy involved in the medical use of different types of radiation, a further detailed analysis by the Clinical Cancer Research Committee of the Campaign is given. This year it concerns 473 cases of carcinoma of the oesophagus registered in London hospitals during 1938 and 1939, together with a brief review of 65 cases of post-cricoid carcinoma. Figures are given showing the site of the disease, the stage to which it had advanced on admission to hospital, the procedures used to confirm the diagnosis, the treatment, and the results. The first symptom was dysphagia in 67% of the cases; in the remainder, misleading symptoms led to mistakes in diagnosis. In only 5 cases was radical surgery possible. An analysis shows the high mortality of exploratory operations and the operative risks of intubation or dilatation. The results of radiation treatment were disappointing. Of the 65 patients with post-cricoid cancer, 56 died in the first year from the beginning of treatment, 3 died in the second year, and 1 in the third; 2 of the remaining cases are known still to be alive and 3 are as yet untraced. Of the 473 patients with carcinoma of the oesophagus, 399 died with cancer in the first year, 19 in the second year, and 5 in the third. A significant point is the sex difference. Of 65 cases of post-cricoid cancer, 54 (83%) were in females, whereas of 473 cases of oesophageal cancer only 76 (16%) were in females. The mean age of the post-cricoid cases was 65 years for males and 55 for females, and that for the oesophageal cases, 64 for males and 61 for females.

MEDICAL VISITS TO AFRICA AND MALTA

Dr. A. G. H. Smart, medical adviser to the Colonial Office, who has recently returned from the Middle East, and Dr. W. H. Kauntze, assistant medical adviser, who had previously during the year visited Africa, have given brief accounts of their tours to the Colonial Advisory Medical Committee.

Dr. Smart told the committee that one of the main reasons for his visit was to inquire on behalf of the Secretary of State into the welfare and state of health of the people in each territory after the strain occasioned by three years of war. Another was to satisfy himself that liaison between the Services and civil authorities was as complete as possible. He had since reported fully to the Secretary of State on these two aspects of his visit. He dwelt on the position that he had found at Malta, where his visit coincided with the arrival of a food convoy. One thing that had impressed him very much during his tour was the whole-hearted devotion to duty that was apparent everywhere, and he noted how in this effort, as in this country, women were taking a prominent place.

Dr. Kauntze told the committee something of his tour, which occupied six months and covered most of tropical Africa He, too, had certain specific objects in mind during his visit on which he was able to give some information to the committee. Among other things he found that great progress had been made in maternity and child welfare work, more especially in East African territories. He also noted developments in the organizing of dispensaries as welfare centres in West Africa and mentioned the need for an increase in numbers of subordinate staff with better facilities for training. He also spoke of the advance which had been made in medical education at Makerere College in Uganda, and at the Yaba Medical School at Lagos, Nigeria.

INDUSTRIAL MEDICAL SERVICES IN WARTIME

A special meeting of the Association of Industrial Medical Officers was held recently, to which representatives of the Royal College of Nursing, the Association of Examining Factory Surgeons, and the Association of Scientific Workers had been invited, to discuss industrial medical services in wartime.

In opening the discussion Dr. M. W. Goldblatt, who presided, said that planning was necessary both in allocating medical man-power for the industrial medical service and in determining the status and duties of medical officers once they had entered it. Practical schemes for dental and ophthalmic services in industry, the provision of suitable canteens, the training of first-aid personnel, and the education of the worker in elementary principles of hygiene were all matters which should occupy the new medical officer's attention. Sir David Munro pointed out that it was the duty of the industrial doctor to see that we were able to use available labour most economically and avoid wastage by ill-health and accident Dental, ophthalmic, *x*-ray, and rehabilitation services were all necessary to this end. He would like to see an Institute of Industrial Medicine established which would become a centre of research, particularly into toxic substances. In time industrial medicine should have its own diploma. Mrs. A. Perry, S.R.N., said that the scope of the industrial nurse varied in different factories according to the size of the medical department. In a large factory with its own doctor the nurse should be responsible to him, and should enjoy a status equal to that of the welfare officer and personnel assistants. In the smaller factory she should be responsible to the managing director, and could, in many cases, if trained accordingly, combine the duties of nurse and labour officer with considerable advantage to everyone. Dr. J. H. Humphrey of the Association of Scientific Workers said that at present 75% of the workers were in factories of fewer than 1,000 persons and were unlikely to have any industrial medical service. He asked to what extent the results of experience in industrial medicine and hygiene were being recorded and what statistical skill was being brought to bear on them. Dr M. W. Paterson spoke of the good work done by the first-aid personnel, who knew conditions in their own factory and had the confidence of their fellows in the early treatment of the industrial injury. But the existing instruction manuals, he said, were inadequate and present methods needed to be completely revised. Dr. E. H. Strange had found that hygienic conditions in canteens were often bad. The proper washing of dishes and utensils and the control of waste should, he said, be among the matters which the industrial doctor should observe when inspecting a canteen. In the discussion which followed, Dr. Tom Garland said it was clear that the present industrial medical services were inadequate and should be expanded to cover all workers, especially those in the small factory, and that to achieve this State control was necessary.

Reports of Societies

NEUROLOGICAL COMPLICATIONS OF MALNUTRITION

At a meeting of the Section of Neurology of the Royal Society of Medicine on December 17 a short discussion took place on the neurological complications of malnutrition.

Dr. V. P. Sydenstricker, who is in this country with the U.S. Army, spoke on nicotinic acid deficiency, adding that the influence of the deficiency of other vitamins of the B group was not known, though probably all were implicated. The neuropathic symptoms were not specific; they might resemble neuroses of almost any type as well as the ordinary functional and toxic psychoses. Partial deficiency of nicotinic acid caused deviations which at the time were mild but led on to serious anatomical changes. Lassitude, slight mental deterioration, and loss of memory for recent events were common; insomnia, headache, and paraesthesia were also noted, and characteristic glossitis and dermatitis might make their appearance. A large number of patients who were treated before nicotinic acid became available were definitely psychotic, and in severe cases of long duration the cure did not follow even prolonged nicotinic acid treatment. In some patients stupor alone was found on admission to hospital, but "cart-wheel" rigidity afterwards developed. The management of these states was very simple. The patient should be fed during the first few days on a liquid diet of milk, eggs, and cereal gruels, given by stomach tube if necessary. It was often possible to add marmite to the liquid food. Some improvement was shown in the majority of patients within 48 hours of beginning treatment. Not all instances of delirium, mania, and hysterical manifestations seen in acute infections or in post-operative states were due to avitaminosis, any more than all stuporous states found in elderly people were due to that cause, but it always seemed worth while to investigate the matter and to give nicotinic acid psychosis a place in the diagnostic list.

Dr. H. M. Sinclair said that almost every member of the "vitamin band wagon" had been incriminated in discussing the origin of peripheral neuropathies. Ten or fifteen years ago it was demonstrated that degeneration of the central nervous system could be produced in animals on diet deficient in vitamin A, and it was suggested that a large number of neurological conditions in man were due to this cause. If vitamin A deficiency were established in animals at a sufficiently early age skeletal growth stopped, but the growth of soft tissues, including those of the central nervous system, continued, so that there was overcrowding of the cranial cavity and relative overgrowth of the tissues. It seemed a reasonable conclusion on the basis of recent work that the nervous lesions in vitamin A deficiency were wholly mechanical in origin. In the case of vitamin E most workers were now agreed that there was very little evidence of its importance in preventing neuromuscular disease. On the use of vitamin B_1 for different forms of peripheral neuritis a voluminous literature had grown up, but it had recently been suggested that it would not stand critical review. If he might summarize the position rather dogmatically, it appeared that some types of polyneuritis were accompanied by deficiency of vitamin B_1, and the same was true of some cases of the polyneuritis of pregnancy. Arsenic and alcohol inhibited utilization of the vitamin. In the peripheral neuropathies, while deficiency of vitamin B_1 no doubt played an important part, it was not the only factor.

Identifying the Vitamin

Dr. R. M. Stewart, who presided, said that the clinician's difficulty was that very often in these mild states of malnutrition he did not know which deficiency to claim. Clearly in wartime the absence of several vitamins might be cited. During the last war he saw a number of Bulgar prisoners of war among whom there were a very large number of cases of scurvy. On investigating them from the neurological standpoint he found certain abnormal signs due to the presence of very large haemorrhagic extravasations, although in other cases there were very few indications beyond subjective sensory symptoms associated with diminution or loss of ankle-jerks, sometimes bilateral. It seemed to him that it must be very difficult to know, without some saturation test, which vitamin was concerned. The *Journal of the American Medical Association* had recently declared that scrutiny of the life-history of some patients and studies of their personality showed that the earliest effects of nutritional deficiency were not to be found in the polyneuritis of beriberi, the bleeding gums of scurvy, or the dermatitis of pellagra, but rather in mental deterioration, nervous instability, and other forms of vague ill-health, which almost always came first. It seemed rather extraordinary that it should be the brain which first manifested the symptoms of vitamin deficiency when they could all recall cases of illness arising from this cause in which there was no mental change throughout.

Dr. Russell Brain referred to a group of patients, mostly women, who were brought to hospital after having lapsed into coma at home for no obvious reason, who showed no obvious signs, and in whom, after death, no neurological change was discovered. Another group consisted of alcoholics who passed into coma after a history of head injury, not of a severe nature. In such cases he had thought of subdural haematoma; but on making an exploration no such condition was found.

Correspondence

Pasteurization of Milk

Sir,—Judging by three of the letters in your issue of Jan. 9 the answer to the question, "Do doctors disagree about pasteurization?" is that they are too imperfectly informed on the subject to be entitled to any opinion at all. The impartiality with which you ventilate opinions contrary to the declared policy of the Association is commendable, but I doubt whether this licence, fashionable though it is in the present mood of this country, should be extended to misstatements of fact. According to Dr. Eric Coldrey (p. 52), "Most people define pasteurization as the raising of milk to 150–160° F. for 20 minutes." Pasteurization by the holder process is officially defined as maintaining milk at a temperature of 145–150° F. for 30 minutes. That this process can be depended on to kill tubercle bacilli and all other agents of milk-borne infection is an incontestable fact, and Dr. Coldrey's opinion and experience have no weight against it whatever. The thermal death-points of bacteria are not a matter of opinion; they are well-ascertained facts. Either the milk supplied to his patients was inefficiently pasteurized, or—which is very likely—they drank raw milk at some period not covered by his inquiries, or they acquired their infection from some other source. Dr. A. H. Macdonald (p. 52) offers us the information that tubercle bacilli and "99% of other pathological germs" get into milk "largely through dung and dirt." This is simply not true. Tubercle bacilli in milk are derived from lesions in the cow's udder, typhoid bacilli usually from the hands of a milker who is a carrier or from contaminated water used for washing pails or churns, and the streptococci which cause epidemics of milk-borne scarlet fever usually from the throat of a milker. Of what worth is Dr. Macdonald's opinion if it is founded on fancies such as this? The idealism of Dr. E. K. Mackenzie (p. 52) is in a different category, but has he any conception of the holocaust by which alone the elimination of infected cattle is immediately feasible, of the ruin which it would bring to the dairying industry, and of the disastrous effect on food production, all perfectly unthinkable at such a time as this? Even in times of prosperity and plenty the eradication of bovine tuberculosis must be a colossal task occupying many years. Are we not entitled in the meantime to demand that milk shall be made safe by pasteurization?

The producer-retailer and the small dairy which cannot afford to instal and operate a pasteurizing plant are by no means the only obstacles to this reform. Owing to the misinformation and prejudice that are so rife—a position for which some members of our profession are evidently in part to blame—there are many large dairies whose directors are unconvinced of their duty to pasteurize. I now have the misfortune to be supplied in my own household by such a firm. Having hitherto been supplied with pasteurized milk by another dairy, I am compelled, by a new zoning scheme for milk delivery aimed at economy in transport to accept raw milk from the dairy to which my area is allotted. As an advocate of pasteurization for many years I find this an intolerable and almost ludicrous position. If we must be deprived of choice of dairy, then the time has come when we should again demand compulsory pasteurization.—I am, etc.,

LAWRENCE P. GARROD.

Local Application of Promin in Tuberculous Lesions

SIR,—I was interested to read in the article by Prof. W. H. Tytler and Dr. A. D. Lapp (Dec. 26, p. 748) of the treatment of superficial tuberculous lesions by the local application of promin, the success of which raises once more the hope that even the tubercle bacillus may eventually succumb to chemotherapy. In their report the authors state that the trial treatment of cases of pulmonary tuberculosis has been fairly extensive though published results are yet scanty. More detailed reports will be awaited eagerly.

Meanwhile it is interesting to speculate on some possible general applications of a drug having a selective action for the tubercle bacillus. Such a drug might be used with great success on the early case with the minimal lesion and moderate toxaemia; some sort of prophylaxis with regard to contacts might also be possible. The high solubility and rapid absorption of promin, however, together with its effect on the blood cells when used in high concentrations, would appear to preclude its use in this direction at present.

But it is the chronic consumptive with his persistently positive sputum who creates the biggest obstacle to the successful treatment of tuberculosis. Sanatorium can benefit him very little except to isolate him from the community and his environment for a time. Such a patient, although incapacitated, is not always ill; there is little toxaemia, and one might hesitate to flood his system with a drug capable of destroying the bacilli *in situ*, if such were possible. Might it not cause a marked toxaemia from the disintegrating organisms? This is only conjecture, and one must await the result of further trial. Meanwhile there still remains, as the authors assert, the justification for more extensive trial of promin by local application to suitable lesions.—I am, etc.,

Congleton. D. S. HAYES.

Staffing Mass Miniature Radiography Units

SIR,—The battle for mass miniature radiography has been brought to a successful conclusion with this form of examination now established in the three Services, and an early start is anticipated on the civil population this year. But as yet we have no specific details of the exact organization that is proposed for the control and running of the units.

The accurate interpretation of these miniature films is important and frequently difficult. The staffing of the units with adequate, properly trained, and experienced assistants is essential, otherwise the method must rapidly degenerate and fall into disrepute as the result of faulty diagnosis and wrong disposal of the patient. To become expert in interpretation of radiographs of the chest requires many years of wide and varied experience in this field, whether a radiologist or "an expert chest physician" with knowledge of chest radiology. We are told there is now a scarcity of such "experts," and therefore the importance of the careful selection of those responsible for the running of the units cannot be overstressed. It does not follow that because a medical practitioner receives an appointment as a tuberculosis officer he is fully conversant with radiological interpretation of the chest. The reverse is not infrequently the case. Nor does it follow that because someone possesses an *x*-ray plant or holds hospital appointments in radiology he is expert in chest radiology. It might therefore seem that whatever staffing of these units is finally decided upon, more than one opinion on each chest film would be advantageous, and a safeguard to reduce the possibility of error of diagnosis. Perhaps each unit will have attached to its staff one chest physician and one radiologist experienced in chest radiology to form a panel of "expert interpreters," while these units may eventually become distributed throughout the country on a regional basis, with a central administrative panel or committee to which final appeal could be made in cases of extreme difficulty of diagnosis.

As to the claim of the "competent chest physician" who suggests all the work, both clinical and radiological, should be the province of the physician only, this is surely a retrograde step. After all, only some 3 to 5% of the cases are commonly pathological, and consequently a chest physician performing the dual role would be devoting an additional 95% of his time to viewing normal lung fields. Might not his expert services be more profitably employed in his real province—the clinical side of the examination?

In this country the number of examinations achieved per hour, day, or year seems to be modest compared with the claims of Continental workers. The numbers examined by the individual unit, however, largely depend on the number of assistants and the dressing space available to permit patients to pass as a constant stream through the *x*-ray machine; also the inclusion of an electrically controlled camera in preference to the earlier experimental hand-operated camera, and, finally, the use of long strips of film (100 to 200 negatives) instead of the short 36-negative pieces. The most recently published figure by the R.A.F., suggesting a target of 100,000 cases per unit per year, should be speeded up to 300,000 or nearer 500,000 cases a year. At a speed of 100,000 cases a year it would take 80 years for one unit to examine Greater London.

As to the civil organization and the radiologists available, it is my view that radiologists are not fully organized in this country. There is still overlap between the voluntary hospital and E.M.S. radiologists in that much of this work could be fused and one carry out the two duties and some additional *x*-ray work as well. Until radiologists are mobilized more on a national basis this overlap will persist and so the apparent shortage be exaggerated.—I am, etc.,

London, W.1 NORMAN P. HENDERSON.

Intestinal Obstruction

SIR,—The reading of the medical memorandum by Mr. V. C. J. Harris on an unusual case of intestinal obstruction in a child (Dec. 26, p. 754) and the annotation on gastro-intestinal concretions (p. 757) brought to my memory a case upon which I operated a few months ago of a woman, aged 71, who had complained for 6 days of severe abdominal pain centred round the umbilicus with vomiting and constipation of 5 days' duration. Her abdomen was somewhat distended and tender and a diagnosis of obstruction was made. A laparotomy was performed, which revealed the presence of a moderately inflamed and distended small gut with free blood-stained peritoneal fluid and a hard round mass which appeared to be obstructing the terminal ileum. An incision was made over the mass and it was removed and the bowel sutured. She made a good recovery. The mass subsequently proved to consist of congealed faecal matter on a base of fruit skins, and was quite hard. Inquiries after operation showed that some days previously she had partaken of raw Victoria plums, which, she said, had never agreed with her.

This case also called to mind the reports of others very similar (Latchmore, "Stomach-ache," *Lancet*, 1940, **1**, 1153). Perhaps obstruction by a food bolus or bezoar is by no means so uncommon and should be borne in mind in differential diagnoses of obstruction. The legend of the bezoar stones, which was generally credited in olden times, was that they were the crystallized tears of deer. The deer ate snakes, which caused such intense stomach-ache that tears were brought to the animal's eyes, and these subsequently congealed beneath the lid as stones. These fell out and men gathered them up. Cases of poisoning and other noxious diseases were said to have been cured by them, and one was used as a last resort at the death of King Charles II (R. E. M. Coke Harvey, "Medical Bypaths: A Record of Some Peculiar Practices," *Middlesex Hospital Journal,* 1939, **39,** 128). It may possibly be of interest to the academically minded surgeon to consider that what was once a magical stone endowed with life-giving properties is now a cause for surgical intervention and a portent of evil.—I am, etc.,

Aylesbury RALPH H. GARDINER

Treatment of Dysentery at Sea

SIR,—So much has been written about the treatment of dysentery that one hesitates before reporting one's own results. However, treating dysentery on shore with the advice of laboratory findings and treating it at sea are two different propositions. Because of this the experience obtained on this voyage will, we trust, prove useful, not only to others in similar circumstances but also to those who are not in proximity to a laboratory.

The first case was that of the chief steward. He had had diarrhoea for six days and had been "warding it off" with double whiskies with some degree of success till the sixth day, when this ally failed him. During this time he had had very little to eat, and was weak when first seen. Stools were very frequent, the temperature was 99.5° F., and the pulse 105. Ol. ricini 1 oz. was given at once and fluids prescribed, brandy being allowed in small quantities because of the low state of the patient. The following day mist. bismuth. was given four-hourly. At the end of the day his condition was worse, the evening temperature being 101° F. The following day, no sodium sulphate being available, magnesium sulphate was given four-hourly. Food was still withheld, but the bowels continued to act frequently, blood and mucus being passed. This continued for the next twenty-four hours, when the evening temperature was 102° F. The possibility of an amoebic infection was considered, and it was decided to try an injection of emetine hydrochloride 0.03 g. Two to three hours later the patient showed a slight improvement, there being a decrease in the abdominal pains, although blood and mucus were still being passed. A second injection was given the same evening and two more the following day, when the evening temperature was still 101° F. The next day we were able to get ashore and have a microscopical examination of the stool made. No amoebae could be seen, and the appearances were more in favour of a bacillary infection. We were unable to obtain the result of the culture.

Treatment was discussed with the medical specialist at the R.A.F. hospital at Aden. He stated that he had been using sulphapyridine in similar cases with most satisfactory results, using two tablets three times a day for two days. We had not previously heard of this treatment for bacillary dysentery and decided to try it on our patient. The result was almost dramatic, and within twenty-four hours there was a most marked improvement, and at the end of thirty-six hours he was up and commencing his normal duties. Following up this treatment we used sulphapyridine on several other cases which were not clearing up; these were not so severe as the first one. Again the results were most satisfactory.

A number of other patients reported complaining of diarrhoea, sometimes of forty-eight hours' duration and not uncommonly showing blood in the stool. The routine treatment we adopted was as follows: 1 oz. ol. ricini was given at once, and liquids only were allowed—that is, barley water or oatmeal water to which a pinch of ginger had been added. Six hours later two sulphapyridine tablets were given followed by two more in another four hours, after which soup and dry toast were allowed. The following morning two more sulphapyridine tablets were given and light meals allowed. By this time the condition was nearly always under control, but bismuth was given for two days.

We would point out that these results appear to confirm those obtained by the medical specialist at the R.A.F. hospital at Aden, who first drew our attention to the value of sulphapyridine in these cases. Treatment at sea is given under extremely difficult conditions, as one has not the advantage of laboratory findings. Allowing for this we have been so impressed with the results of sulphapyridine treatment following castor oil that we feel this method is well worthy of fuller trial.—We are, etc.,

A. G. MCMANIS,
Flight Lieut., R.A.F.
W. GORDON RICH,
At Sea Major, N.Z.M.C.

Teaching First Aid

SIR,—As one who, like Dr. G. Laurence (Dec. 26, p. 767), has to teach first aid to members of both the Red Cross Society and the St. John Ambulance Brigade I should like to endorse his plea not only for a common textbook but also for a complete revision of the teaching as now published.

The war casualties have taught us, as he states, that the treatment of the patient is more important than that of the lesion, and that for the lesion improvisations are more probable methods of treatment than the set number of bandages and splints as set forth in the textbooks. To give just one example—a compound fractured femur sitting on a chair at the time of his injury was dealt with here by dressing the wound, tying the feet together, and a spot of morphine. He was then carried on the chair, no other method being possible as a stretcher could not get past the debris till the way was clear, when he was removed to hospital on a stretcher, no more splints or bandages being applied. Though very shocked when found he did very well.

The results of dealing with cases like this and of teaching numerous first-aiders have convinced me not only that simpler methods, including more practice in improvisation, should be taught but that the stress which is laid in the textbooks on the bandage and the splint, their positions and number, should be replaced rather by a stress on what the first-aider is seeking to accomplish by their use. This is certainly mentioned in the textbooks, but in their present form the emphasis is all on "one above and below the fracture," etc. This also applies to the teaching on haemorrhage, and has no doubt led to many mistakes. Here the stress, owing to the necessity, which is of the utmost importance, of learning the pressure points, has been on arterial haemorrhage. The types of haemorrhage can be rammed over and over again into a class, but the thrills of a pressure point and, still better, the tourniquet are irresistible; so on it goes, stopping the steady stream, but quite unnecessary and of course dangerous. In big print the textbook should deal with the types of haemorrhage, stressing the need for diagnosis of the type, and a word on the probable frequency of the types might help.—I am, etc.,

Skegness M. BACKWELL.

First Aid for Fractured Spine

SIR,—I have read with much interest the letters on the above subject, and I am also indebted to Mr. Thos. Stowell for very full details of his method of turning cases of this type. As a general practitioner in a busy colliery village (blessed with an excellent first-aid personnel) I would ask the experts, Why is it necessary to turn the patients at all, why not do them up as they lie?

This colliery has its share of accidents, and as the nearest hospital is 30 miles away transport of serious cases calls for fairly efficient first aid. The following is the method of dealing with cases of fracture or suspected fracture of the spine as carried out by the colliery team under Mr. Robt. McCormick. So far no complaint has been received from any patient, and the surgeons have at one time or another been quite complimentary.

Kirkconnel Method

Personnel: 4 first-aiders, whom we will number 1, 2, 3, and 4

Materials: 1 strong rug or blanket; 2 splints to extend from head to feet; 2 splints to extend from armpits to feet; 1 rug to make a pad between the legs; 7 triangular bandages and 1 short splint to pass the bandages.

Bearers 1 and 3 take up position at the sides of the patient, No. 4 is at the head, and No. 2 at the feet. The rug is pleated up from top to bottom and is placed at the patient's head. Nos. 2 and 4 apply extension and counter-extension, while Nos. 1 and 3 pull down under the injured man in the following manner. Placing their inner hand against the patient's side, they grasp the edge of the rug with the outer hand and pull downwards and outwards, so that, besides pulling down, they are also pulling against each other. This prevents the edges from being turned up and thus increasing the friction; in addition it maintains a minimum of thickness between the patient and the ground. The first pull is made to the waist, and by successive pulls the whole rug is drawn down to this hollow, the upper edge remaining at the level of the head. By a similar movement it is pulled into the hollow below the buttock and, in successive stages, to the feet. The rug is now "straightened out" and turned over the patient while bandages are passed as follows: under the neck, armpits, upper chest, lower ribs, hips, above the knees, and under the ankles. The covering rug is again spread out on the floor and the folded pad made with No. 2 rug is placed between the legs: it should reach from the crotch to the feet.

The two short splints are now placed on each side edge of the rug, the top level with the head. They are then rolled inwards in the rug and traction is exerted on them till they come tight up against the patient's body with the part under his back perfectly taut. Bearer No. 1, standing at the head, grasps the rolled-in splints at the level of the shoulders. No. 3 astride over the patient grips opposite the hips and No. 2 grasps the rolled-up rug at the ankles. All lifting carefully together, the patient is slowly raised a couple of inches from the ground, just sufficiently to allow the two long splints to be slipped under the patient on top of the bandages, so as to lie along either side of the spinal column. The patient is carefully eased back to the ground and the short splints are rolled out of the rug and re-rolled in it so that their upper ends are now at the level of the axilla. In tying the bandages, starting at the top, the first and second are tied to each other close to the seams of the jacket and the long ends tied together over the chest in the middle line. The remaining bandages are tied firmly in the middle line, except that at the ankles, which forms a figure-of-eight around the feet.

Loading on to a stretcher is performed by the same lift as was used to pass the long posterior splints. For a long journey the back splints may be padded with rugs folded lengthwise, and the side splints can be padded with tow, etc., if desired. Pads of wool may be placed under the bandages on the chest to prevent friction.

For the prone position a similar procedure may be adopted, the splints being placed either down the back or under the abdomen. Owing to the absence of natural hollows when lying prone, a modified method of rug passing will be called for. A pull of six inches only is made from the head, and then, by a series of 6-inch waves, the rug is passed to the feet. This assures that there is only a small area of folded rug under the patient at any one time. This latter method can also be used for supine patients whose "natural hollows" are not much in evidence.

For fractures in the cervical region the following additional equipment is required—2 bandages, 2 short splints, and 2 large pads. The procedure is the same as for trunk fractures, but the extra bandages are placed under the head and neck. The two pads are used to steady the head, and are supported by the short splints, which, in the final roll-in, are used from the shoulder to the top of the head.

The final result obtained by this method is: (*a*) the patient runs no risk of further damage by being moved unnecessarily; (*b*) he is comfortably encased in an "orange-box" which allows of safe and easy transport; (*c*) he can, on arrival at hospital, be placed, if desired, directly on the *x*-ray table, the back splints can be slipped out, and he can still be safely handled for removal to bed after the desired exposures have been made.

It may be emphasized that the technique is very much easier to carry out than it is to describe in detail. Theoretically it may be all wrong: in practice it yields satisfactory results. I am much indebted to Mr. McCormick for assistance in detailing the various steps in the above description.—I am, etc.,

BOWMAN EDGAR,
Kirkconnel M.O., 4th Battn., Dumfriesshire H.G.

Artificial Respiration

SIR,—In justice to Schafer's memory it should be noted that his method is that of the cylinder and piston. It is unauthorized modifications of it that demand chest elasticity. The Royal Life Saving Society has the original paper for verification.—I am, etc.,

Birmingham W. J. BURNS SELKIRK

SIR,—Surg. Lieut. G. H. Gibbens (Dec. 26, p. 751) has done a good service in reminding the profession of the advantages of Eve's method of artificial respiration. I have always felt that the rationale of the Schafer method as outlined in the St. John organization textbook and the Royal Life Saving Society A.R.P. handbook was unconvincing. They teach that the "piston" action of the diaphragm is the main factor in causing lung ventilation, but as the diaphragm and abdominal musculature are placid and almost toneless in the apparently dead I fail to see why the "viscera resume their former position, the diaphragm descends . . ." when pressure on the loins is released in the inspiratory movement. It may do so in practice on the *living* subject, but conditions are not comparable.

In Eve's method this piston action is ensured by gravity and the attachment of liver and stomach to the diaphragm. It appears to me that Eve's method has a definite theoretical superiority over Schafer's, which would seem to be borne out by practice.—I am, etc.,

Seascale, Cumberland L. GOLDMAN.

Absorption of Iron

SIR,—The rate of hydrolysis of a number of organic iron salts to colloidal ferric hydroxide and to particles of ferric hydroxide was observed in an alkaline medium (sea-water, *p*H 8.2). Of these the ascorbates were least rapidly hydrolysed and precipitated.[1] The solubility of ionic iron in alkaline media is extremely low, no more than 4×10^{-10} mg. Fe per litre of Fe^{++}, Fe^{+++}, $FeOH^{++}$ at *p*H 8 when equilibrium has been attained,[2] although the concentration of dissolved oxygen may have reached a very low value.[3] It is limited by the insolubility of ferric hydroxide.

From these observations it appeared that absorption of iron in the intestine of mammals might be increased by the presence of ascorbate in the gut contents. This should allow a longer period during which diffusible iron remains in solution after the contents become alkaline. With this possibility in view a patient of one of us, with severe secondary anaemia, who had been treated with large doses of iron and liver for one year (raising the Hb level from 39 to 60% and red cell count from 3,710,000 to 4,590,000 without clinical improvement) was treated with 15 gr. ferri ammon. cit. together with 50 mg. ascorbic acid thrice daily. After 2 months there was very marked clinical improvement and the Hb level had risen to 80%.

It would be of interest to hear of any similar results which support this single observation. The tentative hypothesis which may have led to this encouraging improvement obtains some support from observations that increased alkalinity of the diet has been observed to depress iron absorption and the therapeutic effect of iron salts, while acidity is favourable.[4] It neglects the possibility that ascorbic acid may affect iron transport within the body or haemoglobin formation: cases are recorded where dosage with ferrous sulphate raises the haemoglobin content and lowers the ascorbic acid content of the blood,[4] and intravenous injection of ferric ascorbate is reported to cause a haemoglobin formation in excess of the quantity of iron injected.[4]

Our thanks are due to Dr. Barbara Thomas of the Prince of Wales's Hospital, Plymouth, for permission to publish this case, and to Dr. E. Wordley for blood counts and haemoglobin estimations.—We are, etc.,

H. W. THOMAS.
Plymstock H. W. HARVEY.

X-ray Department at Health Centre

SIR,—I do not think it will be clear to your readers from the letter of Dr. J. V. Sparks (Jan. 2, p. 23) what he requires in these health centres. Does he really think it justifiable to put a large *x*-ray unit in every one of the many centres? Does he expect every centre to have the services of an expert radiologist, since he expects the early diagnosis to be made there and deprecates the transfer of the patients to another centre for further investigation? If he thinks the provision of "apparatus of adequate 'power' to be the only requirement, why should he expect the medical practitioner to understand the equipment and interpretation of the radiographs? He would not expect him to be an expert microscopist, biochemist, cardiologist, etc., and he would not expect every such clinic to be provided with the most expensive microscope and biological equipment, though the cost and upkeep of these are small compared to the *x*-ray unit (even the 30 mA unit, the use of which he undervalues, would cost upwards of £500).

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[1] Harvey, H. W. (1937). *J. mar. biol. Ass.*, **22**, 205.
[2] Cooper, L. H. N. (1937). *Proc. roy. Soc.*, B, **124**, 299.
[3] —— (1937). *J. mar. biol. Ass.*, **22**, 167.
[4] Schultze, M. (1940). *Physiol. Rev.*, **20**, 37.
[5] Farmer, C., Abt, A., and Aron, H. (1940). *Proc. Soc. exp. Biol.*, N.Y., **44**, 495.

Surely patients needing these investigations could be referred to the larger clinics possessing experienced staff and adequate equipment. The words of J. E. Goldthwait (*J. Bone Jt. Surg.*, 1933, April, p. 279) are pertinent here: "In many of our large clinics it would be far better to have the 'chief' remain in the out-patient department and let the junior staff carry out the operation work. The skill required for this operative work is much less than that required for diagnosis."

Dr. Sparks's comments on mass radiography are even less convincing. The provision of the 25 mass radiographic units is admittedly for experiment and not a solid contribution to preventive medicine, since to mass-radiograph the population you need at least 500 such units. The only additional evidence these experimental sets will yield, providing they are used by competent workers and subject to criticism, is the relative efficiency of the medical examinations in different areas by different doctors. The revelation of extensive progressing tuberculous disease in a patient should not be regarded as a triumph for mass radiography but rather a slur on the medical examination which missed it. The Ministry maintains that "mass radiography will not be the basis of diagnosis but will be used to sift abnormal cases from the normal in apparently healthy persons." The abnormal will be further examined by other means of diagnosis. Is it reasonable to sift as long as they are apparently healthy? I know from experience that they may and do remain apparently healthy for 20 or more years in spite of certain *x*-ray appearances. Obviously, as it is to be used as the sieve to separate the abnormal from the normal it will be the basis of diagnosis, but, as I have shown, it is a defective sieve which will miss the early case. How will mass radiography help in the detection of such cases as the contacts we see which may be radiographically negative at the first examination but showing extensive tuberculosis after an interval of 3 to 6 months?

The selected inconspicuous lesions may or may not be of clinical significance; they may look suspicious and remain so for 20 or more years, but not until they are associated with clinical signs are they of any significance and should not be allowed to spoil the life of the patient.

Radiology should hold a very high place in diagnosis, but it will deservedly lose it if it is used as a quick substitute for clinical methods.

To carry out mass radiography of the population a large army of full-time experts would be necessary. Are the men who have advised this method of investigation prepared to do the work?—I am, etc.,

Birmingham. JAMES F. BRAILSFORD.

SIR,—The recent article (*Supplement*, Nov. 7, p. 57) and letter (Jan. 2, p. 23) by Dr. J. V. Sparks on the subject of the small *x*-ray set proposed to be installed in the suggested new health centres should call out the support of all radiologists lest wartime conditions perpetuate themselves afterwards. There is a very general impression among non-radiologists that the size and power of an *x*-ray set are somehow related to the number of patients to be examined or to the importance of the hospital. It cannot be too strongly insisted that this is a fundamental error.

The power output necessary in an *x*-ray set is a function only of the permissible length of exposure. Small sets are, therefore, sufficient for limb examinations or to give a rough idea of gross lesions of lungs, etc., in the wards. An adequate chest film requires an exposure time of not more than 0.12 sec., and much less in children, to prevent blurring from the movement of the lung vessels alone, and at least a 200 mA output is necessary for this. Many small sets even have time errors as great. Presumably a good deal of chest examination would be called for at the health centres.

A 200 mA output takes one first to the region of that much-debated horror, the two-valve set. In the first place, this output would be their maximum rating, something which many sets of whatever type never attain. Secondly, two-valve sets are inherently very tricky to use with the Bucky diaphragm if film lining is to be prevented. Thirdly, a two-valve generator differs from a four-valve in price by very little more than the cost of the two extra valves, about £100, or an increase of about 1/6th or 1/7th. A four-valve set for this relatively small extra cost has double the output of a two-valve, making really good chest films possible, a thing absolutely necessary for the diagnosis of early disease. A four-valve set is also very much easier to use with the Bucky, and the saving in film wastage would more than compensate for the extra £100 of first cost within the set's lifetime.

Four-valve sets are not by a long way the last word in equipment, but from the above reasons one can see why they have been adopted all over the world as the minimum necessary for routine work. It is of no use protesting that they cannot be afforded. If they cannot, then the proposal to put any *x*-ray set in the health centres should be dropped as a waste of money, an expensive pretence. I would suggest that the minimum equipment necessary for any place where more than limb radiography is to be undertaken would be a four-valve generator, a rotating anode tube—without which modern high-speed, fine-detail radiography cannot be attempted—and a tilting couch with Bucky and barium equipment. There are now at least three rotating anode tubes capable of continuous screening as well as radiography. A chest stand would also be required. If this is too big, let us face the facts squarely and put in no *x*-ray plant but attack the problem in some other way.—I am, etc.,

Hairmyres Hospital, East Kilbride D. J. HURRELL

Service Cases of Venereal Disease on Demobilization

SIR,—Dr. Philip Silver's suggestion (Dec. 26, p. 766) that all members of the Services and the Civil Defence organizations should undergo a Wassermann and a Kahn test before discharge to civil life is an excellent one. May I suggest that as an immediate measure to prevent an increased incidence of congenital syphilis these tests should be done on all women in the early months of pregnancy. Dr. Violet Russell put forward a most convincing case for a routine Wassermann or Kahn test in a paper, "Venereal Disease and the Pregnant Woman," read at the Health Congress of the Royal Sanitary Institute in July, 1935. There are, unfortunately, still far too many ante-natal clinics not yet in line with those of Kensington in undertaking this increasingly urgent routine investigation.—I am, etc.,

London, W.1. D. KATHLEEN BROWN.

Charting the Pulse

SIR,—Your annotation on charting the pulse (Dec. 19, p. 728) gives publicity to a clinical method which is too little practised. On returning to India after 6¼ years' military service in 1921, I was sufficiently impressed by the lack of appreciation of pulse values to institute pulse–temperature charts (with accent on the pulse) in the district to which I was posted and carried it to subsequent stations on transfer. As C.M.O., Delhi, I introduced it into the enclave of the Government of India, and later, when Inspector-General, it was spread throughout the Punjab. Its particular value in India was to demonstrate the pulse–temperature ratio in the typhoid group. My charts place a pulse rate of 70 against the temperature of 98° F., rising by decades with each degree of temperature, with a note that pulses were to be charted in red ink and temperatures in black.

I must confess that my subordinates showed no enthusiasm and only a polite interest in my "foible" and would not be surprised to learn that it had fallen into disuse. *Sic transit.*—I am, etc.,

C. H. REINHOLD,
Whitchurch. Col., I.M.S. (ret.)

R.M.B.F. Christmas Gifts

SIR,—I cannot convey more adequately my thanks to your readers for their most generous response to my Christmas appeal than by quoting the letter of a beneficiary, a doctor's widow aged 88, who writes:

> "Owing to being very feeble and at times not able to hold my pen, it is not possible to write, but I do want to thank you and my good medical friends who sent me the Christmas gift so acceptable. I am most grateful, for I need much I cannot obtain. Again I thank all to whom I have been indebted for so many years, but the time is getting short. I am very feeble and cannot help myself, also memory and deafness very trying. Yours gratefully."

It is of the greatest satisfaction to me to know that, thanks to your help and the generosity of many, we have not failed to send a Christmas gift to all our regular beneficiaries.—I am, etc.,

1, Balliol House, Manorfields, THOS BARLOW,
Putney, S.W.15 President, Royal Medical Benevolent Fund

Obituary

WILLIAM MacLENNAN, M.B.

G. M. writes:

A full appreciation of the life and work of Dr. William MacLennan has, I hope, been presented by one of his immediate colleagues, and my desire is to express a brief but affectionate tribute to the memory of one from whom I and many others of his pupils and housemen have received our infant nurture and inspiration in medicine. Dr. MacLennan came to hospital and consulting work with a wide experience of general practice, a natural gift for teaching, the zeal and enthusiasm of an evangelist, and the gentleness, understanding, and sympathy of the Great Physician, to whom his life was dedicated in the service of his fellow men. Impairment of his vocal functions led to an early curtailment of his teaching activities, but retirement from hospital only led to an increasing demand for his services as a consultant, while in later years even a serious crippling of his cardiac capacity, which immediately threatened his life, failed to arrest his zest for work. Those of us who had the privilege of visiting him in retirement in his lovely country home at Doune and there enjoying anew the inspiring atmosphere of his dynamic and lovable personality wish to take a fond farewell of a beloved physician.

In the course of another appreciation J. S. C. writes: His *Manual of Diseases of the Stomach for Practitioners and Students* bears the imprint of his vital clinical acumen, and in it he gives in full measure from his deep knowledge of diagnosis, prognosis, and therapeutics. He wrote in the same manner as that in which he worked at the bedside—in close logical pursuit of his objective. When MacLennan was examining at the Finals in Glasgow or Aberdeen the candidate felt the penetrating rays of a keen adjudicator, giving rise to tension but never to emotional shock. In the last war he took his heavy load of Army service in his stride, and then illness halted him awhile. Although sad at having thus to leave his wards and his students, he marched on again with his other work until the eve of Christmas, 1942. To our mortal eyes our ranks are thinned, but that company of great physicians marching ahead is reinforced.

News has just been received of the death at Newcastle, N.S.W., on Aug. 3 last, of Dr. ROBERT USHER RUSSELL. He qualified L.R.C.S.I. in 1883 and L.R.C.P.Ed. in 1886, and travelled extensively before settling in Australia. In 1890 he was appointed junior, and later became senior, medical officer at Parramatta Mental Hospital, where he remained until 1896, when he became medical superintendent of the Coast Hospital (now Prince Henry Hospital), Sydney. Two years later he was appointed medical superintendent of the Mental Hospital, Newcastle, a post which he held until he retired in 1922. For a number of years during this time he acted as Port Health Officer to Newcastle. When mental hospitals were opened at Stockton and Morrisset he was elected to visit them, and was mainly responsible for their establishment. He took an active part in sport, particularly cricket and shooting. He was a captain in the A.A.M.C. until 1919. When he retired he settled in Newcastle, N.S.W. His long career was one of unceasing public service, and he was well known for his readiness to help those afflicted by mental ill-health.

We regret to announce the death on Nov. 1 at Bath at the age of 43 of Mr. HENRY MEREDITH MARTIN, born at Colooney, Co. Sligo. He received his medical education at Trinity College, Dublin, taking his M.B., B.Ch. in 1923. He took an active part in the athletic life of the university, especially as a sprinter capable of very fast time in the 100 yards. After qualifying he became resident medical officer at the Gloucester Mental Hospital, and in December, 1924, joined the Naval Medical Service, retiring in 1931 with the rank of lieut.-commander. He saw service in many parts of the world, and his knowledge of athletic training was instrumental in enabling one of his ships to win a Fleet regatta, although boat pulling was not one of his own accomplishments. After some postgraduate study he was elected F.R.C.S.Ed. in 1932. He then became senior casualty officer and house-surgeon at Leicester Royal Infirmary, an appointment which gave opportunity to his surgical talent. After a further year and a half as senior house-surgeon and resident surgical officer at the Royal United Hospital, Bath, he realized an often-expressed wish and spent six months on the Continent studying surgical thought and methods. On his return he held further resident posts, including one at All Saints' Hospital in order to study genito-urinary surgery. His whole career had but one object—the study of surgery—so that when he started as a consultant surgeon in Bath in 1937 his services were soon in demand. In 1938 he was appointed to the honorary staff of the Royal United Hospital as hon. surgical registrar, a post he filled with distinction and energy. After starting practice at Bath he added to his academic achievements by taking the M.Ch.Dublin in 1937 and being elected a Fellow of the Royal College of Surgeons of England in 1939. Harry Martin's death (writes a colleague) occurred after a short illness, during which his calm courage amazed his closest friends; he was still a scientific observer even when he himself was the patient. As a surgeon he was an accomplished operator whose technique was as artistic as it was careful, and no detail was too small for attention. His patients gave him their confidence and gratitude, and to his colleagues he gave advice based on sound judgment, he was possessed of those two great assets of a surgeon—humility and courage. His death leaves a gap in the ranks of the younger surgeons who have the progress of surgery at heart. We have lost a delightful friend, and his hospital a loyal and enthusiastic member of its staff. He married in 1939 Phyllis, daughter of Dr. J. W. Fordham of Leicester, to whom our sympathy goes out in her irreparable loss.

We regret to announce that Dr. JAMES BUCHANAN of Watford died on Dec. 17 at Omagh, Co. Tyrone, in his 79th year. He studied medicine at Belfast and at University College, London, and graduated M.B., M.S. of the old Royal University of Ireland in 1888, after winning scholarships in anatomy and physiology at Queen's College, Belfast. Dr. Buchanan had been assistant school medical officer under the Herts County Council and medical officer to the Watford Infirmary; he was also for some years M.O.H. at Old Calabar, West Africa. He joined the B.M.A. as long ago as 1889 and held office as chairman to the Watford Division in 1935-6.

We regret to announce the death, suddenly, on Dec. 23, 1942, of Dr. C. E. POTTER of Derby. Although he had been in indifferent health for several years he had continued to work, and the end came unexpectedly. Born in Glasgow in 1872, Charles Edward Potter was educated at Bradford Grammar School and at Oliver's Mount, Scarborough. After leaving school he was a "pupil-learner" with a doctor near Durham, and there, at the age of 18, he was first introduced to midwifery when he was called into a house he was passing to assist at a birth. He entered Edinburgh University in 1890, graduating M.B., C.M. in 1894. He studied obstetrics in Dublin, and was for a short time at the Seamen's Hospital, Greenwich. In 1896 he went to Derbyshire as assistant to Dr. Harvey in Wirksworth, and later began general practice in the country district of Parwich, near Ashbourne, where he was also medical officer of health. In 1901 he obtained the Edinburgh M.D., and the following year took over the practice of his brother-in-law in Derby, which he carried on for over 40 years. During most of his professional life Dr. Potter was honorary obstetric physician to the Nightingale Maternity Home, to which he also devoted much time as a member of the board of management. He was an active supporter of the B.M.A., being chairman of the Derby Division in 1925; he was representative on the Maternity and Child Welfare Committee in 1923, and a member of the local executive committee for more than 20 years. That he had the confidence of his colleagues is shown by the fact that he sat on the local emergency committee in the last war and was a member of the Local Medical War Committee at his death. He did not seek office, although he was much valued for his wisdom and common sense. He was secretary to the Derby Medical Society for five years, was a regular attender, and had a successful year of office when his turn came round to be president. He was an active member, one-time secretary, of the Local Panel Committee. He leaves a gap in the local profession which it will be difficult to fill.

We announce with regret the death on Dec. 24 of Lady Cheatle, wife of Sir G. Lenthal Cheatle. She was President of the Ladies' Guild of the Royal Medical Benevolent Fund from March, 1930, to March, 1940. Lady Cheatle combined in an extraordinary degree a very warm and sympathetic nature with a practical and clear-sighted outlook on life. Her advice, often sought and never in vain, was invaluable on any difficult problem. The work of helping the destitute widows and children of medical men was always in the forefront of her life, and she never lost sight of its human element. She took the sorrows of others much to heart, and a beneficiary was to her an individual, never a "case." Her charming, gracious personality and her many little acts of kindness will not easily be forgotten.

We regret to announce the death, at the age of 88, of Dr. FRANK JAMES ALLEN at Letchworth on Dec. 28. He was born at Shepton Mallet on April 17, 1854, and was educated at Taunton School and St. John's College, Cambridge, of which college he was a Fellow, graduating B.A. (being placed in the First Class of the Natural Sciences Tripos) in 1878. He proceeded M.A. in 1882 and in the same year took the M.R.C.S. In 1883 he obtained the L.R.C.P. and two years later the M.B., proceeding M.D. in 1895. From 1887 to 1899 he was professor of physiology at Mason University College, Birmingham. He returned to Cambridge in 1902 and devoted himself to antiquarian and archaeological pursuits, being honorary secretary of the Cambridge Antiquarian Society from 1913 to 1930. In 1932 his book *The Great Church Towers of England* was published by the Cambridge University Press. It was the lifework of his leisure hours and was illustrated almost entirely by his own photographs. He was also deeply interested in music and wrote and published songs, nursery rhymes, and hymn tunes. He returned to Shepton Mallet in 1931 and was active in the Somerset Archaeological Society, particularly in connexion with church architecture. He was recently described by the Bishop of Bath and Wells as "the greatest living authority on church towers." He retired to Letchworth in 1940. Dr. Allen had been a member of the B.M.A. since 1887.

We regret to announce the death at sea by enemy action last autumn of Dr. GEOFFREY CHARLES PURSLOW, son of the late Lieut. George Purslow, who was killed in action in October, 1918, and of Mrs. Mabel Gwynne of Leek, Staffs. He was born on Jan. 19, 1916, and was educated at the University of Birmingham, graduating M.B., Ch.B. in 1940, also taking the M.R.C.S., L.R.C.P. in the following year. After qualifying he was employed as ship surgeon with various steamship companies, and it was while on a voyage in this capacity that he lost his life, his ship being torpedoed on or about Sept. 17. He was a member of the B M.A.

The death took place recently in Melbourne of Dr. GREGORY SPROTT, for many years medical officer of health of Hobart, Tasmania. Dr. Sprott was born in Scotland 80 years ago, and received his medical training at Glasgow, where he qualified in 1885, took the D.P.H. in 1888, and the M.D. in 1894. For a time he practised in the North of England, and then, going out to Tasmania, became part-time medical officer of health for Hobart from 1896 until 1903, and again from 1907 to 1923, and for the following 10 years he served the city in a full-time capacity. He was a man of great reforming zeal, and it was very largely owing to his efforts that an underground system of sewerage was provided for Hobart. He pressed forward the scheme in the face of much criticism, and his administration in this and other respects was greatly to the advantage of the city. It was said of him by one of the city's officers that just as Augustus found Rome brick and left it marble, so Dr. Sprott found Hobart "a stinking cesspit" and left it a clean and healthy city. He also took an active missionary part in urging upon Tasmania the need for vaccination, and through his efforts a Health Act was passed, the most important section in which requires the appointment of a chief health officer who must hold not only a medical degree but the D.P.H. He was mainly responsible for the establishment of the Vaucluse Infectious Diseases Hospital, of which he was medical superintendent, and for many years he was honorary surgeon to the Hobart General Hospital and the Queen Alexandra Hospital. He showed great interest in the work of the St. John Ambulance Association and organized the excellent ambulance service in Southern Tasmania. Dr. Sprott was well known in this country as one of the oversea representatives at the Annual Meetings in 1912, 1920, 1926, and 1934. He was a member of the Central Council and of the Dominions Committee in 1920-1. He was an active member of the Federal Council of the British Medical Association in Australia, a director of the Australian Medical Publishing Company, and a leading spirit in successive Australasian Medical Congresses.

The death of Dr LEWES NICHOLAS GIBBES of Church Street, Kensington, where he had practised for more than forty years, removes perhaps the doyen of the general practitioners of that locality. After study at the medical school of St. George's Hospital, he qualified M.R C.S., L.R.C.P. in 1895. He had been surgeon to the Crippled Boys Home, long established at Wrights Lane, Kensington, and dermatologist to the Princess Louise Hospital for Children in North Kensington. He had formerly acted in temporary capacities at the Golden Square Throat Hospital and at St. George's Hospital; he had also held an appointment as anaesthetist to the King George Hospital. From this record it follows that he was a general practitioner in the real sense of the term, adept in many branches of the medical art.

Medico-Legal

MISUSE OF MEDICAL TITLE

The magistrates of North Shields recently convicted Charles Bernard Clark on charges of unlawfully, wilfully, and falsely using the descriptions doctor of medicine, bachelor of science, and specialist in incurable diseases, thereby implying that he was registered under the Medical Act, 1858. Clark pleaded guilty, and another charge of describing himself as a pathologist was dropped. Evidence was given that he had put up a board at a house in North Shields, displaying his name together with these descriptions and his consulting hours. This board actually deceived a number of persons and made them believe that he was a registered medical practitioner. A married couple who attended him concluded from his condemnation of medical practitioners and hospitals that he was not registered, and consulted their own doctor. Clark sent in a bill, on a form containing the titles which appeared on the board, for a substantial sum. The matter was reported to the London and Counties Medical Protection Society, who prosecuted. Clark was also shown to have been sentenced at Liverpool some years earlier to three years' imprisonment for false pretences. A police sergeant said that no later complaint had been made about him to the police, and some of his treatment had apparently given excellent results. His solicitor said that he had been born in Jamaica and had obtained a degree of B.Sc. at the Cornwall College there. He had been in England for seven years and had acquired some medical knowledge as a private in the R.A.M.C. He had believed mistakenly that he was entitled to practise, and had applied to the Central Medical War Committee of the B.M.A. From a letter written by the Committee he had wrongly understood that he could use the word "pathologist" without being registered. He undertook not to use the titles again. The court fined him £15 on each charge and ordered him to pay 8 guineas towards the legal costs and the expenses of bringing a police witness from Liverpool.

Universities and Colleges

UNIVERSITY OF LONDON

Owing to the date on which Easter falls this year the M.B., B.S. examination will start on Tuesday, April 27, instead of on Monday, April 19.

By a printer's error the name of B. P Webber was printed as B. P Webster in the University of Cambridge Final M.B. (Part I) pass list published in this column on Jan 2 (p. 27).

REHABILITATION IN SCOTLAND

A year ago we announced (Jan. 31, 1942, p. 161) that the Department of Health for Scotland had decided to extend its scheme whereby civilian patients were admitted to emergency hospitals, thus helping to reduce the numbers on the waiting lists of voluntary hospitals. At a Press conference recently Dr. Andrew Davidson, C M.O of the Department, gave figures showing how successful this scheme had been. Some 10,000 patients, he said—8,000 in the last year—had been taken off the waiting lists of voluntary hospitals in Scotland Medical and surgical cases alike had been admitted, but not chronic cases, as the beds had to be readily available, should the need arise, for war casualties. Most of the voluntary hospitals had co-operated, but a few, surprisingly, did not support the scheme The Department made no charge to the patients but received from the voluntary hospital a fixed sum for each person admitted. Dr Davidson also referred to the success of the Clyde Basin experiment, under which treatment is provided free for industrial workers suffering strain, and men invalided out of the Services are restored to working capacity and to their old jobs in the shortest possible time Some 1,600 industrial workers have received treatment since the scheme started and they are now being dealt with at the rate of 100 a week. Since Dr Davidson's conference, when he indicated that there was a proposal to open "fitness centres," the Department of Health has announced that Gleneagles Hotel, which was taken over at the outbreak of war as an emergency hospital, is to be a special rehabilitation or fitness centre for Scottish miners, the first of whom are expected to arrive about Jan. 11. It will accommodate about 200 patients, and has facilities for physiotherapy, occupational therapy, remedial exercises, and physical instruction, as well as entertainment and welfare activities. No charge is to be made for treatment, and the Miners Welfare Commission will pay the patient's travelling expenses. Treatment will last about six weeks, and will be available for miners with disabilities following injuries, for those convalescing after illness, and men suffering from rheumatic conditions.

Medical News

A whole-day conference of the Nutrition Society will be held at the London School of Hygiene, Keppel Street, London, W.C.1, on Saturday, Feb. 6, beginning at 11 a.m., to discuss "Nutrition in Pregnancy." Papers will be read by Mr. Aleck Bourne (Foetal Development), Dr. J. Hammond (Physiological Factors Influencing Birth-weight), Sir Joseph Barcroft (Nutritional Functions of the Placenta), Prof. A. St. G. Huggett and Dr. Margaret Balfour (Diet of the Pregnant Woman), Mr. R. M. Titmuss (Stillbirth and Neo-natal Mortality). The chair will be taken in the morning by Dr. F. H. A. Marshall, and in the afternoon by Brigadier F. A. E. Crew. A subsequent meeting will be held on "Nutrition in Infancy." Further details of the Nutrition Society can be had from the Hon. Sec., Dr. Leslie Harris, Nutritional Laboratory, Milton Road, Cambridge.

"Space and Time in Modern Physics" will be the subject of a lecture by Prof. H. Dingle (Professor of Natural Philosophy at the Imperial College of Science) to be delivered at the British Institute of Philosophy, University Hall, 14, Gordon Square, London, W.C.1, on Friday, Jan. 22, at 4 p.m.

A meeting of the Middlesex County Medical Society will be held at the Central Middlesex County Hospital, Acton Lane, N.W., on Thursday, Jan. 21, at 3 p.m., when Mr. T. G. Illtyd James will speak on "Methods in the Diagnosis of Cerebral Tumours" and Dr. J. Sakula will discuss "A Recent Outbreak of Gastro-enteritis in the Newborn." Visitors, especially members of the American and Canadian Forces at present in this country, will be welcome.

A course of lectures on Social Medicine and Public Health, arranged by the Socialist Medical Association, will be given at the Conway Hall, Red Lion Square, W.C.1, on successive Thursdays at 5.30 p.m., as follows: Jan. 21, Environmental Factors in Disease, Mr. F. Le Gros Clark; Jan. 28, Mother and Child, Mr. Aleck Bourne; Feb. 4, Statistics of Occupational Mortality, Prof. J. B. S Haldane; Feb. 11, Health of the Industrial Worker, Dr. T. O. Garland; Feb. 15, Social and Economic Aspects of Tb., Dr. Brian Thompson; Feb. 25, V.D. as a Social Problem, Dr. Joan Malleson; and March 4, Social Insurance, Prof. Hermann Levy. Tickets, 1s. for each lecture or 5s. for the series, may be obtained from Dr. L. T. Hilliard, Fountain Hospital, S.W.17.

The clinical teaching of medical students is referred to in the latest report of the Birmingham United Hospital. The city authorities were asked whether, in the event of Queen Elizabeth Hospital being seriously damaged, students might continue jointly their work at one or more of the municipal hospitals. The reply was that arrangements could be approved for the continuance at municipal hospitals of medical students, but not for the attendance of their clinical professors, teachers, and tutors. Meanwhile a generous offer by the Wolverhampton Royal Hospital of full co-operation and accommodation for students and teachers has been gratefully accepted.

It is 50 years since the Glasgow Royal Infirmary School for Nurses was opened, and to mark the occasion and to commemorate the work of Sir William Macewen and Mrs. Strong in connexion with it, one of the managers of the hospital has presented two medals to be competed for annually: one, the Macewen medal, to be awarded to the best surgical nurse, and the other, the Mrs. Strong medal, to the best medical nurse. Mrs. Strong, now in her nineties, was a pupil of Florence Nightingale.

The range of British Standards is so varied and the number of war issues so large that no printed list can be up to date, but the latest information about new and revised standards, of which there are at present over 1,000, can be obtained from the B.S.I. Library at 28, Victoria Street, Westminster. These standards may be studied in the library between 10 a.m. and 5 p.m., Monday to Friday, and at other times by appointment.

Under a new Order (S.R. & O., 1942, No. 2668), which came into force on Jan. 5, quinine and its salts may not be prescribed except as anti-malarial drugs, although quinidine may still be prescribed for cardiac arrhythmia. No person may "acquire, treat, use or consume" cinchona, cinchona products, or synthetic substitutes except under licence from the Ministry of Supply. Stocks equivalent to more than 16 oz. of quinine must be declared to the Director of Medical Supplies, Portland House, Tothill Street, London, S.W.1.

The Service Libraries and Books Fund are appealing for more books and magazines for the Forces. Although the number already distributed since the beginning of the war—some 14,000,000—may seem large, the life of reading matter with the Forces is very short. The need, therefore, is for continuous help from the public, not just sporadic donations of books and magazines. They can be handed in at a post office and need not be wrapped or addressed.

The curator of the laboratory of the Royal College of Physicians of Edinburgh, Dr. Fergus Hewat, reports that the research and routine services were fully maintained during 1941. In the research department cancer diagnosis has long been the special task of the laboratory. Other directions of activity are postgraduate laboratory instruction and direct and visiting consultation with practitioner and patient. It is mentioned that most of the post-war planning for medical laboratories makes reference to centralization of technical examination, of which the laboratory at Edinburgh has been, perhaps, a pioneer example in the British Isles. Complete examinations comprised under histology, haematology, bacteriology, and biochemistry are carried out under unified direction.

At the request of the Czechoslovak Government arrangements have been made for a unit of 60 beds for Service and civilian patients of Czechoslovak nationality to be established at Hammersmith Hospital (L.C.C.). The medical and clerical staff required in addition to the normal establishment will be provided and paid for by the Czechoslovak authorities, but all nursing and domestic staff will be engaged and paid by the L.C.C. The new unit will be regarded as an integral part of the whole hospital, and the medical superintendent will be in general administrative control.

The National Science Fund of the National Academy of Sciences announces two prizes of $2,000 each, to be known as the Charles L. Mayer Awards, to be given for outstanding contributions published in 1942 and 1943 respectively "to our knowledge of factors affecting the growth of animal cells, with particular reference to human cancer." To assist the fund in the administration of the awards a special advisory committee has been appointed, and this committee will welcome suggestions on outstanding contributions published in 1942. The address of the National Science Fund is 515, Madison Avenue, New York City.

Since the beginning of the war £100,000 has been raised—almost half of it during the year 1942—for hospital and ancillary services under the auspices of the Bristol Hospitals Fund. The Fund was inaugurated in July, 1939, and represents the co-ordination and extension of contributory schemes which had been running in connexion with the Bristol hospitals. It has been made the central contributory scheme of the six voluntary hospitals of Bristol—the Royal Infirmary, the General Hospital, the Royal Hospital for Sick Children and Women, the Eye Hospital, the Homoeopathic Hospital, and the Cossham Memorial Hospital.

A fund has been started in this country for a memorial hospital in Abyssinia to Princess Tsahai, who took up nursing while an exile here and died as she was about to put her training into practice in her native country. It is proposed to have medical and nursing staff attached to the hospital, to prepare Ethiopians to work in their own institutions, also a research unit, a library, and a service to treat out-patients in the villages. Donations to the Fund should be sent to Miss Isabel Fry, Church Farm, Buckland, near Aylesbury, Bucks.

The Central Council for Health Education, Tavistock House, Tavistock Place, London, W.C.1, appeals to medical practitioners with a flair for teaching to undertake to give occasional lectures in their own localities on health subjects, including venereal diseases An adequate allowance will be made to meet all expenses. The Central Council for Health Education has been made responsible by the Ministry of Health for the central provision of health education throughout England and Wales, and it is much hoped that public-spirited doctors will help it in its important task of instructing the public on matters of health and hygiene.

The following medical promotions in and appointments to the Venerable Order of the Hospital of St. John of Jerusalem have been announced: as Knight, Dr. W. H. Kauntze, C.M.G., M.B.E.; as Commander (Brother), Col. J L. Hamilton, *M.C.*, T.D.; as Officers (Brothers), Dr. A. Johnston, Col. G C. Kenning, R.C.A.M.C., Col J. B. Hance, C.I.E., O.B.E., I.M.S., Capt. J Pirie, Dr. J. Lamberton, Lieut.-Col. C. W. Eames, D.S.O., T.D., Dr. E. H. Shaw, Major F. T. Deatker, O.B.E., I.M.S., Dr. E. S. Bowes, Brig. H. E. Shortt, C.I.E., O.B.E., I.M.S, Col. W. C. Spackman, I.M.S, Col. J. P. Huban, O.B.E., I.M.S., Lieut.-Col. J. C. Pyper, O.B.E., I.M.S.; as Associate Officers (Brothers), Dr. P. Ellman, Dr. P. C. Roy; as Officer (Sister), Dr. Frances C. B. McKay; as Serving Brothers, Dr. J. C. D. Carothers, Dr. W. L. Ingham, Dr. P. L. Regan, Dr. D. Grieve, Dr. A. M. Pollock, Dr. R. G. Tame, Dr. C. H. Smith, Dr. P. S. Martin, *M.C.*, Dr. J. T. Whitley, Dr. J. Ewing, Dr. W. D. Neill, Dr. G. M. Stoker, Lieut.-Col. S Hunt, Dr. W. A. Ogilvy, Capt. M. A. Watson, R.A.M.C., Dr. J. Brown, Mr. E. Pearson, Col. J. E. Rusby, *M.C.*, Dr. J. A. E. M. Hadley, Dr. M. C. Lavin, Capt. P. M. Gettleson, R.A.M.C., Dr. J. Manuel, Dr. F. T. Simpson, *M.C.*, Dr. E. Haworth; as Associate Serving Brothers, Dr. M. N. Oster, Dr. B Narayana, Dr. J. M. Rakshit, M.B.E., Dr. S. C. Datta, Dr. P. N. Kapur, Dr. R. C. Mahajan, Dr. M. M-ud-D. Chughtai; as Serving Sisters, Dr. May Rutledge, Dr. Margaret J. Trotter, Dr Harriet R. L. Reid.

The Medical Society of Pernambuco, Brazil, has recently celebrated the centenary of its foundation.

Dr. Bernard Moiser's years of work for the relief of lepers in Rhodesia have been recognized by the award of the O.B.E. in the New Year Honours list. In his official capacity to the Government of Southern Rhodesia Dr. Moiser supervises the leper settlement at Morgenster in the Victoria District, which, under his expert direction, grows its own crops and keeps its own cattle. He was Assistant Director of Medical Services in Nigeria before he was appointed to Rhodesia, and is an old student of Guy's and University College Hospitals.

There is only one woman doctor of medicine in Peru, Dr. Mercedes Cisneros, who practises in Lima, whereas in Chile there is an Asociación Médica Feminina with 300 members.

Large quantities of serum, including anti-gas-gangrene and dysentery serums, will shortly be sent by air to Russia from the South African Institute for Medical Research in Johannesburg.

The Minister of Health has appointed Col. Frank Medlicott to be his Parliamentary Private Secretary in succession to Mr. N. A. Beechman.

According to a statement in the Press, Mr. Cleveland Fyfe, Secretary of the National Farmers' Union, recently told a meeting of Cheshire farmers that, the Union "would resolutely fight compulsory pasteurization of milk."

Prof. A. T. Jurasz, Dean of the Polish Medical Faculty in the University of Edinburgh, cabling from the United States, announces that the Rockefeller Foundation has given $75,000 to buy medical instruments and equipment for the Polish Medical School.

Dr. James F. Ballard, director of the Boston Medical Library, completed fifty years of service on October 23.

Dr. John Harral Hudson of the Colonial Medical Service is reported to be missing in Malaya.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* the heavy fall in the notifications of infectious diseases that was reported can be partly accounted for by the Christmas week-end. The decreases recorded were for measles 2,394, scarlet fever 566, acute pneumonia 332, whooping-cough 323, diphtheria 277, cerebrospinal fever 32, dysentery 10.

The largest declines in the notifications of scarlet fever were for Lancashire 104, London 78, Yorks West Riding 76, Staffordshire 74, Middlesex 54. The greatest variations in the incidence of diphtheria were in Yorks West Riding, Durham, and Lancashire, where 59, 40, and 28 fewer cases were recorded. The only changes of note in the county totals of whooping-cough were decreases in Yorks West Riding of 45 and in London of 30.

The fall in the notifications of measles was general throughout the country, and only a few counties failed to register a decline, the only exceptions of note being Sussex and Bedfordshire with rises of 45 and 33. The largest declines were those of Yorks West Riding 459, Lancashire 274, Staffordshire 221, Nottinghamshire 201, London 198, Derbyshire 186, Wales 184, Leicestershire 183, Durham 179.

A general fall in the notifications of dysentery was recorded, and only in Surrey was there an appreciable rise from 3 to 16. The other chief centres of infection were Lancashire 20, London 15, and Essex 9. Only 5 cases were reported from Middlesbrough C.B., the lowest weekly total since the outbreak began fifteen weeks ago.

In *Scotland* a general fall was reported in the incidence of infectious diseases, especially measles, of which 237 fewer cases were recorded than in the preceding week. The largest of the local declines were Glasgow 61 and Dundee 58. In Glasgow 104 cases of scarlet fever were notified, an increase of 12.

In *Eire* the outbreak of poliomyelitis persists, and 10 cases from nine areas were reported during the week.

Small-pox

The risk of small-pox spreading in Edinburgh is now considered to be over. The ban imposed on Nov. 13 on visitors to the municipal hospitals was lifted on Jan. 4. The outbreak, which began on Nov. 1, resulted in 36 cases, 12 of which are still in hospital, and 8 deaths. In Edinburgh approximately 274,000 vaccinations were performed—about 64% of the population.

Returns for the Week Ending January 2

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 2,159, whooping-cough 1,187, diphtheria 939, measles 14,989, acute pneumonia 936, cerebrospinal fever 95, dysentery 95, paratyphoid 7, typhoid 6. One case of small-pox was notified in the rural district of Plympton St. Mary, Devonshire.

No. 51

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Dec. 26.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1942					1941 (Corresponding Week				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	64	3	15	1	4	110	4	32	—	5
Deaths		1	—				—	1		
Diphtheria	731	30	244	50	32	1,006	38	310	38	29
Deaths	14	1	5	1	—	43	3	6	5	—
Dysentery	103	15	43		—	146	14	43		—
Deaths				—	—			—	—	—
Encephalitis lethargica, acute ..	3	—	—		—	5	—	1		—
Deaths		—					—	—		
Erysipelas		—	66	4	4		—	56	9	3
Deaths		—					—	—		
Infective enteritis or diarrhoea under 2 years				25						
Deaths	23	3	10	12	2	39	4	9	6	3
Measles	10,888	300	332	10	13	710	28	52	36	4
Deaths	16	—	3	—	—	1	—	1	1	—
Ophthalmia neonatorum	60	3	12		—	65	2	15		1
Deaths										
Paratyphoid fever ..	3	2				19	3	9	—	
Deaths	—	—				—	—	—	—	
Pneumonia, influenzal*	671	48	7	7	3	903	51	8	2	7
Deaths (from influenza) . ..	38	5	1	—	1	33	4	4	—	—
Pneumonia, primary ..			227	6		—		216	8	
Deaths . ..				9	10		34		9	8
Polio-encephalitis, acute	—	—				2	—			
Deaths .		—					—			
Poliomyelitis, acute ..	7	1	3	10	—	11	—	1	7	—
Deaths . ..							—	—		
Puerperal fever ..	—	—	12	—	—	—	2	10	2	—
Deaths . .		—					2			
Puerperal pyrexia ..	111	7	17		2	170	8	11		1
Deaths . .										
Relapsing fever ..	—	—			—	—	—			—
Deaths . ..										
Scarlet fever	2,054	98	372	41	51	1,220	35	252	48	26
Deaths . ..	4	1	—	—	—	1	—	—	—	—
Small-pox .. .	—	—	1		—	—	—	—		—
Deaths		—		—	—		—	—	—	—
Typhoid fever† ..	6	1				22	—	2	8	—
Deaths	1	—				1	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths			—	—	—			—	—	—
Whooping-cough .	837	51	29	47	7	1,564	220	62	31	9
Deaths - .	8	1	—	1	—	15	5	—	—	—
Deaths (0-1 year)	276	36	61	37	10	402	34	81	26	14
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	3,776	503	560	142	104	4,483	589	620	187	112
Annual death rate (per 1,000 persons living)			12·6	9·5	‡			13·5	12·4	‡
Live births .	4,320	547	720	187		4,830	428	792	333	228
Annual rate per 1,000 persons living			14·9	12·5	‡			16·1	22·1	‡
Stillbirths	185	24	41			175	16	29		
Rate per 1,000 total births (including stillborn) .. .			54					35		

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* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes paratyphoid A and B for Northern Ireland.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

The Services

The D.S.C. has been awarded to Temp. Surg. Lieuts. J. I. A. Jamieson, G. C. McKinlay, and I. Miskelly, R.N.V.R., and to Temp. Surg. Lieut. J. C. Gray, R.C.N.V.R.

The M.C. has been awarded to Capts. J. C. Bishop, M. C. Fulton, A. R. Wilson, and J. W. MacMillan, and Lieut. D. T. Milnes, R.A.M.C

Surg. Lieut. J. W. Wood, R.N.V.R., has been mentioned in dispatches for good services in the Mediterranean.

Temp. Surg. Lieut. E. O. Davies, R.N.V.R., has been mentioned in dispatches.

Surg. Lieut. G. A. Hendry, R.C.N.V.R , has been mentioned in dispatches (posthumous).

Squadron Leaders Agnes C. Gillan, G. B. Grayling, H. G. Magill, and J. St. C. Polson have been mentioned in dispatches by Air Officers Commanding-in-Chief, and F/O J. Dougall has been commended for brave conduct.

The King has approved the award of the R.N.V.R. Officers' Decoration to Surg. Cmdr. R. Wear and Acting Surg. Cmdrs. R. S. Allison and A. R. Thomas, R.N.V.R.

Brig. G. B. Chisholm, M.C., Director-General, Canadian Medical Services, has been appointed C.B.E. (Military Division); Lieut.-Col. M. H. Brown, R.C.A.M.C., an O.B.E. (Military Division); and Capt. (acting Major) H. E. Foex and Capt. H. C. Hair, R.C.A.M.C., M.B.E. (Military Division).

CASUALTIES IN THE MEDICAL SERVICES

Surg. Lieut. Kenneth Cole Jeffery, R.N.V.R., is reported "missing, presumed killed" on active service. He was born on June 17, 1909, the son of the late Surg. Capt. T. W. and Mrs. Jeffery, and was educated at the University of London and at the London Hospital, graduating M.B., B.S. in 1932, also taking the M.R.C.S., L.R.C.P. in the same year. He held posts at the London Hospital and the County Mental Hospital, Maidstone, before settling in practice at Sidmouth, where he became honorary physician to the local cottage hospital. Soon after the outbreak of war he entered the R.N.V.R., and in Sept. last was awarded the D.S.C.

Col. William Bruce, O.B.E., R.A.M.C., died in North Africa in December, aged 55. He was the third son of the late Mr. James Bruce, W.S., of Edinburgh, and was educated at Edinburgh Academy and at the University of Edinburgh, where he graduated M.B., Ch.B. in 1911. Not long afterwards he went to live at Onehunga, New Zealand, and served in the N.Z.M.C. from 1914 to 1920, attaining the rank of major. He was appointed O.B.E. in the 1919 New Year Honours for valuable services rendered in connexion with the war. In 1920 he entered the R.A.M.C. as capt., was promoted major in 1927, and lieut.-col. in 1941. He leaves a widow.

Lieut. Dudley Vaughan Phillips, R.A.M.C., who died on Jan. 4 at a battle school in Scotland as the result of an accident, was born on May 4, 1917, the son of Mr. and Mrs. Vaughan Phillips of Cyncoed, Cardiff. He was educated at the University of Cambridge, where he took the degree of M.A., and at St. Mary's Hospital, qualifying M.R.C.S., L.R.C.P. in 1942. He entered the R.A.M.C. in September last.

Prisoners of War.—Capt. A. Y. Adam, R.A.M.C., Capt. R. H. Cuthbert, R.A.M.C., Lieut.-Col. F. H. A. L. Davidson, I.M.S., Lieut. A. L. Dunlop, R.A.M.C., Capt. G. A. F. R. Gibson, R.A.M.C., Major P. R. Graves, R.A.M.C., Capt. J. K. Hewat, R.A.M.C., Capt. G. K. Marshall, R.A.M.C., Col. D. S. Middleton, R.A.M.C., Major W. J. E. Phillips, R.A.M.C., Capt. W. J. Street, R.A.M.C., Capt. K. W. Todd, R.A.M.C., Capt. R. G. B. Young, R.A.M.C.

Wounded.—Prob. Temp. Surg. Lieut. J. A. Oddie, R.N.V.R.

DEATHS IN THE SERVICES

Col. Henry Walker Murray, late R.A.M.C. (ret.), died at Tunbridge Wells on Oct. 25. He was born at Limerick on May 12, 1854, and was educated at Trinity College, Dublin, where he graduated M.B. in 1878, also taking the M.R.C.S. in 1879. Entering the Army in 1880, he became colonel in 1908, and retired in 1911. He served in the South African War from 1899 to 1902 and took part in the relief of Kimberley and in operations in the Orange Free State, including the actions of Magersfontein, Paarde Berg, Dreifontein, Poplar Grove, and Witte Bergen, receiving the Queen's medal with four clasps and the King's medal with two clasps. In the war of 1914-18 he rejoined for duty from October, 1914, and served as A.D.M.S., first at Bedford and later at Chatham.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, London, W.C.1.

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B.M.A. Scottish Office: 7, Drumsheugh Gardens, Edinburgh.

QUERIES AND ANSWERS

Income Tax

Dissolution of Partnership

"Alpha" writes: A and B were in partnership, practising from their respective surgeries, sharing the gross fees equally but each paying his own surgery expenses. As from April 1, 1942, the partnership was dissolved with each partner taking over his own patients and practising as from his own surgery. How should the assessment for 1942-3 be calculated?

⁂ It has been judicially decided that for income-tax purposes there cannot be successors of parts of a concern. In this case neither A nor B has succeeded to the practice formerly carried on by them in partnership or is engaged in *that* practice. As a result that practice must be regarded as having ceased as from March 31, 1942, and A and B are assessable for 1942-3 on the basis that they have commenced separate practices as from that date—i e., they will be assessable on the basis of the earnings of the current year.

Hospital Appointment: Board and Lodging

K. F. holds an appointment "at a salary of £350 a year plus £100 in lieu of board and lodging." Should the £100 be included in his income-tax return and is it taxable?

⁂ The answer to both questions is "Yes." The amount is undoubtedly an emolument of office; the point K. F. probably has in mind is that where board and lodging are given in kind the value is not taxable on the recipient, but such cases are exceptions to the general rule.

Private Fees after Retiring from Public Appointment

"E. M. D." retired on Aug. 31, 1941, and since then his income has consisted of his pension plus "private fees for mental deficiency work." This work consists of examinations, and he is paid for it "per case." Since giving up the appointment "E. M. D." has had to renew some books and a number of old examination instruments. How should such fees be assessed and is he entitled to deduct these renewal expenses?

⁂ It seems clear that "E. M. D." does not hold appointments in the sense in which that test is applied in deciding whether liability falls under Schedule E, and in our opinion he is chargeable under Schedule D. Rule 3 (*h*), applying to Cases I and II, Schedule D, provides for the deduction of sums actually expended "for the supply, repairs, or alterations of . . . articles employed for the purposes of the . . . profession," and the renewal of professional books and instruments falls within that description.

Powers of Inspector of Taxes in Eire

J. C. has made returns of income for 30 years. At the request of the inspector of taxes he has employed a chartered accountant and has supplied copies of his bank accounts, etc. He has been asked to explain what he did with various sums of money, withdrawn at different times, amounting to about £1,000, but cannot now remember sufficient of the facts to do so. The inspector has now made assessments for 30 past years to bring these sums into assessment.

⁂ In making these assessments the inspector is acting within his legal powers, but J. C. has, of course, a right of appeal to the Commissioners and *prima facie* he would be well advised to exercise it. It is difficult to see why the inspector should be so concerned as to what was done with the money withdrawn from the bank accounts; provided J. C. can show that the amounts paid in to the account came from sources which were either not liable to income tax or had paid income tax, there should be no ground for now claiming tax on them. As a minor point, the inspector is not entitled to demand the employment of an accountant, but that is very frequently the best course to follow in these circumstances.

LETTERS, NOTES, ETC.

Treatment of Impetigo

Dr. ARTHUR F. CHALKLEY (Caistor, Lincolnshire) writes: There has been a good deal of correspondence recently upon the treatment of impetigo contagiosa. While I was serving in the Army in 1941 I had the opportunity of trying the various forms of treatment, as I had a small hospital for skin diseases. Of late I have had such rapid results from using sulphonamide and calamine ointment that I feel I should report the fact now when so many people are working in large numbers in proximity in different parts of the country. I have used ung. hydrarg. dil., eau d'Alibour, sulphanilamide powder with Lassar's paste, sulphur in calamine, but none has brought about healing so quickly as the following, which I do not remember having seen described; I find it very satisfactory for the treatment of children. I give the mothers a few tablets of *p*-aminobenzene-sulphonamide (0.5 gramme), and instruct them to crush a tablet and shake the powder over each lesion after removing the crusts with starch poultices, and then to put a thick dab of the calamine ointment over each one. This is repeated at least twice a day and more often if any lesion becomes bare. The results are strikingly good. I have also tried covering small lesions with pieces of elastoplast, which is fairly satisfactory.

Universal Decimal Classification

We are asked to notify readers concerned with the abstracting of scientific and technical literature, the compilation of bibliographies, or the classification of scientific documents, that the following parts of the English edition of the *Universal Decimal Classification*, all stocks of which were destroyed by enemy action, are being reprinted by the British Standards Institution with minor amendments:

Vol. 1. Part 1. General Introduction, Auxiliary Tables, and Class O, Generalities
Vol. 2, Part 1. Classes 51, Mathematics; 52, Astronomy; 53, Physics
Vol 2, Part 2 Class 54, Chemistry
Vol. 2, Part 3 Classes 55, Geology and Geophysics; 56, Palaeontology; 57, Biology; 58, Botany; 59, Zoology

Vol. 1, Part 1, will be published at 7s. 6d., and Vol. 2, Parts 1, 2, and 3, at 10s. per part. Owing to the restrictions imposed by the Paper Controller, the edition will be strictly limited, and the B.S.I. wishes to ascertain the probable extent of the demand for the various parts. Prospective purchasers should therefore make their requirements known as soon as possible. Orders should be addressed to the Publications Department, British Standards Institution, 28, Victoria Street, S.W.1.

"The Accurate Diagnosis of Small-pox"

Messrs. ASH AND CO. LTD. (London, S.E.1) write: In consequence of the letter by Col. S. G. S. Haughton (Dec. 19, p. 736) we have received applications for *The Accurate Diagnosis of Small-pox* by the late Dr. Wanklyn. We printed this pamphlet in 1928, and since 1931 have had but two applications for it; consequently during the paper salvage drive we destroyed the remainder we had in stock, so that we are unable to supply any of these.

Hypnosis

Dr. L. H. EUNSON (Tipton, Staffs) writes: Dr. A. Owen-Flood replies (Nov. 14, p. 596) to my comment on your leading article on hypnotism, asserting that it is evident that I have not made a deep study of the subject, and he thinks I emphasize its evils. It is evident he has not made a deep enough study of my comments to make himself sufficiently appreciative of their meaning, and by not understanding them he misinterprets them. He subsequently condemns this misinterpreted view by actively supporting the therapeutic value of hypnotism, on which I made no depreciation, and assumes some attendant evils of which I am not aware. What I did say was that there was a degree of relationship between the hypnotic state and the transference state obtained in the early stages of psycho-analysis, and I explained, by quoting Ernest Jones, that psycho-analysis proceeds to its ultimate goal via the subsequent stage of rendering transference conscious, whereas hypnosis does not do so. It is to Jones that we owe the observation that in hypnosis increased resistance to the necessary association of ideas occurs, and that psycho-analysis cannot proceed via hypnosis. I hope it is now quite clear to your correspondent that such a statement takes no exception to the therapeutic value of hypnotism in the minor maladies he quotes. I agree with his views. Like most of our eminent writers on this subject, however, he will find that if he proceeds to the treatment of the severe degrees of neurosis the results obtained are capricious and evanescent. Your correspondent's letter assures me I was correct in suggesting that more emphasis could have been given to this point, and my object in writing the letter was to obtain the viewpoint of others through the medium of your columns.

Headaches and "Silent" Sinusitis

Dr. SYDNEY PERN (Ballarat, Australia) writes: I read Dr. Craig's remarks on this subject (Aug. 22, p. 230) and it may be of interest to record my own experience. In 1925 I published a paper in the *Medical Journal of Australia* on the relationship of sinusitis to disease. I found that no less than 25% of patients attending my medical out-patient departments were suffering from sinusitis. I soon found that relying upon *x*-ray examination was of little use, but that if a patient had any creamy or yellow discharge from the nasopharynx persistently it was a definite sign of sinusitis. This in the majority of cases was accompanied by a history of morning headaches, frequent blocking of nose, and repeated colds. In chronic cases there may be only a little yellow discharge once or twice a week, which, if persistent, is still diagnostic. There are, however, some cases in which one cannot even get this history, yet other symptoms are sufficient on which to make a diagnosis. Blocked sinuses are more common than is realized, and these, as well as discharging sinuses, are responsible for far more ailments than is at present recognized. I have personally seen many cases of anxiety neurosis cured by treating the sinuses. I have seen patients sent to the mental hospitals on account of the same thing. I have cured many cases of exophthalmic goitre by clearing up sinus infections as well as chronic bronchitis and asthma in children and adults. A number of cases of retrobulbar neuritis have been cured by adequate sinus treatment. My own experience after many years has led me to believe that, of all the causes of headache, sinusitis probably accounts for 75%. Headaches due to eyestrain are usually felt in the evening, while sinus headaches are experienced on waking in the morning

Rectal Administration of Sulphonamides

Dr. H. G. J. HERXHEIMER (Westward Ho!) writes: The use of the sulphonamides grows daily. On the other hand, if they are given orally in the proper amounts they often cause nausea and vomiting or at least total loss of appetite, even if the usual precautions (sod. bicarb. or glucose) are taken. In order to avoid this disturbing side-effect I have given these drugs during the last 2 years to more than 25 patients rectally, as a small retention enema. The procedure is simple. Four half-gramme tablets of sulphanilamide or other drugs of this group are put into 1/2 to 1 oz. of lukewarm water, where they quickly disintegrate and will form, if stirred well, a thick, milky suspension. This is injected by a short-nozzled syringe into the rectum. The patient should afterwards go into knee-elbow position for half a minute. The suspension does not irritate and is easily retained. There are no side-effects. I feel compelled to publish this note, as this mode of application seems generally unknown in spite of its simplicity. It avoids sickness and even loss of appetite, and the accuracy of the dosage will not be disturbed by vomiting. The therapeutic effect, however, is the same as if given orally, as can easily be seen from its influence on the temperature curve. Of the drugs in question, sulphathiazole and sulphapyridine give a very good suspension, whereas sulphanilamide proper—at least one well-known brand which I used—sedimentates rather quickly, and must be used immediately after the preparation of the suspension.

An Adapted Cork

Dr. J. L. BARFORD (Guildford) writes: You published on Oct. 4, 1941 (p. 480), a brief description of my device for washing contaminated eyes. Briefly, a cork has about 4 inches of soft rubber tubing of ordinary douche-can diameter passed through it eccentrically and another small hole is bored in it for the entry of air. This device can be used to great advantage also for giving sips of water to "shocked" casualties, who could easily suck a little water through the rubber tube while lying supine. Obviously it is likely to be more useful for this purpose than for washing eyes. The cork is kept in a small calico envelope attached to the water-bottle. Some difficulty may be experienced in boring the cork, and it is advisable to use a proper cork borer. The cost of the corks is about 3½d. a dozen. I am informed that Messrs. Boots have made many of these adaptations for certain local authorities.

A Disclaimer

Dr. C. G. EASTWOOD, medical officer of health for Weston-super-Mare, asks us to state that he was not responsible for the reports that appeared in the lay press of a small, crude experiment in the control of the common cold which he was conducting among members of the local municipal staff.

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GENERALIZED VACCINIA

BY

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The term "vaccinia" is used to denote the development and decline of an eruption at the site of inoculation with the virus of vaccinia, and the concurrent reaction of the body. Ordinarily the eruption is limited to that site, and occasionally "supernumerary" vesicles arise on the neighbouring skin. Rarely the eruption, with or without the supernumerary elements, appears also on other parts of the body, and this condition is known as "generalized vaccinia." The name is not good, because when vaccinia is running its course the virus becomes distributed throughout the body and vaccinia is therefore general (Cory, 1898; Committee on Vaccination, Report, 1928). "Vaccinal eruptive fever" was suggested, but in a successful Jennerian vaccination there is always eruption at the site of scarification, and usually there is some fever; on the other hand, apyrexia is not uncommon in generalized vaccinia. "Generalized cutaneous vaccinia" has been used, and is more satisfactory. There is convenience, however, in sticking to the designation that has been sanctioned by long use.

Vaccinia, therefore, is the normal result of a successful vaccination and is not a complication of vaccination, though generalized vaccinia may be regarded as such. Vaccinia is, in fact, a pathological entity with an exanthem, and like other exanthemata it has the stages of incubation, evolution, and decline; but as it is—to use the old distinctions—contagious and not infectious its eruptive capacity can be gauged only by the results of particular artifice and peculiar accidents. Generalized vaccinia has occurred in children who had sucked their vaccination pocks and in a child (though there is some element of doubt here) suckled by its mother, who was undergoing vaccinia. In persons previously insusceptible to ordinary vaccination it has been produced by the internal administration of vaccine crusts either ingested with food or insufflated into the nose. It has been produced in horses by the administration of vaccine lymph through the alimentary, circulatory, and respiratory systems (*Allbutt's System of Medicine*, 1912), and in other experimental animals by the intravenous injection of vaccine lymph (Blaxall, 1930). The number of these observations is very small and the proportion of eruptions very great compared with the vast number of human vaccinations that have run their course without a general eruption. To some degree, then, the occurrence of the condition is influenced by the route of invasion: the least provocative, or most inhibitive, is the skin, and the analogy to small-pox has long been recognized; for inoculated small-pox as practised during the latter part of the eighteenth century gave usually a much less general rash than did the disease acquired naturally through the respiratory passages, and might even not cause any eruption beyond that on and near the site of inoculation. This mildness cannot be claimed, however, for the inoculated small-pox of the preceding years, because then the eruptions were often profuse; in those years the inoculum was taken from cases of natural small-pox, whereas later it was invariably taken from persons undergoing the inoculated disease. Ledingham's explanation for the reduced amount of eruption is that the artificial propagation by arm-to-arm passage modified the character of the virus, perhaps towards the character of the virus of vaccinia, and he bases this view on the fact that small-pox can become vaccinia by repeated passage through suitable animals.

It has, however, been suggested that some amount of antibody was produced by the skin at the site of inoculation of small-pox and was a factor in attenuation of the induced attack. As to vaccinia, though it is true that immunity can be obtained without vesiculation, Henderson and McClean (1939) have shown that the skin is of some importance in the production of immunity—a view taken by F. R. Blaxall. They investigated the effect of intracutaneous and subcutaneous vaccination with a bacteria-free elementary-body suspension of vaccinia virus on the production of immunity as tested by a cutaneous (scarification) vaccination with ordinary vaccine lymph six weeks later. Of 164 persons vaccinated in either of the above ways with elementary-body suspension, 75 developed a vesicle and 72 of them were immune to vaccinia on subsequent testing; of the 89 who did not develop a vesicle 31 only were found to be immune. As to cutaneous scarification, the 22 persons inoculated thus with ordinary vaccine lymph produced vesicles and all were immune on testing later, and of 24 scarified and vesiculated with elementary-body suspension 23 gave in due course a satisfactory result in immunity. There was correlation, therefore, between vesicle production and immunity.

In the intravenous experiments with ordinary lymph referred to above, generalized vaccinia often did not result, but later on it was demonstrated that adequate intravenous doses of the lymph and, better still, of certain strains of the virus (neurolapine and neurotesticular lapine) could give rise to typical vesiculation on the skin and marginal mucous membranes of animals, including monkeys, cats, and dogs. After full doses of these strains the virus could be recovered from most of the internal organs, and macroscopic lesions were found in most of the viscera (Douglas *et al.*, 1929). Thus, by stepping up the dosage and using certain strains of the virus, generalized vaccinia can be made fairly constant in incidence and often severe in attack.

The dosage, strain, and to some extent the portal of entry are factors, therefore, in the production of generalized vaccinia in experimental animals. In human vaccination the dose is small, the lymph is a dermal strain the potency of which is far below that of the experimental strains of the virus, and the entry is by the skin. It seems thus to be the office of the skin that is in question: does its failure to produce antibody, or sufficient antibody, at the vaccination site result in generalized vaccinia? But in those human subcutaneous and intracutaneous vaccinations in which the intention of avoiding vesiculation has been achieved generalized vaccinia does not seem to be more prone to occur than in Jennerian vaccinations, and, for what it is worth, the observation can be made that in generalized vaccinia the vesicle of vaccination does not differ in development and aspect from those in normal cases. We may presume, then, that whatever be the relation of the vesicle to immunity, a lack—this is, a deficiency or an absence—of general response in immunity is the cause of the complication, if, indeed, a severe attack of an infection can be called a complication because it is rare.

Eczema Vaccinatum

Reference may be made here to eczema vaccinatum. This has been described as occurring in vaccinated persons with a history of attacks of eczema and in children suffering from eczema who, being in familial contact with someone undergoing vaccinia, had presumably been inoculated on the eczematous area through accident. An eruption of a vaccinial character appears on the eczematous site, which itself becomes intensely swollen and inflamed; the eruption may spread to healthy areas of skin, and when it is profuse the outlook is grave. Tedder (1936) considers that the conditions known as Kaposi's varicelliform eruption and pustulosis vacciniformis acuta are not only one and the same but are identical with eczema vaccinatum, and that failure to obtain a history of exposure to the vaccine virus has in most cases been the only reason for not identifying the former with eczema vaccinatum. It might be inferred, then, that an unhealthy state of the skin, some itching dermatosis, is the cause of generalized vaccinia, and, in alluding to Tedder, J. D. Rolleston (1937) gives the interesting fact that his own case of generalized vaccinia had recently suffered from varicella. A remarkable series of vaccinial eruptions on injured or diseased skin has been detailed by Nimpfer (1936). A child admitted to hospital with burns of the first and second degrees was vaccinated on admission; eight days later vaccinial pustules appeared on the burned surface. This was obviously the result of blood-borne virus; but thirteen days afterwards a patient in the same room and suffering from burns of the second and third degrees showed vaccinial lesions on the burnt surfaces, and ten days later a child with dermatitis, in a distant room but nursed by the same staff, developed generalized vaccinia. A fourth case, also of burns, developed vaccinial lesions six days later. Danziger (1907) recounted a similar occurrence in children affected variously with eczema and impetigo. These sorts of accident can be avoided by discretion in vaccination and care during vaccinia.

Though it is not disputed that a diseased or damaged part of the skin is vulnerable to direct infection by the vaccine virus, and perhaps also highly susceptible to the virus blood-borne (haematogenous) from the site of intentional vaccination, there is no evidence that generalized vaccinia—that is, the condition seen in the ordinary practice of vaccination—is due to a latent unhealthy state of the skin. Tedder's conclusion is: "True generalized vaccinia represents a disturbance (following vaccination) of the balance between the virus and the virucidal substances which it calls for in a person having an intact healthy skin, so that the virus which is disseminated haematogenously becomes active in the skin, producing a generalized vesico-pustular eruption, lesions on the mucosae, and general symptoms." As a balance can be disturbed to either side this statement is not precise, and its meaning can be put into three words—lack of antibody.

Incidence of Generalized Vaccinia

There is no doubt of the infrequency of generalized vaccinia. Numerous estimates of its incidence have been made, ranging from 1 in 10,000 to 1 in 100,000, and even 1 in 900,000 (Chaudhuri, 1940). For a considerable number of years all reports of cases of generalized vaccinia and other eruptions sent by the public vaccinators of England and Wales to Lieut.-Col. W. D. H. Stevenson, Director of the Government Lymph Establishment, have been subjected to special scrutiny, and to inquiry where deemed advisable, and the statistics so derived can be taken as ample for a fair computation. During the period July 1, 1932, to June 30, 1937, in 1,026,588 vaccinations 15 cases of generalized vaccinia and 11 doubtful cases were reported, giving, if the doubtful cases are included, an incidence rate of not more than 1 in 39,484 vaccinations (Shaw and Stevenson, 1939). If the doubtful cases are excluded the rate is 1 in 68,439. Since the publication of those figures a wider survey of the establishment records has been made by Stevenson and Cox; this covers four years—1909-10 and 1921-2—taken at random, and the period from July, 1932, to June, 1941. The total number of vaccinations reported by public vaccinators was 3,289,733, with 34 accepted cases of generalized vaccinia; 35 reported cases were considered on inquiry to be doubtful enough to warrant exclusion. The accepted cases gave, therefore, an incidence rate of 1 in 96,756, with 4 deaths—a fatality rate of 11.7% and a mortality of 1.2 per million vaccinations. There was no death among the rejected cases.

Some years ago a questionary on the incidence of generalized vaccinia was addressed by the Ministry of Health to 28 public vaccinators selected on account of their long experience in vaccination. Replies were received from 26; of these, 17 reported that they had seen cases "occasionally" or "not for some years," or that they had seen one case within a stated period. Three had not seen a case in, respectively, 32, 28, and 27 years. As to supernumerary vesicles, one vaccinator was of the opinion that they occurred in less than 1% of vaccinations; another had not seen any in 27 years; and a third had not had more than 6 instances in many thousands of vaccinations.

Incidence in Adults.—It is widely believed that generalized vaccinia is more rare in adults than in children. Only 1 patient in the above 34 was beyond childhood, and was aged 17 years. The number of adult vaccinations reported by the public vaccinators is not available from our central records, but it can be said that in a period of several years during which nearly four million doses of lymph for adult use were issued by the Government Lymph Establishment only one instance of generalized vaccinia was reported among those adults. The experience of Froumy, reported by Haslund and quoted by Anders (1919), is surely unique. He vaccinated 175 cadets, all of whom had been successfully vaccinated in earlier life; of these, 64 had normal vesicles, 56 had small vesicles, and 55 were unsuccessful. Of the 64, 8 developed an eruption that may have been vaccinial, and 12 developed typical vaccinial pustules on face, trunk, and extremities; in 4 of the 12 the eruption was considerable, and it appeared even on the mucous membranes.

Secondary and Tertiary Vaccinations.—There is no record at the Ministry of generalized vaccinia in secondary or tertiary vaccinations, but Froumy's cases show that secondaries may not be exempt; and an instance in a tertiary was published by Stewart (1902). The risk is, of course, inversely proportional to the amount of immunity remaining from the previous vaccination.

Vaccinial Rashes

The various kinds of vaccinial rashes sometimes cause difficulty in diagnosis when small-pox is present in the district. During the small-pox epidemic of 1902 Chalke (1931) made a study of these, and he concluded that by far the greater number were accidental and either were in the nature of serum rashes (erythematous, scarlatiniform, morbilliform, and urticarial) or were due to the absorption of toxic products from the vaccinial site; that other symptoms of serum disease were not often encountered and the introduction of a small amount of serum in the operation of vaccination did not act as a sensitizing dose; and that vaccinial rashes of any type were rare among revaccinated subjects.

The rashes reported to the Ministry have been described by the public vaccinators as papular, pustular, punctate, erythematous, morbilliform, urticarial, roseolar, eczematous, and macular. From the records of six consecutive years Stevenson has computed that the incidence of all rashes, including generalized vaccinia and supernumerary vesicles (but excluding rashes near the vaccination vesicle and probably due to faulty dressings), was 1 in 7,755 vaccinations. It must be noted, however, that the occurrence of a vaccinial rash after a public vaccinator has ceased his routine visits to a normally progressing case of vaccinia may not be brought to his knowledge, particularly if the rash is mild and evanescent; doubtless, therefore, the true incidence is somewhat greater. But in a recent period of mass vaccination in Glasgow a ratio approximately as high as 1 in 4,000 was recorded; no instance of generalized vaccinia was found in a total of about half a million vaccinations (Bloch, 1942).

One case of mild pemphigus, one of petechial rash, and two of purpuric rash have come to our notice, but purpura associated with vaccination is very rare; the number of recorded cases is probably less than a dozen, though Heaton (1940), in reporting a case, quotes a statement of Trant that the occurrence was noted as long ago as 1842. In the experience of Stelwagon (1902) the most frequent generalized manifestation was "a mixed type of urticaria and erythema multiforme, or better described as an erythema multiforme with often itching and other features of urticaria." It is probable that in the majority of instances the vaccinial rash is anomalous in its being a mixture of lesions and not a single dermatosis, and possible that allergy is an important factor in causation.

Vaccinial rashes may appear at any time in the course of vaccinia from the day after vaccination, the earliest being mainly the erythematous and urticarial, but the incidence of rash is low in the first week, and available figures indicate that the majority—say 80%—develop in the period from the 7th to the 11th day after vaccination.

Generalized vaccinia has no prodromal rashes: the occurrence of a rash prior to or along with the specific eruption is fortuitous. It is only a papular rash that should raise suspicion of generalized vaccinia, and even then the diagnosis should, as Shaw and Stevenson suggest (1939), be withheld unless the papules proceed to vesiculation. The eruption usually affects the trunk more than the limbs and, as mentioned before, it may appear on the mucous membranes. In a fatal adult case reported by Anders (1919) the eruption had extended to the trachea. Turnbull (1941) has published an unusual case of dysphagia due to swelling of the tongue caused by the eruption on it of two vesicles; the case, which was fatal, is of interest because of its extreme rarity. The only previously recorded instance of interference with feeding appears to be that of a case brought to the notice of the Royal Commission on Vaccination (1896); the presence of vesicles in the mouth prevented the infant from sucking, and death ensued.

Concurrence of Generalized Vaccinia and Post-vaccinial Encephalitis

The concurrence of two conditions so rare as generalized vaccinia and post-vaccinial encephalitis must be a very remote chance—one in many millions—and only 8 cases appear to have been described or mentioned. One reported by Weichsel (1931) may be accepted. A fatal case described by Paisseau and Scherrer (1929) had singular symptoms: the legs from the knees downwards and the feet were cold and blue, the forearms and hands were cold and blue, almost black. The general eruption consisted of 3 pustules near the vaccination pustules, 1 on the back of the arm, 1 near the axillary fold, and 1 on the upper part of the back—a distribution that hardly escapes from the category of supernumerary vesicles. These authors mention, without traceable reference, a case of generalized vaccinia and post-vaccinial encephalitis that had been published before theirs. Jorge (1927), on the authority of Garret, gave an account of a case of vaccinial eruption with meningeal symptoms, followed by blindness and deafness, that cleared up after five months. Jorge also mentions an encephalitic case of Netter and Cestas's in which a vaccinial eruption appeared on the thigh 14 days after vaccination; the site of vaccination is not stated. Mexico, however, provides the most remarkable record. In that country 8 cases of post-vaccinial encephalitis were reported in the decennium 1928-37; of the 4 that recovered, 2 had residual paralyses with mental disturbance and 1 had residual deafness. The patient with residual deafness, and 2 of those who died, had generalized vaccinia.

In England and Wales only one instance of the suspected concurrence of the conditions has been brought to our notice, and after inquiry it was concluded that neither of them existed. Case 114 in the Further Report (1930) of the Committee on Vaccination may, however, be a true instance.

Generalized Vaccinia of the Foetus

Though vaccinia rarely influences the course of pregnancy there is considerable evidence that vaccination late in the pregnancy confers some degree of immunity on the foetus; but the immunity is transient, and is lost in a few weeks after birth. There does not appear to be any record of generalized vaccinia in a pregnant woman, and therefore much interest is attached to accounts of foetal eruptions following vaccinia in the mother. Lynch (1932) has published an account of an eruption, which he calls "pemphigoid vaccinia," in the premature and short-lived child of a woman vaccinated 27 days before the birth, and he is of the opinion that similar cases have been described in the past as intra-uterine variola. He has collected 8 cases from the literature, beginning with one recorded by Jenner; in all of them, as in his case, the mother was vaccinated because of the presence of small-pox either in the home or in the district, and none of the mothers developed a variolous eruption. If we reject one case (Siebold's) as too fanciful for credence it appears that the births took place from two to ten weeks after vaccination and that, of the 7 infants, 4 were stillborn, 1 was non-viable (5th month), and 2 died soon after birth. That these mothers passed through vaccinia and variola sine eruptione with variolation of the foetus is a probability too distant for contemplation, and in the light of Lynch's informative discussion it is reasonable to regard these as instances of generalized vaccinia of the foetus.

Auto-inoculation (Auto-vaccination)

Auto-inoculation is not generalized vaccinia; it is the result of the transfer of virus from the vaccination vesicle to one or more places on the skin, almost invariably by the fingers of the vaccinee and inoculated by scratching. For diagnosis the sites are suggestive, being commonly the face and the front of the body. Auto-inoculation sometimes induces generalized vaccinia; in this event, pocks do not cease to appear after suitable precautions have been taken, but continue to arise for as long, perhaps, as five or six weeks. The condition known as eczema vaccinatum has already been mentioned.

Post-mortem Findings

In the generalized vaccinia produced in rabbits by intravenous inoculation, usually of extremely active strains of virus in very large doses, lesions have been found in the lungs, liver, spleen, and suprarenals. In human generalized vaccinia there has not been the introduction of an overwhelming dose or of a virulent strain; the reaction is due to an inherent susceptibility and, as in other acute infections, death can ensue from toxaemia rather than from visceral damage. In a case examined by Dible and Gleave (1934) there was some oedema in the lungs and congestion of the bases, otherwise the respiratory system was normal, and so was the heart. The liver showed two small white, solid areas, each about 3–4 mm. in diameter; both were on the surface and visible beneath the peritoneal coat. Apart from some slight fatty infiltration the organ showed no other change. In the spleen there were some congested areas but no other visible abnormality. The remaining abdominal organs exhibited no naked-eye changes. The central nervous system showed general congestion but no other naked-eye lesion. The lesions in the two pocks in the liver were almost pure necrosis with karyolysis of the liver cell nuclei and a rapid conversion of the tissue into a granular unstaining mass; the lesions were as sharply delimited as the pocks in the skin. The spleen had a considerable number of necrotic foci, the largest 0.5 mm. in diameter; their histological appearance corresponded to that described in the liver and skin—the same pure sharply circumscribed necrosis, absence of reaction, minimal infiltration with leucocytes, and karyolysis of most of the nuclei: briefly, pure necrosis without haemorrhage and with a minimum of reactive change. No lesions were seen and no virus was demonstrated in the brain. The authors point out the similarity of the epithelial lesions to those of the older descriptions of small-pox lesions rather than to those produced in thin-skinned experimental animals such as the rabbit.

Diagnosis

The virus of vaccinia has been demonstrated in the blood as early as the third day after vaccination; on the other hand, it has been shown that the excision of a normally progressing vaccination site as late as the fourth day can prevent the full development of immunity. In theory generalized vaccinia is a late starter; it cannot be ahead of the local vaccinial reaction, and in practice it rarely runs equal. The fourth day after vaccination may be taken as the earliest day of appearance, and by far the commonest period is from the ninth to the fourteenth day. Delay to the twenty-third has been reported, as in Froumy's case, and in this curious event it must be supposed that immunity had not been firmly established. The end-point of cropping is indefinite; the eruption does not ordinarily go beyond one crop, but new crops may appear up to five or six weeks, though this is unusual. By Cory's law the time taken in the maturation of pocks should be inversely proportional to the degree of immunity, and rapid maturation of new pocks will indicate that immunity is being developed. In diagnosis the following considerations will be helpful:

1. Auto-inoculation should be excluded.
2. The eruption does not appear earlier than the fourth, and seldom earlier than the ninth, day after vaccination.
3. The eruption must be elsewhere than in the neighbourhood of the vaccination site.
4. There must be a vesicular stage.

The eruption may arise on any part of the skin—limitation to one sole has been reported—and within the mouth. The distribution is not specific, and any resemblance to that of small-pox is accidental. When profuse the elements may show much diversity in size, up to that of a sixpence or even larger, as contrasted with the almost uniform size seen in discrete small-pox.

Treatment

In some quarters it is the practice to seek to prevent severe reactions in adult primary vaccinations by puncturing and evacuating the vesicle on the seventh or eighth day after vaccination and applying a dressing of permanganate of potash. This is not free from the risk of impairment of protection, as immunity against small-pox is not satisfactorily established before the ninth day and it would not be justifiable as an attempt to prevent the unusual complication of generalized vaccinia. Mervyn Gordon (1941) has suggested, however, that permanganate of potash, to which the viruses of both vaccinia and small-pox are extremely susceptible, might be effectively used in treatment by the application of a wet compress of the permanganate solution to the vesicles of the eruption. Even in a dilution of 1 in 100,000, he states, permanganate can inactivate the vaccinia virus, but glycerin should not be added, for it inhibits the virucidal action. He advises also that in a severe case trial should be made of serum from a recently vaccinated person—a treatment which, in fact, he was the first to suggest in post-vaccinial encephalitis. The most potent serum, in his opinion, would be that taken from young healthy adults 14 days after vaccination.

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An account of a case of mycotic endocarditis has been given by A. Wikler and his colleagues (*J. Amer. med. Ass.*, 1942, **119**, 333). The patient was addicted to heroin and had a mitral lesion. On two occasions during his life blood counts yielded a yeast-like growth subsequently demonstrated to be *Candida (Monilia) parakrusei*. The authors believe that careful laboratory work ruled out the possibility of contamination of the culture medium, and point out that during the past two years 5 cases of mycotic endocarditis have been recorded in cases of drug addiction; in 4 of these the infecting organism was *Candida parakrusei*, and in the fifth *C. guillermondi*. The authors were unable to isolate *Candida* from samples of heroin, and point out that this fungus is frequently found on the surface of the skin.

THE PROGNOSIS IN CIVILIAN HEAD INJURIES

BY

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The prognosis of accidents depends on many non-medical factors. Besides the results of organic damage there are social and psychological factors which profoundly influence the patient's health, happiness, and working capacity after an accident. Prognostic studies in the past have taken little account of these factors, though many discrepancies in recorded numerical results probably depended on such influences as the condition of the labour market at the time, the system of social insurance, and their consequent social and psychological effects.

The Accident and Rehabilitation Services which have recently been developed owe their existence largely to such considerations. In the publications on their organization, methods, and result very little reference has been made to the problem of head injuries, though the importance of these is far from negligible. Not only is their proportion among the accident admissions considerable—at this hospital about 30%—but their after-effects are generally regarded as serious in character and difficult to assess. It seemed of interest, therefore, to study the prognosis of head injuries, particularly at a time of comparatively standardized and favourable social conditions, when everybody has the choice of well-paid jobs and most employers are ready to facilitate gradual return to work.

All cases were treated by an active method of early rehabilitation. No patient was told to keep quiet; if he did so on account of unpleasant sensations he was early encouraged to move his head and body freely, to sit up, and, after a few days, to get out of bed. Lumbar puncture was carried out only where desirable for diagnostic purposes, and no dehydration was employed. Elsewhere I have described how, with this form of treatment, these patients suffered but little from headache (Guttmann, 1943). The same paper gives details of the severity and type of the accidents. The present paper deals with the results of the treatment on the loss of working time. Some references to earlier publications on the prognosis of head injury are appended. The figures reported are not easily comparable on account of the differences of time of follow-up, the proportion of cases re-examined, and the social conditions. Only Ritchie Russell (1932) has given a detailed analysis of similar material, and his figures are quoted on p. 95. But his patients were kept in hospital for at least three weeks.

Material

This paper is based on 300 consecutive admissions of head injury; among these were 255 civilians available for study. These cases, it must be emphasized, were the unselected accidents, mainly road accidents, of a mixed urban and rural area. Ten patients out of the 255 (4%) died; of the remainder 2 were permanently incapacitated owing to cerebral damage. The duration of the in-patient treatment is given in Table I.

TABLE I.—*Duration of In-patient Treatment (245 Cases)*

Up to 1 week	125
„ 2 weeks	76
„ 3 „	22
„ 4 „	12
Longer	10

Table I shows that just over 80% of all cases were discharged from hospital within two weeks of admission. Among the 245 incapacitated patients are included all cases with injuries elsewhere: 73 had major injuries, such as fractures of bones. All cases of mild head injury (i.e., with a post-traumatic amnesia of one hour or less) were treated in hospital fourteen days or less; three-quarters of the cases of moderate severity (post-traumatic amnesia up to 24 hours) and one-half of the severe cases (post-traumatic amnesia over 24 hours) were discharged within the same period. All cases which stayed in hospital four weeks or longer did so on account of complications, such as fractures of the spine, pelvis, or extremities. After discharge from hospital the patients returned for further treatment to their own doctors, to whom a letter was sent. They came back to hospital for re-examination at a date when they were expected to be fit for work, and again three months and six months after the accident. Patients who failed to keep these appointments were followed up by the department's social worker. Table II gives the social classification of the patients.

TABLE II.—*Social Classification*

	Number
Children under school age	12
School children	29
Housewives, excluding married women going out to work ..	25
Wage-earners, including aforementioned	158
Owners of businesses	12
Not working, including chronic invalids	9

Results

All housewives returned to their work; but as their duties varied very much from case to case, as did the amount of help they received during convalescence, it did not seem possible to express their time off work in precise figures. The school children will be discussed in another paper.

Of the 158 wage-earners, 19 could not be traced after the first follow-up appointment, and no information about their taking up work was forthcoming. Six patients returned to work during the follow-up period, but no exact information was available as regards the total working time lost by them. Three patients expected their call-up, and did not return to their previous work for that reason; they all joined the Services during the follow-up period.

The working time lost in 130 cases is given in Table III. It should be noted that all cases are included, whether they had injuries to other parts of the body or not. To compare the figures with those given by Ritchie Russell the respective tables have to be condensed, as under (Ritchie Russell's figures in brackets).

TABLE III.—*Loss of Working Time*

Weeks lost ..	1	2	3	4	5	6	7	8	9	10	11	12	13
No. of patients ..	4	18	10	18	18	7	9	10	3	4	2	4	5
Weeks lost ..	**14**	**15**	**16**	**17**	**18**	**19**	**20**	**21**	**22**	**23**	**24**	**25**	**26 and over**
No. of patients ..	—	1	1	1	—	—	3	1	1	1	1	—	8

Returned to work within 13 weeks	112	
Returned to work within 26 weeks or joined up	131	(110)
Not returned to work within 26 weeks	8	(29)

The crude average of the figures in Table III is 6.6 weeks, exclusive of those still off work at the end of the six-months period. Owing to the large scatter this average does not give a true picture, and it is fairer to say that 25% of the patients lost three weeks or less, 50% between three and nine weeks, and 25% more than nine weeks.

The low incidence of headache in these patients has been described in another paper (Guttmann, 1943). None of the patients relapsed during the first six months after the accident. Only those patients who had symptoms or signs at that date were given further follow-up appointments; apart from one case of post-traumatic epilepsy no patient reported any further loss of working time. Some of those off work after 26 weeks subsequently returned to their occupations.

Of the eight patients who did not return to work within 26 weeks only two were incapacitated by cerebral damage. Four were definitely neurotic, and a fifth very likely so. The last case showed neurotic symptoms superimposed on residual symptoms due to a fractured pelvis. Though other psychological factors could be found to account for the neurotic reactions, the compensation problem played a part in three out of the five non-organic cases. In order to see the importance of this factor in the correct light one has to compare these cases with the other occupational accidents. There were altogether 11 cases in this series with a claim under the Workmen's Compensation Act—the three cases mentioned and eight others. Of the latter eight cases six returned to work in 2, 3, 4, 5, 5, and 6 weeks respectively. Another case, off work for 10 weeks, was a serious injury with a post-traumatic amnesia of six hours. The last case was off for 16 weeks on account of a compression fracture of the spine. Claims against drivers and insurance companies arising out of road accidents were not here considered.

There was a higher proportion of compensation cases in Ritchie Russell's material; the mildly injured among them showed a tendency to stay off work comparatively longer. The lesser influence of the compensation in the present series may be due to the conditions of employment in wartime. But the number of cases is too small for any definite conclusions. The impression gained is that the compensation claim does not act as an incentive—conscious or unconscious—to produce a neurosis, but that in patients with latent difficulties the monetary compensation may enable them to stay off work when otherwise they might have put up with their symptoms. Delays and frictions in the compensation machinery increase and lengthen the neurotic symptoms. The psychological mechanisms have recently been described by B. Hart (1942), and the following case record illustrates some of them.

A carpenter aged 58 with a steady work record. While at work he fell down a 6-ft. hole. He was unconscious for a few minutes; his post-traumatic amnesia was 15 minutes. He had a fissure in his left temporal bone and a fracture of the right clavicle. Apart from slight nystagmus bilaterally, he had no neurological signs. He complained continually of some headache and giddiness, but was mostly handicapped by limitation of movement and pain in his right shoulder. This, he said, affected his head. The lack of power in his right arm was increasingly worse at subsequent examinations, though neither surgical nor neurological examination showed any objective signs to account for it.

On the day after the accident he was to have started in a new job for his firm. In order to see what this new job amounted to, he had opened the door to the stokehole where he was to work. No one had told him of the 6-ft. drop and iron stairs leading to the stokehole. This he still resented many months after the accident. At some medical examination he was told that there was nothing that medical treatment could do for him, and that he should find himself a lighter job. His comment was that he was a trade union man, and that so long as his compensation money was coming through he would sooner wait to be fit to resume his own job than take a light job meanwhile. He also had a grievance against the hospital because he was not seen by a particular doctor.

Of his previous history it is worth mentioning that he had not been fit for service in the last war on account of effort syndrome, and he had continued to suffer from this long after the war. He also mentioned spontaneously, in the course of the interview, that he never had much money to spend on himself, as all his three daughters had gained scholarships and he had to maintain them for the extra years, to pay for their training and so forth. The feeling that he deserved some rest and pay and consideration influenced his attitude very much.

Severity of Injury

The duration of unconsciousness is generally regarded as an indicator of the severity of a concussion. Ritchie Russell suggested using the duration of post-traumatic amnesia instead, as it is easier to assess. To test the prognostic value of this measure, the cases (excluding those patients kept off work by injuries to other parts of the body) were divided into four groups and the average off-work times calculated for each. Table IV shows clearly that the time off work increases with the length of post-traumatic amnesia (though only the difference between the first and the second group is statistically significant). Considering that the cases are entirely unselected, the figures may well be used as a prognostic guide: in other words, one may expect a patient with a post-traumatic amnesia of an hour or less

TABLE IV.—*Duration of Post-traumatic Amnesia and Loss of Working Time not affected by Injuries Elsewhere (105 Cases)*

Post-traumatic Amnesia	No of Cases.	Weeks	Difference	St. E.
Up to 1 hour	67	4·5 ± 2·08	1·10	0·539
„ 1 day	27	5·6 ± 2·46	3·25	2·078
„ 1 week	7	8·85 ± 5·34	4·90	3·084
Longer	7	13·75 ± 4·65		

to be fit for work in about four weeks; with an amnesia up to about 24 hours, within about six weeks; and with an amnesia up to one week, within eight or nine weeks. This, however, does not refer to penetrating injuries; about these and other pitfalls of the prognosis, in the light of the post-traumatic amnesia, the reader must be referred to Cairns (1941).

In all those with mild concussion who stayed off work for seven weeks or more, psychological factors could be found to account for the fact. A few short examples may illustrate the point.

A boy with a momentary amnesia stayed off work for eight weeks. The reason he gave was a trivial scar, which, he said, prevented him from cycling to his work. In fact, he was badly shaken by the terrifying experience of being squeezed between a van and a wall while cycling.

A woman with a head injury incurred in an attempt at suicide during the third attack of a recurrent depression stayed away from work on account of her depression.

A nervous woman given to bilious headaches all her life stayed off work on account of post-concussional headache; she was employed on strenuous war work in a factory, and had the obvious attitude that she deserved a good rest.

A man with a trivial concussion and a haematoma round his eye, with transient restriction of eye movement, developed psychogenic symptoms referring to his eye first and general depression and anxiety later.

A short survey of the small number of independent shopkeepers and business men (12 in all) confirms the view that late effects of head injury are more often due to social and psychological factors than to the physical effect of the accident. All but one had had accidents of moderate severity. Five returned to work within two weeks, four within two months. The latter were inclined to take it easy—one among them on account of a mild endogenous depression, another for the duration of the settlement of an insurance claim. The psychological factors operative in the three remaining cases were more complicated. The following is the history of one of them.

A man aged 34 had a concussion with a post-traumatic amnesia of about six hours. Apart from a few lacerations of the scalp he had a fracture of the right zygoma which caused no disability. He was discharged from hospital 16 days after the accident, complaining only of slight giddiness. When seen again three months after the accident he showed generalized tremor of the shell-shock kind and a hysterical astasia abasia. The patient was a man of moderate intelligence. Until a short time before the accident happened he had been a general labourer employed on construction of an aerodrome near the village where he lived. He had earned an unusual amount of money, and, on the advice of his clever brother-in-law, he bought a lorry and undertook work for the contractor on his own account. A fortnight after he had started the venture the accident occurred: an Army lorry ran into him and his lorry was badly damaged. The Army authorities assumed responsibility for the repair, but he had not succeeded in getting the repair work done and had not received any monetary compensation so far. Everything was in the hands of his brother-in-law and the solicitors. There were probably additional reasons for the hysterical reaction. The patient had previously had an accident which had been followed by a considerable time off work and continuous headache.

This case, which mostly resembles the picture of compensation neurosis, is probably more correctly interpreted as the patient's reaction to his life situation, with which he was not able to cope. His position as an entrepreneur was already beyond him, and the complications created by the accident made him break down. It is very unlikely that he could, or actually did, expect any financial gain, beyond compensation for his loss.

Comment

The analysis of all the cases—it must be emphasized again that they are the unselected total of cases of head injury admitted to this hospital—gives some idea in how short a time the average patient can be discharged from hospital and become fit to return to work under the social conditions characterized in the beginning of this paper. The figures of off-work time given for the groups of different severity are somewhat below those suggested for similar cases by Cairns, and this is not surprising in view of the different social setting (civilian as against Service cases). This does not mean that all patients were free from symptoms when they returned to work: the social prognosis is not identical with the medical prognosis. Some patients complained of headache and a few of postural giddiness for a varying length of time (Guttmann, 1943); but they were able to adjust themselves to their symptoms, just as they had adjusted themselves to headaches and other symptoms before the accident. Several showed, when examined psychologically, some impairment of their mnestic functions; but this did not prevent them from returning to their previous work and doing it efficiently and willingly. (Such patients may find themselves handicapped when they have to change their occupation and to adjust themselves to new conditions; but this did not arise in the present series: it is generally of greater importance in intellectual workers, who are in the minority among hospital admissions.) A few cases showed emotional changes (slight euphoria or emotional indifference) which did not interfere with their working capacity, and may, indeed, have helped in adjusting them to their symptoms. Where return to work was delayed beyond the average periods it could be shown that social and psychological factors, rather than physical after-effects, of the injury were predominantly responsible.

This points to the need for psychological management in the early stages and for facilities for psychological treatment and social after-care in the convalescence and afterwards. It is impossible to estimate to what extent the outcome in this series was influenced by the interviewing and follow-up arrangements; but one may assume that the procedure had some effect, since such psychiatric investigations inevitably lead to increased contact through discussion of some of the patient's problems and arrangements for his convalescent period, etc. One would anticipate that more systematic and intensive work along these lines would improve the social results not only in head injuries but in all branches of accident work.

Summary

A series of 300 consecutive admissions of head injuries to an Accident Service in a mixed urban and rural-district was investigated in regard to the social effects of the accidents. 4% of the patients died, and two became invalids through cerebral damage. Of the cases 80% were treated in hospital for 14 days or less. The average working time lost by wage-earners was roughly eight weeks. In mild cases (i.e., those with a post-traumatic amnesia of one hour or less) the average loss of working time was 4 to 5 weeks; in moderate cases (post-traumatic amnesia 1 to 24 hours) it was 5 to 6 weeks; in severe cases (post-traumatic amnesia 1 to 7 days) about 9 weeks; and in the severest cases 14 weeks. Eight patients were off work for 26 weeks—two on account of cerebral damage. In patients who stayed off work for an unusually long time, with the exception of the cases of cerebral damage, it could be shown that social and psychological factors were responsible rather than the physical effects of the accidents.

These results emphasize the need for prophylactic management and after-care until the patient has successfully returned to work.

My thanks are due to Prof. H. Cairns and Mr. J. C. Scott for permission to use their case material and for much helpful criticism; to Miss Horder, social worker, for her assistance in the follow-up; and to the Rockefeller Foundation for a grant to support this investigation.

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E. H. Trowbridge and L. Secunda (*New Engl. J. Med.*, 1942, **226**, 195) examined the cerebrospinal fluid in 641 cases of chronic alcoholism admitted to the Boston Psychopathic Hospital between 1929 and 1939, and found that 20% had more than 45 mg. of protein per 100 c.cm. of cerebrospinal fluid. Abnormal protein in the cerebrospinal fluid was more than twice as frequent in chronic alcoholics as in controls. The presence, duration, and number of previous attacks of alcoholic psychosis had no influence on the protein of the c.s.f., and in this connexion, too, the presence of polyneuritis seemed to have no significance.

A CASE OF EVENTRATION OF THE DIAPHRAGM

BY

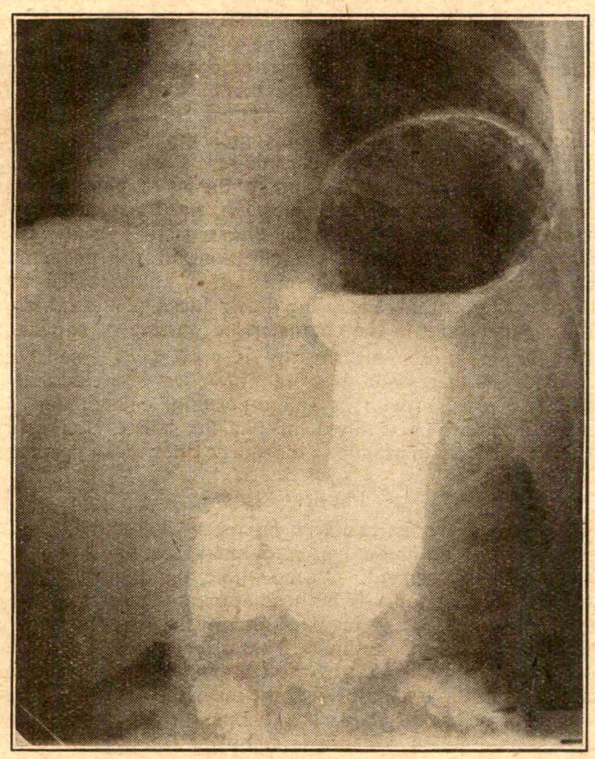
A. J. E. MILLS, M.B., Ch.B.

The condition known as eventration of the diaphragm, although rare, probably occurs more often than is generally believed. There may be no symptoms, and when symptoms are present they may be vague and misleading in character. The degree of disability resulting from the condition varies very much in individual cases. Diagnosis may not be easy. The following case is of considerable interest as illustrating these points.

Case Report

The patient, a man aged 37, is a solicitor. He was first seen by me on Nov. 18, 1941, when he was suffering from an attack of acute nasopharyngitis. A routine examination of the chest, however, revealed quite unusual physical signs, and a day or two elapsed before it was recognized that they were in no way related to his febrile illness.

On examination the thorax was seen to be of normal size and shape. Movement on respiration was diminished on the left side in the lower part. The apex beat was neither visible nor palpable in the normal position. A pulsation, which corresponded in rate to the radial pulse, was felt in the fourth interspace, 2¾ in. to the right of the midsternal line. Normal heart sounds were heard on auscultation over this pulsation. Cardiac dullness extended from 2¾ in. to the right of the midsternal line to 1 in. to the left of the midline, and downward to merge with the liver dullness. The upper border was not elicited with any accuracy. Apart from the abnormal position of the heart, the physical signs on the right side were normal.



Radiograph taken after a barium meal, showing high position of left diaphragm, marked displacement of heart to right, and large bubble of gas in stomach.

On the left side anteriorly, from the level of the fourth rib downward and round into the lowest third of the axilla, the percussion note was tympanitic. In this area the breath sounds were absent, being replaced by splashing and gurgling sounds. Posteriorly, on the left side, the percussion note was impaired from the level of the angle of the scapula downward to the extreme base, where it was again tympanitic. In these areas of impaired resonance and tympany the breath sounds were greatly diminished, the vocal resonance reduced, and the vocal fremitus absent. Elsewhere on the left side, both anteriorly and posteriorly, the percussion note was resonant, the breath sounds vesicular, and the vocal resonance and fremitus normal. The patient had no pain, but complained of a feeling of distension in the lower chest and upper abdomen on the left side.

A radiological examination was made by Dr. George Grant, who reported as follows: "The left diaphragm was much elevated into the thorax and a large collection of gas was seen immediately beneath it. The heart was much displaced to the right and gave almost an appearance of dextrocardia. Investigation on the screen showed that the left half of the diaphragm moved normally with inspiration and expiration, except that the excursion was less."

Further radiological examinations were made on Jan. 19, Feb. 16, and March 7, 1942, and all showed the position of the heart and the left diaphragm to be unchanged. "A barium meal passed down a normal oesophagus without delay and entered what appeared to be an upper loculus of the stomach, lying in the posterior half of the base of the thorax; the contents eventually 'spilled-over' into the lower main part of the stomach, which appeared normal. A lateral view showed the peculiar form of the proximal half of the stomach with much distension. The biloculation appeared to be due to inversion posteriorly of the cardiac end. There was no pyloric stenosis, and passage onwards of the meal was normal. No other abnormality was seen except for the high position of the splenic flexure."

Several clinical examinations were made at subsequent dates up to May 21, and on each occasion the physical signs described were found to be unchanged.

Apart from an attack of "threatened appendicitis" at the age of 12 years and left-sided herpes zoster at 22, the patient has had no illnesses of note. During his school and university careers he regularly took part in long-distance running and hockey, and continued to play hockey until he was 34 years old. He believes that he was always more "short of breath" than most people under the same circumstances, and was unable to play in any game earlier than 3 to 4 hours after his last meal. For as long as he can remember he has often suffered from a feeling of distension in the epigastrium and left hypochondrium. This and frequent paroxysms of severe hiccup have been his chief symptoms. An attack of hiccup often lasts for well over an hour and is only relieved by lying down for a considerable time. The appetite is fairly good, and there is no nausea, vomiting, heartburn, or water-brash. The bowels are regular, evacuation is easy, and the stools are not constipated. He is a teetotaller and a non-smoker. In Feb., 1941, he was passed as Grade I by a medical board for military service.

There can be little doubt that the case is one of eventration of the left side of the diaphragm, and almost certainly of congenital origin.

Discussion

The absence of paradoxical movement excludes the possibility that the condition is due to a paralysis of the left phrenic nerve. Singleton (1937) and Hurst (1941) claim that a diagnosis of congenital eventration of the diaphragm cannot be made in the absence of paradoxical movement. Bayne-Jones (1916), Korns (1921), and Reed and Borden (1935), on the other hand, all agree that the movement on the affected side may be normal, diminished, or paradoxical. In the 6 cases described by Wood and Wood (1931) paradoxical movement was noted in only one.

Increased divergence of the costal margin from the midline on the affected side, due to action of the intercostal muscles unopposed by the weak diaphragm, was seen in this case. This phenomenon has been referred to as Korns's sign, and was stated by Korns (1921) to be diagnostic of eventration in contrast to herniation of the diaphragm. According to Hurst (1939), megacolon is commoner than congenital defect as a cause of high position of the left diaphragm. In the present case neither the clinical findings nor the appearances during administration of a barium enema and after a barium meal were at all suggestive of megacolon. That the condition is one of *aérogastrie bloquée* is unlikely, as acute pain was never present, the clinical and radiological signs did not vary, and the passage of a tube into the stomach was without result.

Of the subjective symptoms present, hiccup was the most prominent in my case. In a search through the relevant literature I have failed to find this mentioned as a symptom of eventration of the diaphragm.

Summary

A case of congenital eventration of the left side of the diaphragm in a man aged 37 is described. Although associated

with marked displacement of the heart, he is able, with certain precautions, to undergo violent exercise, and was placed in Grade I by a medical board. Hiccup is a prominent symptom which has not hitherto been noted in connexion with this condition.

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THE SIGNIFICANCE OF PLEURISY AND PLEURAL EFFUSION IN DIFFERENTIAL DIAGNOSIS

BY

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The assessment of the significance of pleurisy and pleural effusion comes under three main headings of history and physical signs, *x*-ray diagnosis, and laboratory examination of fluid in cases of frank effusion. Only by considering the findings in this order can the physician come to a justifiable decision in any difficult case for differential diagnosis. To place too much reliance on the results of the accessory laboratory and *x*-ray reports without considering them in the light of the fundamental findings of careful history and physical examination may lead to disastrous results for the patient.

History : Temperature

Certain points in the history deserve special attention. The age of the patient can often give an indication of what the physician may expect as the true cause of the condition. At all ages the possibility that the illness is secondary to any primary lesion between pneumonia and new growth must be borne in mind, but there are certain broad lines of direction. Thus, if we are to believe after-histories, the disease is seldom tuberculous under the age of 15. In the age group 15 to 25, however, the diagnosis of tuberculosis must be to the fore: while at its earlier ages many cases are idiopathic, towards its later ages we must be on the look out for underlying lung disease. The probability of such primary tuberculous disease remains in age groups up to 40; over 40, new growth demands increasing consideration.

Examination of the temperature chart can give much assistance. Tuberculous pleurisy and pleural effusion usually cause an acute rise of temperature to the neighbourhood of 102° F., and while in primary idiopathic cases the fall is commonly by steady lysis, that in secondary tuberculous effusion is by interrupted lysis—that is, in a series of peaks of temperature at intervals of 2 or 3 days, each successive peak being slightly lower than its predecessor, and intervening falls being of 1 or 2 degrees. Such a temperature chart is not like that of pleural effusion complicating the case of pneumonia. Here the initial onset temperature round 103° F. is maintained until the crisis brings a fall to a subfebrile rather even level, maintained as long as the fluid is clear, but replaced by swinging variations on the appearance of pus. It is not, however, easy to distinguish such a chart from that of pneumonia complicated by abscess of lung. The charts of effusion in new growth or cardiac and renal failure may show continued subfebrile temperatures, but most show no rise above the normal line.

Pain

The history of pleural pain, with reference to its site and intensity, is almost diagnostic in several instances. The agonizing mid-axillary pain of pneumonia is totally unlike the basal discomfort of the bronchopneumonic. That described as the "growing of wings" between the shoulder-blades, often the first sign of plastic pleurisy in a recently active case of phthisis, is quite different from both the "rheumatic" shoulder ache of healing and healed upper-zone tuberculosis, and the shooting shoulder and upper-arm "neuritis" of diaphragmatic pleurisy. The stabbing posterior axillary pain of acute tuberculous pleurisy—of longer duration than pneumonic pleurisy, and often maintained until effusion is established—should be readily distinguished from the pain of middle-lobe collapse. Here the pain is always anterior, below the mammary line, periodic, and varying in characteristic waves of intensity from discomfort to acute agony. Further, such varying intensity in a confined and usually silent area is in direct contrast with the slightness or absence of pain associated with an extensive pleural rub in abscess of the lung. On the other hand, the limited extent of pleural signs as against the marked extent of dullness in the average bronchiectasic is an interesting comparison with the repeated discomforts and absent or anomalous stethoscopic findings in cystic disease of the bronchi. Epidemic myalgia ("Bornholm disease") shows such variations, and so marked a dissociation between pain and pleural friction in the cases so labelled that it is probably not a true entity but a mixture of two separate conditions, some patients having muscular rheumatism and others abortive lung abscess; moreover, it is diagnosed at seasons when upper sinusitis and antral infections are common.

General Examination

Careful and complete physical examination should be carried out in all cases. The necessity for a general examination cannot be overstressed, for the possibility that chest symptoms and findings are secondary to abdominal disease—e.g., diaphragmatic pleurisy complicating subphrenic abscess—must ever be kept in mind.

The general appearance and facies will repay their study. The anxious look of fear predominates in the pneumonic, and while he may have a flush on one or both cheeks, which is particularly marked with the onset of complications, he never has the appealing look, the clear complexion, and the bright eye of the average tuberculous patient. This is in contradistinction to the muddiness of complexion which is a predominant feature in cases of chronic sepsis, whether the lesion be an encysted purulent effusion in the main pleural sac or in an interlobar fissure, bronchiectasis, or the purulent complications of congenital cystic disease. It appears fairly rapidly in the acute septic complications of the pneumonias such as lung abscess, but here is often accompanied by a look of excitement, absent in the drawn facies of the exhausted cardiac patient and in the characteristic wasting of carcinoma.

If pulmonary osteo-arthropathy is present its type should be noted, as there is a marked difference between that of established phthisis, with its antero-posterior enlargement, and that of sepsis which involves the phalanx laterally as well as antero-posteriorly to produce a diagnostic drumstick appearance.

Physical Signs

Two points are particularly important in actual physical signs: the position and extent of dullness, and any evidence of mediastinal displacement. On the whole, the dullness of established lobar pneumonia is both anterior and posterior, and in intensity is equal, at any involved area in the lung, between the periphery and the mediastinum. That of collapsed lower lobe is first completely posterior; as the collapse progresses, the dullness diminishes in extent towards the inner third, while the outer zones become more and more tympanitic by compensatory emphysema. When collapse is complete the dullness is confined to the anterior cardio-phrenic angle. Such a finding is in direct contradistinction to the bilateral areas of dullness confined to the costo-phrenic angles in pleural effusion complicating cardiac failure, and should not be confused with either the outer-half dullness of established tuberculous pleural effusion or the anterior lower-zone dullness of a collapsing middle lobe.

The "sterno-mastoid sign" is the easiest method of diagnosing mediastinal displacement, as tension of one muscle will demonstrate the pushing or pulling of the mediastinum to the same side as the tension. The sign is a valuable correlation with the position of the apex beat, the displacement of which means that there is a lesion on one side of the chest which is either confined to the lower zone or involves all three zones of the lung. Upper-zone disease alone seldom moves the apex beat. An actual example of the application of these findings may be given in the diagnosis of fluid complicating right-lower-lobe collapse. Immediately collapse begins, the sterno-mastoid on the same side becomes tense. As collapse increases, the apex beat moves to the right. Should fluid supervene on the collapsing lobe the position of the apex beat will not be an aid in itself; it will often remain within normal limits as the result of two opposing forces. The sterno-mastoid sign, however, remains positive on the right side and will therefore be direct evidence that the case is one of secondary and not of primary pleural effusion.

X-ray Examination

The examination of *x*-ray films of pleural effusion requires specialized knowledge. Unfortunately it has become accepted in many textbooks that the radiograph of frank pleural effusion is recognized by a curved line showing a concavity downwards and inwards from the axilla to the diaphragm. It is possible that to wait for such a confirmatory line may postpone necessary treatment and diagnostic pleural puncture to a late stage. Fluid first accumulates in the posterior diaphragmatic angle, and from the beginning seems to be associated with an area of fine equal loss of translucency in the costo-phrenic angle of the affected side. Examination of several cases seen at this early stage appears to lead to the conclusion that this shadow is at first due on the right side to a relaxation of the diaphragm and a rise of the liver. The differential diagnosis of the shadow of established effusion, as against that of pneumonia, is that while pleural effusion shows loss of translucency increasing in density from the periphery to the middle zone, the shadow of established lobar pneumonia is equal in density at any one level between the periphery and the mediastinum. Moreover, the fact that pneumonia does not displace the mediastinum is a distinct aid.

The changing density of shadow in pleural effusion is due in the majority of cases to pressure-collapse of the lung; the establishment of a definite linear curve means only that already there is some organization of the visceral pleura. The midzone density may of course be due to underlying disease of the lung. In both cases withdrawal of fluid, even if accompanied by air replacement, is not always helpful to final diagnosis, as all that may occur is that the fluid remains over the collapsed or diseased area, to produce a shadow this time convex in outline as against its previous concavity.

The case of suspected interlobar effusion should always have the benefit of a lateral radiograph, and it often pays to carry out a lordotic examination at the same time.

The main difficulties in the differential diagnosis of interlobar effusion are connected with shadows in the region of the right upper interlobar fissure. Here the physician may have to consider the possibilities of pneumonia affecting one branch of the bronchus, tuberculous pneumonia, and bronchial carcinoma. While pneumonia in its later stages of non-resolution may produce a concavity upwards of the interlobar fissure, the uncomplicated case seldom shows a well-defined line. Tuberculous pneumonia usually has its most marked density of shadow above the middle third of the raised interlobar fissure. New growth has similar increased density of the inner third. Involvement of one branch of the bronchus by pneumonia gives an inner or outer third increase of density according as to whether the infection is in the axillary or the pectoral branch; it is not confined to the interlobar fissure, but extends well into the lung substance. In all such chronic conditions the upward concavity in the interlobar fissure is due to shrinkage-collapse of the affected lobe and compensatory emphysema of the underlying lobes. An added help in the radiograph is that whereas tuberculous pneumonia from its start, and bronchial carcinoma in its later stages, show mediastinal displacement to the affected side, uncomplicated pneumonia shows a central mediastinum. Interlobar fluid, if it does cause displacement, will show it to the side opposite from the lesion until the effusion becomes encysted and, in drying, produces fibrosis. Again, where fluid is present the underlying compensatory emphysema is no longer evident: the well-defined interlobar fissure becomes a straight line or shows a convexity as against its previous concavity.

The shadow of middle-lobe collapse is so different as to be usually diagnostic, especially in the lateral view. The antero-posterior view has two specific findings. The first is that the shadows in the lower midzone are lateral in formation as against the usual downward and outward distribution of lower-lobe bronchopneumonia. The second is that there is almost always an area of translucency between the raised diaphragm and these lateral shadows. The lateral radiograph may be completely diagnostic in itself, in that it shows a typical triangular formation, the upper apex of the triangle lying at the junction of the upper two-thirds and the lower third of the mediastinum, the upper outer side of the triangle going outwards towards the fourth rib in the axilla, and the inner lower side passing downwards and inwards towards the middle of the raised diaphragm.

Difficulty is often encountered in the differential diagnosis of middle-lobe collapse or fibrosis on the one hand and mediastinal or mediastino-interlobar effusion on the other, by faulty positioning of a patient who has to be radiographed by portable apparatus while in bed. Often a semi-lordotic film is produced, giving a confused picture of the mediastinum and a squat shadow of the heart, and it may be necessary to support the patient in bed to get good antero-posterior and lordotic pictures before final diagnosis is made.

Idiopathic diaphragmatic pleurisy does not show any involvement of lung or diaphragm in radiographs. A secondary diaphragmatic pleurisy is common in abdominal disease, and in particular in subphrenic abscess. The effusion tends to be localized, and in most cases shows in the antero-posterior picture as a loss of translucency which sits above the line of the diaphragm, with a density little less than that of the underlying congested liver.

The radiograph of the transudates of cardiac and renal failure generally shows bilateral effusion, small in extent, and confined to the costo-phrenic angles.

Examination of the Fluid

It does not seem to be generally recognized that it is of primary importance to accompany the examination of pleural fluid with a complete blood count. This is as important as the general examination of the patient, as it is quite possible that an underlying primary disease, either lung or abdominal, may be missed in all good faith. For example, the finding of a predominant leucocytosis in the blood film is as important as the presence of excess polymorphs in an effusion which is going on to empyema. A diaphragmatic effusion in its early stages may be read as tuberculous in origin, whereas the true underlying condition may be subphrenic abscess.

In general, it may be stated that it does not follow that an effusion in a known tuberculous case is necessarily tuberculous; difficulties have been encountered in cases in which the true primary cause has been shown later to be cardiac failure. Another general point that requires emphasis is that no effusion should be considered as blood unless such blood is evident to the naked eye. In the examination, therefore, it is always necessary that the pathologist should compare the actual incidence of leucocytes and of true red cells in the sample submitted. Further, it does not follow because there is blood to the naked eye that the underlying condition is necessarily new growth; it may be acute tuberculosis.

The appearance of the fluid can be of much help. A clear odourless yellowish fluid is found in both exudates and transudates, but the tuberculous exudate clots more readily, has a higher specific gravity, and usually contains protein of more than 4 mg. per c.cm. Its cell count shows excess of small lymphocytes. An excess of endothelial cells is common in transudates and in obstruction to the circulation; it may suggest new growth, but is not diagnostic. Excess eosinophils are common in hydatid cyst which has been mistaken for pleural effusion. It is said that if they occur in a post-pneumonic effusion the prognosis is likely to be good, in that the patient will not go on to empyema.

The bacteriology of tuberculous fluid can be very misleading if the proper time for examination is not chosen. Fluid withdrawn at the onset of tuberculous effusion will usually be entirely negative to both culture and guinea-pig inoculation, and if this finding is taken as conclusive the result to the patient may be serious.

Cloudy fluid is common in streptococcal infections. Chylous effusion is usually opaque and must make the physician think of chronic tuberculosis or endothelioma of the pleura. It is exceedingly common in injury to the left subclavian vein or the main thoracic duct. Purulent effusions which are odourless are as a rule thin in the early stages. Tuberculous septic pyothorax usually gives a greenish-yellow purulent fluid. Where the effusion is offensive, the observer must immediately suspect the presence of lung or bowel communication with the pleural cavity, and his mind will run on a differential diagnosis for the primary lesion as between abscess of lung, bronchiectasis, empyema with broncho-pleural fistula, and pus in the abdomen, where subphrenic abscess is by far the commonest finding.

TRANSUTERINE INSUFFLATION AND SALPINGOGRAPHY

BY

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The usual methods of uterine and tubal insufflation, whether by gas or by radio-opaque substances, are somewhat tedious to carry out, and their use often involves a certain amount of physical as well as psychological trauma to the patient. The following method, in which a simplified type of cannula is used, was evolved by me some twelve months ago, and has proved to be satisfactory either for gas-insufflation in the consulting-room or for injection of radio-opaque fluid in the *x*-ray department or operating theatre.

The Apparatus

The insufflation cannula (Figs. 1 and 2, B) consists of a hollow metal tube with a conical, rather sharp, screw-tip; this can be screwed into the cervical canal tightly enough to prevent leakage around it. At first sight this might seem a traumatic procedure; but repeated examinations made after its use have failed to show that any damage has been inflicted on the cervix, nor is the process of insertion and screwing-in attended with more than very minor discomfort. The proximal end of the tube is expanded so that a rubber tube can be slipped on to it from the ordinary CO_2 or air-insufflator apparatus, and into this same end can be screwed, if lipiodol is to be used, an adapter with bayonet-fitting to take any standard S.I.M.A. syringe (Fig. 1, E). The cannula also has a stylet (Figs. 1 and 2, C), which reaches about three-quarters of an inch beyond the distal end. The purpose of this is to guide the cannula into the cervical canal, from which it is automatically extruded during the process of screwing-in.

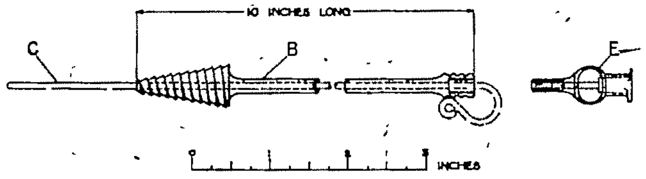

FIG. 1

Method of Use.—The patient lies in the left lateral or the lithotomy position. A narrow, warmed and lubricated Fergusson's speculum with obturator (Fig. 2, A) is passed and the obturator withdrawn. Illumination is provided by anglepoise lamp or headlamp, and when the os presents it is mopped dry and cleaned with a suitable antiseptic; for this purpose I have found it convenient to use cotton-wool swabs held in Desjardins' gall-stone forceps (Fig. 2, D). The speculum is steadied with the left hand, and the cannula, armed with its stylet, is passed with the right hand. The stylet, guiding the tip of the screw-cone through the external os into the cervical canal, is now loosened, and the cannula is screwed home gently but firmly; the stylet is now removed and the speculum may also be withdrawn. If the patient is in the left lateral position she is now asked to turn on to her back; meanwhile the cannula is simply steadied by the operator, for it will not disengage itself. The gas or lipiodol connexion is now fitted at the distal end of the cannula, and the routine insufflation carried out with the minimum of assistance and fuss.

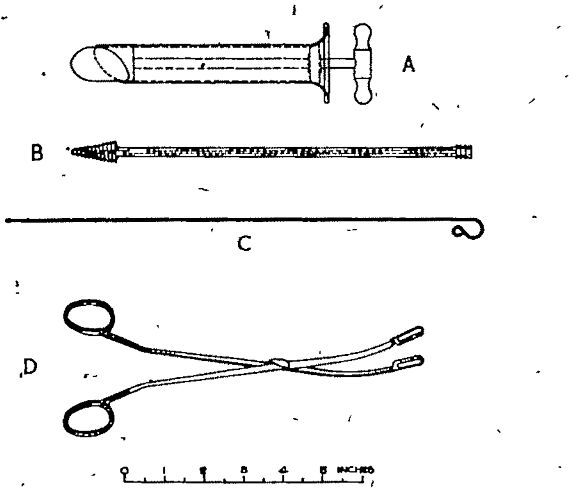

FIG. 2

Comment

1. It is claimed that this method has the merit of simplicity.
2. An air- and oil-tight connexion is ensured, and hence leakage, which may produce false impressions, is avoided.
3. The use of vulsella, which are painful and traumatic when applied to the cervix, is rendered unnecessary. This is particularly valuable, since distortion of the uterus and appendages by traction and countertraction is avoided. Indeed, the cervix can actually be pulled down during insufflation or injection, if desired.
4. During the process of "screwing home" the patient may complain of some pain; this is usually slight, and ceases as soon as the screw is fixed in the cervix.

The cannula was originally made for me by Mr. A. E. Christmas of Frome, to whom I am greatly indebted for many helpful suggestions, and is now being manufactured and marketed by Messrs. Down Bros. Ltd.

THE PITRESSIN DIAGNOSIS OF IDIOPATHIC EPILEPSY

BY

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As a rule in hospital practice there is little urgency for a rapid diagnosis to be made in cases of suspected idiopathic epilepsy, and doubtful cases can be submitted to prolonged observation until an actual seizure has taken place. There are, however, certain occasions when it is necessary to establish a definite diagnosis as early as possible. In the average hospital case the required period of observation will be a matter of days or at the most a week or so, but when irregular seizures occur at infrequent intervals this period may have to be extended into months before a definite diagnosis can be established. It is with a view to curtailing this period of observation that an attempt has been made to determine a method whereby the condition can be diagnosed with a degree of certainty in the absence of seizures.

Indications for Use of the Method

The circumstances under which it may be necessary to give a rapid opinion on the existence or otherwise of this condition will, of necessity, vary according to the requirements of the individual case, but the following are indications in which the method has been found to be of value.

1. In order to differentiate between idiopathic epilepsy and hystero-epilepsy.
2. Where the existence of idiopathic epilepsy has been claimed by a patient in the absence of clinical evidence and a definite diagnosis has to be established.
3. When a diagnosis has to be made in a case where the history and clinical features are suggestive of the presence of idiopathic epilepsy, the existence of which is denied by the patient, and where a seizure has not resulted.
4. Where a diagnosis has to be established as a result of various conduct abnormalities being attributed by the patient to the existence of idiopathic epilepsy, and where a seizure has not resulted.
5. Where a differential diagnosis has to be made between idiopathic epilepsy and malingering.
6. Where, under any of the foregoing indications, there is an added urgency for legal reasons, and where time does not suffice for the usual method of continued observation by a trained nurse until an actual seizure ensues.

At present these various indications are often encountered in the routine examination and assessment of Service cases, and the importance of reducing the period of observation necessary, with the resultant economy in time, expenditure, and man-power, as well as the greater accuracy afforded in diagnosis, can be readily appreciated.

Relation of Water Balance to Idiopathic Epilepsy

The rationale of the method adopted depends upon the fact that retention of water in the body will precipitate a seizure in predisposed persons while exerting little influence on normal individuals. In 1931 McQuarrie, studying the effects of prolonged pituitary antidiuresis combined with increased fluid intake on young epileptics, found that seizures resulted in predisposed subjects but not in others. Working along similar lines, Temple Fay found that abnormalities in water metabolism were an important predisposing factor in the production of idiopathic epilepsy. Similar investigations have been carried out by Jacobsen, and later by Clegg and Thorpe, who have made exhaustive studies on the relation between the water balance of the body and the occurrence of epileptic seizures. Clinically, the frequency with which distension of the subarachnoid space is demonstrable in epileptic subjects either by means of operative procedure or by encephalography is of importance, while various observers have stressed the efficacy of hydragogue cathartics in the reduction or averting of seizures without associating this finding with the water balance of the body, but rather attributing the beneficial results obtained to the removal of toxic substances.

The establishment of a positive water balance in a selected subject can be obtained by the prolonged ingestion of copious amounts of water alone, but this method requires the expenditure of a considerable amount of time and often leads to lack of co-operation on the part of the patient and, in some cases, to actual refusal to continue to submit to investigation. More rapid results are obtained by the oral administration of copious amounts of water accompanied by pitressin intramuscularly. This is the pressor and antidiuretic principle of the posterior lobe of the pituitary, as distinct from the oxytocic. This substance has the property of causing marked water retention in normal individuals while having the subsidiary effects of stimulating the involuntary muscle of the gastro-intestinal and genito-urinary tracts and slowing the pulse.

Experiments with anaesthetized animals have shown that pitressin, even in small doses, produces a temporary polyuria followed by a reduction in output which in time amounts to an almost complete stoppage of flow. In non-anaesthetized dogs the antidiuretic effect is well marked, and this is also the predominant effect in the human subject. The action of pitressin in causing water retention in a normal subject is demonstrated in the accompanying chart. A is the normal curve, showing the accumulative excretion of urine resulting from the ingestion of 1,000 c.cm. of water at 8 a.m. The curve reaches its zenith after the expiry of 5 to 6 hours, and remains at a fairly constant level thereafter. B shows the effect produced by injections of 1 c.cm. of pitressin under similar conditions. C and D show the effect produced by injections of 2 c.cm. and 3 c.cm. of pitressin respectively. It will be seen that even in small doses this substance has a well-marked antidiuretic effect on the human subject.

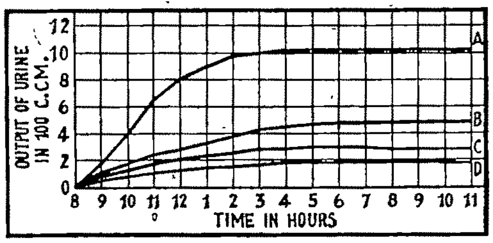

Chart showing the water-retaining action of pitressin in a normal subject.

A Preliminary Test

On account of the physiological properties of pitressin there are certain contraindications to its employment in diagnosis. These are mainly the presence of diabetes, nephritis, arteriosclerosis, and myocarditis, and before starting the investigation it is advisable to eliminate the existence of these conditions by a routine urinary examination, an estimation of the blood pressure, and a cardiovascular examination. The test adopted was carried out in the following manner.

The patient under investigation was confined to bed throughout the test. The bowels were opened by an enema, urine was voided, and his weight was then taken. Ordinary diet was maintained throughout; any previous sedative therapy was discontinued, and he was encouraged to drink copious amounts of fluids. The intake and output of fluid were charted daily, while the patient was weighed morning and evening. An increase of 2% in the body-weight with the ingestion showing an excess over the excretion was accepted as evidence that a positive water balance had been established (earlier investigators stressed the importance of there being a 3 to 6% increase, but this standard was abandoned in the early stages of the present investigation as the period necessary to obtain this additional increase defeated the purpose of the test.) The average period required for the establishment of this balance with a co-operative patient carefully supervised was 48 hours. Throughout the investigation known non-susceptible patients were used as controls. When a satisfactory water balance had been attained, 0.25 c.cm. of pitressin was injected intramuscularly and 300 c.cm. of water was administered orally. Thereafter 0.5 c.cm. of pitressin was injected and 300 c.cm. of water given orally every two hours to a total of 10 injections. On the occurrence of a seizure the treatment was immediately stopped, but otherwise the full course was given. In every case pallor followed the administration of pitressin within 5 minutes of the injection, and lasted on an average for 3 hours, disappearing after the second or third injection, but in a few cases this continued at a uniform level throughout the investigation. The physiological action of the drug was displayed by the slowing of the pulse and the tendency to looseness of the bowels, but these features were in no instance severe enough to merit termination of the investigation.

The positive evidence that idiopathic epilepsy is present depends upon the development of an actual seizure, which may be of either the major or the minor type. The failure to produce such a result does not necessarily prove that the patient is non-susceptible, and in doubtful cases the test may have to be repeated before an opinion can be given. The seizure in susceptible cases has been found to result most frequently after the fifth or sixth injection—that is, a period of 8 to 10 hours—but in certain cases this may be delayed until after the tenth or final injection, while in others a positive result may be obtained in the initial stages after the first injection.

The combination of the establishment of a positive water balance and administration of pitressin appears to be a necessary factor in the production of the seizure, as cases treated with pitressin alone without previous adjustment of the water balance failed to react, while no result was obtained in those cases in which a positive water balance alone was established. The control cases, which were previously known to be non-susceptible, displayed the physiological signs of pallor, slowness of pulse, and looseness of the bowels, but in no instance did a seizure of either type ensue. This specific action enabled the differential diagnosis between the idiopathic and hysterical types to be readily made without having recourse to a period of prolonged observation.

The above test was carried out on 87 cases in which it was desired either to establish or to eliminate the possibility of the presence of idiopathic epilepsy. The following Tables summarize the results obtained.

TABLE I.—*Results in Cases in which Presence of Idiopathic Epilepsy was Suspected from the History or Clinical Features but Existence of which was Denied by Patient*

Cases treated	49
Positive results	45
Failure to react	1
No. stopped	3
Test result verified by subsequent history	39

TABLE II.—*Results in Cases in which Presence of Idiopathic Epilepsy was claimed by Patient in Absence of Supporting Clinical Evidence*

Cases treated	38
Positive results	8
Failure to react	28
No. stopped	2
Test results verified by subsequent history	7

TABLE III.—*Results showing Position in Course of Test at which Seizure Resulted*

Cases Treated	Positive Results	No. of Pitressin Injection									
		1	2	3	4	5	6	7	8	9	10
87	53	2	1	2	4	19	17	0	0	2	6

In every case the patient was kept in hospital under observation for a period of one month after the termination of the investigation for the purpose of obtaining corroborative evidence, or until such time as a seizure resulted if this period was less than one month. In those cases in which no evidence was available at the expiry of this period the patient was discharged and the subsequent medical history was followed up through the medium of the family doctor.

The above Tables show that only 1 out of 49 susceptible cases failed to react, and that of the 45 cases which gave a positive reaction 39 (86.6%) were later found to furnish corroborative evidence of the accuracy of the test. In the second group, positive evidence was afforded by means of the test at the expiry of 72 hours in 8 cases, which would otherwise have required a prolonged period of observation; of these 8 cases 7 later furnished corroborative evidence in the light of the subsequent history. In only one case of the series did a positive water balance fail to be established and result in ending the investigation, while 2 cases had to be terminated on account of the nausea which persisted in spite of various forms of treatment. Three cases had to be terminated, on account of non-medical factors associated with home circumstances, before any definite result could be obtained.

These findings are in keeping with Jacobsen's original investigation of 40 patients, mostly children and known epileptics, in whom a seizure was induced in every case by the use of pitressin after the water balance had been satisfactorily established. Clegg and Thorpe, under similar conditions, obtained positive evidence in a group of 16 adult epileptics.

As experimental water intoxication in animals results in the onset of convulsive seizures and vomiting, and although epileptic phenomena can be more readily produced in animals than in man, it is reasonable to deduce that some relation exists between the water balance of the body and the onset of the actual seizure. The epileptic's nervous system appears to be unstable and easily influenced by minute changes in the osmotic pressure of the body fluids. As water retention is accompanied by a lowering of the osmotic pressure of the blood serum it is considered that the factor precipitating the actual seizure is the resultant exudation of fluid into the intratrabecular spaces, which are loosely supported, and that subsequent to the seizure the osmotic pressure of the blood serum returns to its normal level. The specific *modus operandi* of the antidiuretic effect of pitressin is not yet fully understood, but water elimination is probably retarded by a change in the permeability of the cell membrane and the establishment of a new balance between water loss and water concentration. Whether the precipitating factor is controlled or influenced by psychological, dietetic, allergic, endocrinic, or other factors has not as yet been ascertained, and further work along parallel lines will be required before a definite statement can be made as to the actual cause of the seizure. This finding has been claimed to be of therapeutic value by certain observers, who state that beneficial effects follow the use of a diet with a minimum fluid intake. To be effective, however, the course of treatment must be prolonged over a number of years, and this is apt to cause the patient a degree of distress, with a consequent discontinuance of the routine.

Summary and Conclusion

A method of investigation suitable for use in cases of suspected idiopathic epilepsy has been advanced. The method has been found to possess the advantage of enabling a fairly accurate opinion to be given in a short time. In the average case this period will be 72 hours, consisting of 48 hours for the establishment of a positive water balance and a maximum period of 24 hours for the actual investigation. The advantage of this in the grading of Service cases at the present time can be appreciated, while it offers certain economic advantages to hospitals and out-patient centres.

The accuracy of diagnosis as verified by a subsequent follow-up of cases has been placed at 86.6%, after a prolonged investigation of 87 unselected cases of average adult age.

The method possesses the advantage of simplicity in application and interpretation of results. The period of observation is reduced to a minimum, and the method need only be subsequently utilized in cases in which a positive result has not been obtained at the end of the period.

A suggestion as to the mode of producing the actual seizure has been advanced and further lines of investigation have been indicated.

ADDENDUM.—For some years past it has been recognized that the electro-encephalograph furnishes a ready and accurate means of diagnosing the presence of idiopathic epilepsy on account of the abnormal waves which are met with in these cases. While it is not suggested that the method outlined above should replace that of electro-encephalography, it affords an accurate gauge and may be utilized by all classes of practitioner, to many of whom the facilities afforded by the former method are not readily available.

Medical Memoranda

Diphtheria during Immunization

At the present time, when so many children are being immunized, the following case is of some interest.

CASE RECORD

A child aged 5 was inoculated with the first dose—0.2 c.cm.—of diphtheria prophylactic. She was a perfectly healthy child and had had no previous illness of any significance. The inoculation was done with the usual aseptic precautions, and the phial was well shaken in order to mix the contents thoroughly. The inoculum used was alum-precipitated toxoid (A.P.T.). This preparation was chosen because it is particularly useful in children under 8 years; it provides a high degree of immunity, and reactions from it are rare; in older children and adults reactions may be somewhat severe.

In this case, as in many others of the same age, there was no local or general reaction to the inoculation. In the third week following the first injection the patient was seen again on account of general malaise and listlessness. She was inclined to lie down and sleep, complained of a feeling of nausea, and appeared to be generally "out of sorts." On examination there were no physical signs in any system and no symptoms apart from a furred tongue; the throat was clear. The mother remarked that the child appeared to be "sickening for something," as indeed she was. She was confined to bed and given a light kind of diet and drinks, and a simple sodium bicarbonate mixture.

In two days she developed what appeared to be an acute follicular tonsillitis, with a few punctate septic spots on both tonsils. The tongue was dry and furred, she complained of thirst, and had vomited occasionally. The temperature was raised to 103.5°, the pulse was rapid, the face flushed, and she presented the usual general febrile condition. In the course of routine examination of all systems the knee-jerks (which are often absent in early diphtheria) were present. The urine was albumin-free. In the treatment advised, milk drinks were curtailed (in order to lessen the amount of methionine, which inhibits the bacteriostatic action of sulphonamides), and streptocide was prescribed—half a tablet (0.25 g.) three-hourly. The following day the patient was very much improved; she was much brighter and was sitting up in bed, the temperature had fallen to 99°, and symptoms generally had abated. The throat had cleared considerably except for a small patch on the left tonsil about 1/8 in. in diameter.

Both tonsils had been swabbed, purely as a matter of precaution; a negative swab was not anticipated owing to (*a*) the absence of a definite or suspicious membrane, (*b*) the fact that the knee-jerks were present, (*c*) the typical sharp rise of temperature suggesting an acute streptococcal throat infection. A positive result for K.L.B., however, was notified from the laboratory; by then the patient was sprightly and apparently fairly well.

COMMENT

The phenomenon of diphtheria following shortly after the first stage of immunization would lead one to consider whether administration of toxoid activates any dormant infection such as that of a carrier at the time of inoculation. One suggestion may be that there is a greater susceptibility to infection—the so-called "negative phase" following inoculation—and that a dormant bacillus, whether virulent or avirulent, may be activated indirectly or assume a comparatively virulent form in an organism of lowered resistance, producing toxic symptoms. There is thus good ground for indicating that a valuable procedure would be to swab all throats before inoculation and administer antitoxin until one obtains negative swabs—at least, in those cases in which virulence tests demonstrate a "gravis" type. Adoption of this routine would be of more value than Schick-testing, which, as suggested by Leete (*B.M.J.*, 1942, 2, 121), can be dispensed with provided one intends ultimately to immunize with a reliable antigen.

In this particular case the streptococcal infection was evidently cleared by streptocide, and it is probable that the streptococci enhanced the virulence of K.L.B. in a mixed infection.

Liverpool. G. A. GARRETT, M.B.

Removal of Filaria Worm from Eye

The following case may be rare enough in this country to merit description.

I was asked recently in the mess by a middle-aged officer who had spent a considerable period of his life in Nigeria if I knew anything about tropical diseases. Upon my saying that I had them all at my finger-tips, he asked without further preamble, "Then can you take a filaria out of my eye, Doc.?" I decided either that he was suffering from delusions brought on by too much probing into textbooks or that if he spoke the truth my assumption of knowledge had been rather too glib. However, a short examination showed a marked injection of the conjunctiva of his right eye, with a worm wriggling underneath towards the outer canthus.

We went to sick quarters, only about five minutes' walk, but by that time the worm had disappeared. It was decided to wait, and in half an hour it had come into view again in the fornix of the lower sac. The eye was cocainized, and, in the absence of ophthalmic instruments, the worm was removed with dental tweezers through a small hole made with a bistoury, the patient applying vigorous traction to the lower lid himself. He made an uninterrupted recovery from this major operation, except for some bruising of the lower lid from his own enthusiastic co-operation.

The worm was 32 mm. long on measurement. Microscopically it was identical with the textbook description of the female worm of *Loa loa*, except that the fully grown female is described as being 50 to 70 mm. long.

The history leaves little doubt that this was a *Loa loa* infestation, although the patient had been four years in this country since serving in Nigeria. Whilst there he twice had worms removed from his right eye, and once suffered from typical "Calabar swellings" on his wrist. He never suffered any other ill effects between the appearance of these worms, and had been perfectly fit since his return to this country. He does not remember the original bite, presumably by a mango-fly.

My thanks are due to Dr. Skeoch of the County Laboratory for his interest and co-operation.

M. C. T. REILLY, M.B.,
Squadron Leader, R.A.F.V.R.

Reviews

SURGICAL CARE BEFORE AND AFTER OPERATION

Surgical Care A Handbook of Pre- and Post-Operative Treatment By R. W. Raven, F.R.C.S., Major, R.A.M.C. (Pp 271. 10s. 6d.) London. Edward Arnold and Co. 1942.

Since the war began there has been almost a spate of textbooks on pre- and post-operative treatment. The most recent wanders rather widely from the course which its title might lead us to expect; thus, opening it at random, we find a micrograph of a tubercle, a reproduction of an *x*-ray film of tuberculous disease of the hip, and then four consecutive illustrations of syphilitic lesions, all of which might seem a little wide of pre- and post-operative treatment. There is, however, much useful advice on the care of surgical patients. Some of the author's statements will not be acceptable to all. It would seem a little unnecessary, perhaps even a little harsh, to prevent patients operated upon for toxic goitre from seeing any visitors for as long as three days afterwards. Some chapters are short descriptions of the subject with but brief reference to pre- and post-operative care: thus Chapter 19, on hernia, has six pages on the different varieties of hernia and their treatment, on the complications of hernia, and illustrations of trusses; and but a few lines on pre- and post-operative care relating to radical cure and to strangulation. Not only does the author of this little book skim adroitly over the field of general surgery, but he enters the specialties, with chapters on eye, ear, nose, and throat operations, on anaesthetics, and on gynaecology. The author's hope, expressed in the preface, that the book will be helpful to "all who are engaged in the management of the surgical patient, both nursing and surgical," is perhaps somewhat ambitious, as the book would appear to be too advanced for the one and perhaps rather elementary for the other, while the medical student is already well provided with handbooks of everyday surgery to use in connexion with his larger textbooks. The best and most useful chapters are those on wounds, shock, transfusion and infusion, and oxygen administration.

TWO BOOKS ON PSYCHOLOGY

Psychiatry in Medical Education. By Franklin G. Ebaugh, M.D., and Charles A. Rymer, M.D. (Pp. 619 $3.50 or 20s.) New York: The Commonwealth Fund; London. Oxford University Press 1942.

Psychology for Individual Education. By Lois Barclay Murphy, Eugene Lerner, Jane Judge, and Madeleine Grant. Edited by Esther Raushenbush (Pp 306 18s. 6d.) New York: Columbia University Press; London Oxford University Press. 1942.

These two books from America both deal with psychology but are in interesting contrast in method and purport. Prof Ebaugh and Dr. Rymer in their *Psychiatry in Medical Education* look at the subject from the professional point of view, and their study is based on a wide survey of the methods practised in many medical schools. It must be remembered that in America the word "psychiatry" includes all that was formerly grouped as medical psychology, whereas in England it is still restricted by many to the treatment of definite psychoses. The authors quote Abraham Flexner's dictum, "The medical curriculum cannot aim at producing physicians ready for practice; it can at best so train the student that experience will in time mature and equip him"—a fundamental truth that is too often forgotten in medical education. They refer to the need for some standard of selection of students suited for a medical career: a subject which will inevitably demand attention if the overcrowding of the schools continues. Moreover, at present many of these fall by the wayside, whether through disinclination or incapacity. The authors make the significant point that the teaching ability of a man is rarely considered in making appointments, and is usually unknown by his colleagues though it is accurately assessed by his students. Some courses are even given by men who themselves fail to grasp the fundamental ideas of psychiatry. As to the syllabus, they agree with H. A. Murray that academic psychology has contributed practically nothing to the knowledge of human nature and is, therefore, useless in medical education. With Prince they feel that what is wanted at the pre-clinical stage is an explanation of the mechanisms that determine mental processes.

This should come immediately after the anatomy and physiology of the nervous system; psychopathology should come at the clinical stage, just before psychiatry. The difficulty of teaching this in clinical classes is recognized because of "the danger of unwarranted intrusion on the privacy of the individual." The postgraduate training of specialists depends on the requirements of the American Board of Psychiatry and Neurology. The authors regard the dominance of the organic point of view as interfering with the recognition of the place of psychiatry in the medical curriculum. Either medicine itself must assume the burden of the teaching of psychosomatic medicine or psychiatry must focus increasing attention upon this aspect. The interrelations of psychiatry with other major divisions of the curriculum are so important that they should dominate psychiatric teaching and practice. The entire instruction might well be centred round the study of man as a whole.

Psychology for Individual Education, on the other hand, describes the course for amateurs given at the Sarah Lawrence College for Girls. Only about half the students anticipate taking up social work as such, while the remainder appear to take the course for light on their personal problems or as a subject of general culture. It is an interesting experiment, but there is the danger that it might lead only to journalistic chatter about matters of personal interest instead of to a scientific and experimental treatment of the subject. It is difficult to judge how far this danger has been avoided without having more details of what is actually taught, but it seems that the dangers were recognized by the lecturers, who were doing their best to avoid them. Thus the only male lecturer who contributes to these pages says, "It is not [the teacher's] function to probe into or attempt to treat the student's emotional problems." This does not quite harmonize, however, with the description given by another lecturer of the emotional reactions excited in the girls by the dissection of a pregnant guinea-pig. One girl, who asked for books which would help her to understand her brothers' annoying behaviour and perhaps do something about it, might have benefited from the parable of the beam and the mote, but she seems to have been dealt with wisely. However, the effect of the course on another girl was to make her "wonder whether there are people who do have good mental health." A discouraging result. No one can doubt the energy, sincerity, and conscientiousness with which these girls were psychologically vivisected, but we are left wondering whether some adolescent characteristics do not mature best away from the glare of the searchlight and the inquisitive microscope. An interesting experiment, we repeat, but one which we should hesitate to advocate in this country until there are more results on which to form a judgment.

SIR PATRICK DUN'S HOSPITAL, DUBLIN

A Short History of Sir Patrick Dun's Hospital By Thomas Gillman Moorhead, M.D., F.R.C.P.&I., LL.D. (Pp. 228. 7s. 6d. plus 6d postage) Dublin: Hodges, Figgis and Co.

The distinguished Regius Professor of Physic in the University of Dublin has never allowed any physical disability to curb his manifold activities, and so with characteristic energy he has produced a well-documented history of Sir Patrick Dun's Hospital, which is timely in view of the probable impending amalgamation with other institutions. Sir Patrick Dun was President of the Royal College of Physicians of Ireland at frequent intervals from 1681 to 1706, and accompanied William III to the Battle of the Boyne. He left his estate, subject to his widow's life interest, to the establishment of a professorship of physic, but as the estate increased in value his bequest was sequestrated for the building of a hospital, the foundation-stone of which was laid in 1803. But funds sufficient for one and ultimately for three professorships were inadequate to maintain a hospital; moreover, as it was built primarily with the object of providing clinical instruction for the students of Trinity College, it made no direct appeal to the charitable public. Thus it remained in financial difficulties until it received £176,580 from the National Sweepstakes. Even when the hospital was built its site was not attractive—on marshy land bordering a canal, which provided many intoxicated, half-drowned patients. Nevertheless, good work was done there; it was a great epoch in Dublin clinical medicine, and men such as Graves and Stokes served on its staff in earlier days, while the clinical teaching of J. M. Purser from 1874 to 1901 made a profound impression on medical thought throughout Ireland. For a short time the distinguished anatomist Alexander Macalister was on the staff. Nor must we omit reference to the work of Miss Huxley in establishing a school of nursing there.

It is unfortunate that the history of the hospital should be marred by so many quarrels, which were carried out with true Irish zest and presumably contributed more to the satisfaction of the antagonists than to the efficiency of the institution. Once again Prof. Moorhead has shown the width of his interests and sympathies, and we must thank him for this admirable footnote to the history of medical education.

Notes on Books

Dr. Geoffrey Bourne strikes the keynote of his book, *Return to Reason: An Essay in Political Diagnosis*, in the frontispiece—a diagrammatic cross-section of the brain of a gorilla and that of a man. Here we see the areas for emotional expression are almost identical, while those governing rational processes are very different. His whole plea is for cultivating the latter rather than the former, while admitting the difficulty of restricting emotional reactions to their proper sphere. Indeed, he illustrates the difficulty by his own emotional attack on politicians. That they are often too amateur in their approach to the problems they meet is unfortunately true; but many have served an apprenticeship in local affairs, and whatever their defects his conclusions are too sweeping. Nor are we impressed with his suggestion that only university graduates should be allowed to stand for Parliament; for we have known graduates who—— But we will not pursue that line of thought, merely recalling Lord Baldwin's plea that the politician's function is to tell the expert just what the public will not stand for. Nevertheless, Dr. Bourne's sincere and forcible protest against the present wave of unreason should be taken seriously: D. H. Lawrence's "dark gods," Gertrude Stein's baby chatter, much modern poetry, and surrealist painting all proclaim the triumph of feeling over reason. The disastrous consequences of this widespread attitude of mind are plain to see. If we give way to this emotional crusade the future is dark indeed. Still, it is to be feared that one is left with the trite and discouraging reflection that if men were better than they are, the world would be a better place than it is. The book is published by Hutchinson and Co. at 2s. 6d.

Gas Warfare, by Mr. W. K. Fitch, editor of the *Pharmaceutical Journal*, is offered as a monograph for instructors. It describes the characteristics of all the known war gases, their physiological effects, the necessary precautions, and the curative treatment. This little book is remarkable for the breadth and extent of the information given, covering as it does a great variety of contingencies. It is presented in a well-arranged form and is written in a commendably lucid style. The publishers are the Pharmaceutical Press, and the price is 2s. 6d.

William Clayton's *Theory of Emulsions and Their Technical Treatment* (J. and A. Churchill; 42s.) deals comprehensively with all theoretical aspects of the subject. It describes the researches of many investigations and discusses the properties of many kinds of emulsions. The new (fourth) edition incorporates important recent work, notably that of Schulman and of King Technical emulsions are treated in considerable detail, and the context is supplemented by copious references, nearly 2,000 being included in the index of authors. An interesting chapter deals with the biological aspect of the subject and describes the results of parenteral administration of fat in emulsified form. Among other observations it has been found that bacterial toxins such as those of diphtheria and tetanus lose their toxicity when adsorbed by oil globules. The book is of great practical value for the information it gives on the quality and behaviour of emulsions as well as for its excellent theoretical treatment.

War Gases: Their Identification and Decontamination, by Morris B. Jacobs, is a well-prepared handbook on gas warfare in its incidence on a civilian population. Its descriptions of war gases are especially useful to the personnel who may have to identify the gases and to estimate the extent of danger. It gives adequate data of the properties and behaviour of nearly forty gases, which include some that have not hitherto been used in warfare. Special attention is paid to the effects on food and to treatment for salving it. The book is of practical value to those whose approach to the subject is from a chemical standpoint, but it is so well written as to prove educational to others than chemists. It has been produced in New York by the Interscience Publishers, Inc., and is published in London at 18s. by the Imperia Book Company.

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PERNICIOUS ANAEMIA OF PREGNANCY

It has been appreciated for nearly 30 years that a severe macrocytic type of anaemia occurs rather frequently in pregnant women in India. A recent article by Mudaliar and Menon[1] gives a good account of the disease. Anaemia of all forms is unduly common in pregnant women in Madras; over 70% of them are anaemic by Western European standards. Macrocytic anaemia of pregnancy is actually more frequent there than pre-eclamptic toxaemia, and 103 cases were found in 1,200 admissions to the ante-natal wards. It manifests itself in the second or third trimester, and the presenting symptoms are oedema, dyspnoea, diarrhoea, heartburn, nausea, and vomiting. Labour is often premature and precipitate, and the gross maternal mortality is approximately 25%. The anaemia may be profound, and haemoglobin values ranged from 50% to less than 10%. By definition the anaemia in Mudaliar and Menon's cases was *macrocytic*—i.e., the mean volume of the red cells in all the women was above 85 cu. microns. Nevertheless, in nearly one-third the colour index was below unity, even as low as 0.5, which means that, though the red cells were always larger than normal, they were often incompletely filled with haemoglobin. In the shorthand of haematology the anaemia in this subgroup was *macrocytic hypochromic*, and by inference due to shortage of both P.A. factor and iron. Megaloblasts were always present in plenty in the blood films. Complete achlorhydria was unusual, and the diet differed in no way from that of the normal Madras woman admitted for confinement. Malaria and kala-azar were not aetiological factors, but hookworm infestation was a dangerous and not uncommon complication. Recovery is complete, but relapse may occur in subsequent confinements. The risk is not great, and is an admonition to supervision and not suspension of further pregnancies. In treatment marmite was disappointing, but good results were obtained with liver given parenterally. In exceptional cases the anaemia may not respond to liver therapy before delivery, and transfusion should then be employed in addition.

So long as search was confined to cases with a peripheral blood picture identical with that of Addison's anaemia, pernicious anaemia of pregnancy remained a haematological curiosity in Western Europe and the U.S.A. But macrocytosis is only one feature of the haematology of the anaemias due to deficiency of the P.A. factor. More pathognomonic characters are the presence of megaloblasts in the peripheral blood smear along with megaloblastic degeneration of the bone marrow, and the therapeutic response to treatment by liver. The rather sharp controversy in our correspondence columns[2] over the definition of the megaloblast may have shaken the faith of our readers in the second of these criteria, but this would be to misunderstand the point at issue. Classical teaching is that the megaloblast is a cell which is found only in foetal life and in anaemias due to lack of P.A. factor, and which is incapable of developing into a normoblast and normal red cell. An American view, which was popularized in this country by Witts in his Goulstonian lectures,[3] is that the megaloblast is a normal phase of erythropoiesis, of which fleeting glimpses may be seen in health and more concrete evidence whenever blood formation is much accelerated. For a time the tide of opinion turned back to the classical view, but it has been reversed again as a result of a study by Davidson, Davis, and Innes[4] of the changes produced in the bone marrow by liver treatment. All this, though of much theoretical interest, is of little importance in clinical work. Every haematologist agrees that the bone marrow in severe anaemias due to lack of P.A. factor shows an unmistakable picture, and a mere glance down the microscope is often enough to make the diagnosis.

Armed with their two powerful new weapons—the sternal puncture needle and the ampoule of liver extract—haematologists have infiltrated into the obstetric wards in the last few years and have shown that pernicious anaemia of pregnancy, though still very much less important than iron deficiency, is more prevalent in temperate climates than had been realized. At the meeting of the Association of Physicians this year[5] Fullerton reported 3 cases from Aberdeen and Sheila Callender 23 from Dundee. Subsequently Davidson's[6] group has reported 16 from Edinburgh, Lescher[7] 17 from Derby, and Miller and Studdert[8] 23 from Newcastle-upon-Tyne. Segerdahl[9] notes that 21 cases have been recorded in Sweden since 1938. It is probable that this sudden eruption of cases is due to improved diagnosis and not to increased incidence.

A few further details about the disease may be brought together from these papers. What was the diagnosis of these cases before we learnt to recognize them as pernicious anaemia?—sometimes toxaemia, but usually puerperal sepsis, on account of the high fever which may be present. Quite frequently symptoms do not draw attention to the illness until the puerperium. It is important that the pendulum should not swing to the other extreme, for pernicious anaemia of pregnancy still remains one of the least frequent causes of anaemia in pregnancy and the puerperium. Although the colour index may be low, the red cells are rarely of smaller size than normal. The haematocrit should therefore always be used to determine the cell volume. Sternal puncture is very desirable, but it demands the help of a skilled haematologist, for the marrow picture is more mature and the megaloblasts less numerous than in pernicious anaemia. The serum iron may also prove to be a diagnostic help, though there are not many centres in this country able to estimate it. It is important to remember that women with true Addison's anaemia may become pregnant, and that Addison's anaemia may begin during pregnancy. Patients must therefore be kept under supervision after confinement to exclude this possibility, though it can be more or less ruled out by a normal test meal. Subacute combined degeneration never occurs in pernicious anaemia of pregnancy, and the child is normal. Treatment must be far more intensive than in Addison's anaemia, particularly before the baby is born; iron is often needed as well as liver, and there should be no hesitation to transfuse blood. Crude intramuscular extracts of liver are said to be more effective than highly purified extracts, and whole liver by mouth is said sometimes to be more effective than parenteral treatment; but neither of these statements is supported by really convincing evidence. Lescher divided his cases into a pernicious type which responded to liver and a haemolytic type which responded to transfusion, but it is doubtful whether any such antithesis is at present justifiable, for anaemias due to lack of P.A. factor often show a strong haemolytic component. Aetiological factors cannot be discussed now, except to hint that some authors seem to forget that the one constant element in the disease is pregnancy. Pregnancy is a time of considerable endocrine disturbance, and it is known that pernicious anaemia is unduly frequent in thyroid and pituitary disorders.[10] Diet is undoubtedly important, but in pernicious anaemia of pregnancy, as in hookworm disease and idiopathic hypochromic anaemia, diet sets the scale of frequency of the anaemia in the community rather than determines its incidence in a particular individual.

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[1] *J. Obstet. Gynaec. Brit. Emp.*, 1942, **49**, 284.
[2] *British Medical Journal*, 1942, **2**, 198, 256, 350.
[3] *Lancet*, 1932, **1**, 495.
[4] *Quart. J. Med.*, 1942, **11**, 19.
[5] Proc. Ass. Phys. Gt. Brit. Ireland, *Quart. J. Med.*, 1942, **11**.
[6] *British Medical Journal*, 1942, **2**, 31.
[7] *Lancet*, 1942, **2**, 148.
[8] Ibid., 1942, **2**, 332.
[9] *Acta med. scand.*, 1941, **108**, 483.

CONTROL OF BACILLARY DYSENTERY

Two recent procedures in the isolation of dysentery bacilli have enabled Hardy, Watt, and de Capito[11] to make surveys of their incidence and persistence in individuals and in communities. The first is the introduction of improved selective media: desoxycholate citrate and Shigella–Salmonella agar. The second is the use of the rectal swab, which permits fresh uncontaminated specimens to be obtained at determined intervals and to be inoculated on culture media without delay. While previously carriers of dysentery bacilli were detected rarely, they are now discovered frequently and with relative ease. Using these new methods, Hardy, Watt, and de Capito made surveys of great epidemiological interest among normal population groups, contacts of dysentery patients, and convalescent carriers. Among groups of persons without a history of diarrhoeal disorder in the past year the incidence of dysentery bacilli varied from 3.8% in New Mexico, Georgia, and Puerto Rico to 0.1% in New York City. The authors do not state, however, whether they surveyed comparable social groups. In institutions for the feeble-minded the incidence fluctuated periodically between 0 and 22%. Family contacts of recognized cases had particularly high carrier rates—e.g., 28% in New Mexico. In a military unit with endemic diarrhoeal disease 10% of the men "on duty and officially well" were found to be harbouring dysentery bacilli. The authors followed up 103 dysentery patients with routine weekly stools and found among them 80% convalescent carriers. The duration of the carrier state was on an average 34 days, and was thus six times that of the acute stage of the illness. In another infected group 10% of the patients remained carriers for more than 10 weeks.

Evidently the recent improvements in laboratory technique are revealing that convalescent dysentery carriers occur more frequently than was previously supposed, and that they may continue to disseminate infection for days, weeks, or even months after the acute illness. New, too, is the knowledge that symptomless carriers often greatly exceed in number the currently occurring cases. These facts probably explain to a large degree the prevalence of endemic dysentery in this country and necessitate a review of the epidemiology of this disease and of its control. By bacteriological investigation carriers may be sought for among cases and intimate contacts in home, institution, or military unit. But hospital isolation until bacteriological recovery occurs spontaneously is difficult owing to the numbers involved, though it is essential for special groups—e.g., Sonne dysentery cases and carriers from nursery schools or infant homes. Hardy, Watt, and de Capito have shown that treatment with sulphaguanidine simplifies the control of Flexner and Newcastle infections, which in carriers as well as cases can be terminated promptly by its use. Among two groups of untreated controls and treated alternates, all were carriers of these organisms at the outset of their experiment. At the end of ten days 76% of the untreated and only 4% of the treated were positive, and on the following day all of the treated were negative. In addition there was a striking and rapid reduction in the number of colonies even before the individual became negative. Mass chemotherapy gives, therefore, promising results for the eradication of Flexner and Newcastle dysentery in heavily infected institutions, military units, and households. The position with regard to Sonne dysentery is not so clear-cut and the authors prefer to draw no definite conclusions from their small series.

The Emergency Public Health Laboratory at Oxford[12] reports that of 11 cases of Sonne dysentery from an outbreak among young children, all of whom were treated with sulphaguanidine, 9 became negative in 0 to 9 days, and 2 in 10 to 19 days. Of 10 symptomless excreters, also treated, 9 became negative in 0 to 9 days, and 1 in 36 days. The duration of excretion was less than that found by Hobbs and Allison[13] of the Cardiff Emergency Public Health Laboratory in cases that received no treatment with sulphaguanidine. The remaining two of the Oxford patients continued to excrete *Bact. sonnei* intermittently for two months and for more than three months respectively, though the latter patient had, in all, three courses of sulphaguanidine. There was no apparent source of reinfection. The work at Oxford raises the important question of the duration of isolation required before the safe release of a Sonne dysentery patient. Since the patients in this outbreak came from a residential nursery for young children and infants, it was essential to take no risks and to have a high standard of bacteriological recovery. At first children were returned from the isolation hospital to the nursery after three consecutive negative stools and were there quarantined for a further period of three weeks. On subsequent examinations after return it was discovered that 1 of the 10 children had a positive stool. The criterion of discharge from the isolation hospital had therefore to be altered, and thereafter 8 consecutive negative stools in 4 weeks, or at least 6 negatives in 6 weeks, were required. This 4- to 6-week period of hospitalization for both cases and symptomless excreters was felt to be necessary for the exclusion of further infection from the nursery. Indeed this view was justified by the finding on 5 occasions of a positive result after 3 or more negative stools. The investigators consider that further work is necessary on the intervals and number of negative results required before terminating isolation. For the elimination of Sonne dysentery in institutions it seems that a standard of negativity more stringent than prevails at present must be adopted before the return of convalescent patients and of symptomless excreters to the community.

ANTISEPTIC TREATMENT OF WOUNDS

The revival of belief in antiseptics, given its first impetus by the success of local sulphonamide treatment and accelerated by the discovery of gramicidin and the rediscovery of penicillin, has now passed a further stage. This is a rediscovery of the possibilities of an antiseptic which has been available for a quarter of a century. According to G. A. G. Mitchell and G. A. H. Buttle,[14] whose patients were casualties from Libya, proflavine powder introduced into intractably suppurating wounds often has a dramatic effect in drying them up and promoting rapid healing, with a marked improvement in the general condition. They treated 80 cases in this way, using from 0.5 to 2 g. of the powder according to the size of the wound, and in only 6 was it apparently quite ineffective. In only one was there any suggestion that healing had been delayed by the treatment. Proflavine acts on all bacteria found in suppurating wounds, although *Proteus* is the most resistant to it; it is particularly valuable in dealing with staphylococcal infections, because these resist other treatment. Many of these cases had had full courses of systemic as well as local chemotherapy, sulphathiazole and sulphanilamide being used, with no benefit, before proflavine treatment was begun. A small amount of proflavine (0.25 g.) has also been used as a mixture with sulphanilamide (2 to 5 g.) for prophylaxis, but no actual evidence for the efficacy of this proceeding is offered. The authors appear to consider that sulphanilamide, on account of its known harmlessness to tissues, should be the mainstay for prophylactic use.

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[10] *Lancet*, 1942, 2, 307

[11] *Publ. Hlth. Rep.*, Wash., 1942, 57, 521.

[12] *Mthly. Bull. Emer. publ. Hlth Lab. Serv.*, November, 1942, p. 2.

[13] Ibid., July, 1942, p. 1.

[14] *Lancet*, 1942, 2, 416.

Antiseptics have been used as a matter of course for the treatment of infected wounds ever since the time of Lister, but rarely with any striking effect and usually with little expectation of it. To suggest that any recognized antiseptic of some standing can actually terminate infection in a wound within a few days is almost revolutionary. This is in fact a much more striking achievement than the mere prevention of infection in a wound where tissue invasion has yet to begin. It is worth while to examine the causes of this success. The flavines and related compounds stand alone in having been shown experimentally to be capable of preventing wound infections. They are highly, although slowly, bactericidal, and comparatively innocuous to tissues; the degree of their toxicity for leucocytes was the subject of what is now a historic controversy, but, whatever the truth on this specific point, it is at least undeniable that they can be applied to a surface or even injected interstitially without causing evident damage. Reconsideration of their properties in recent years has pointed to proflavine as preferable to acriflavine, and the studies of Russell and Falconer,[15] who showed that an isotonic solution of proflavine buffered to a reaction near neutrality could be applied even to the brain without causing more damage than that inflicted by normal saline, did much to rehabilitate this antiseptic in general estimation. Hawking[16] found experimentally that it prevented anaerobic wound infection with at least as much certainty as the sulphonamides, but discounted these effects in view of the mediocre results obtained with acridine compounds in the last war. As was pointed out in this *Journal*, to deny the significance of controlled experiment by adducing uncontrolled clinical evidence obtained under bad conditions many years earlier is questionable logic: Hawking's findings were rather an indication that proflavine should be given a further and better-conducted clinical trial. Granted that proflavine is, among the older antiseptics, possibly the best of its kind, and theoretically capable at least of preventing wound infection without doing undue tissue damage, it remains to be explained why it now appears to have achieved a success such as has never been claimed for it before. The probable explanation of this is the simple fact that for the first time it has been applied, as sulphonamides have always been applied, in solid form. Its solubility is about 1 in 300—almost ideal for persistence of effect combined with adequate concentration. Much antiseptic treatment in the past has probably been ineffective owing to misapplication; neither irrigation with a solution nor the application of a dressing soaked in it can secure the penetration and persistence afforded by a slowly dissolving solid. Treatment with proflavine powder will doubtless be extensively tried, and final judgment on its merits for various purposes will be awaited with interest. Proflavine also performed well in a study now reported by J. McIntosh and F. R. Selbie[17] of the capacity of several antiseptics for inhibiting the development of *Cl. welchii* infection in mice. It was decidedly more effective than sulphanilamide, and inferior only to penicillin. Zinc peroxide was moderately effective if applied at once, and comparison with zinc oxide and with a preparation yielding hydrogen peroxide indicated that zinc itself rather than oxygen is responsible for its effect. Gramicidin had little if any influence on the infection, in spite of its enormous capacity for preventing the growth of *Cl. welchii in vitro*. These facts will be a valuable guide in framing any new policy for preventive application to wounds. On present information there seems to be a strong case for the trial of proflavine powder for this purpose.

OESTROGEN TREATMENT OF DIABETES

The relatively high incidence of diabetes mellitus in women at the menopause is quite possibly connected with a hyperactivity of the pituitary gland, which is then no longer inhibited by gonadal secretions. This view is logical enough to suggest that treatment with oestrogens or androgens in doses adequate to depress pituitary function might do good. A further reason for the use of oestrogens lies in their capacity to increase the insulin content of the pancreas,[18] lead to hypertrophy[19] of the pancreatic islets, and stimulate their secretory activity.[20] In theory, therefore, such treatment has much to recommend it; in practice the results have been conflicting. Animal experiments at first suggested that oestrogen injections diminished the intensity of the diabetic state in depancreatized dogs[21] and monkeys.[22] These results led to clinical trials, and alleviation of diabetes in menopausal women injected with oestrogen was claimed by Gessler and his colleagues,[23] by Spiegelman,[24] and by Cantilo.[25] Saurer[26] also reports a fall in the fasting blood-sugar level and a depression of the glucose-tolerance curve (whether the glucose was given orally or intravenously) in menopausal diabetic patients given large doses of oestrone or testosterone. All these clinicians have, however, used natural oestrogens or androgens; they find that big doses are necessary, and attribute any success to a depression of hypophyseal function. The substances were injected, and there was in general a recurrence of the full pre-treatment symptoms when the injections were stopped. The treatment therefore has no advantage in comfort over insulin treatment, and it is presumably better to inject insulin, which has a specific action, than to inject unphysiological amounts of the sex hormones, which depress other hypophyseal secretions besides the diabetogenic one. However, there appeared to be little doubt that the theory behind the use of oestrogen had received practical confirmation.

With the discovery of the orally active synthetic oestrogens the subject was reopened. If orally administered stilboestrol could replace insulin injections it would be a great advantage to the patient's comfort and pocket The first report on the use of stilboestrol[27] dealt with 4 cases, of which only 2 were treated orally. One of these was given 5 mg. daily for 6 weeks, which eliminated the need for insulin and reduced the blood sugar from 180 mg. to 123 mg. per 100 c.cm., but glycosuria persisted, the other patient was kept symptom-free by daily doses of 3 to 15 mg. for 3 months. Unfortunately later results have not been encouraging and have cast some doubt on the whole question of the value of oestrogens in post-menopausal diabetes. First, Young[28] tried the effect of stilboestrol and oestrone on pituitary-diabetic and depancreatized dogs. Both substances were given by subcutaneous injection and by subcutaneous implantation of tablets, but in neither case did Young find evidence of any benefit, in spite of the fact that he was using doses very much greater than those used by the American workers.[21 22] Lawrence and Madder[29] at the same time failed to demonstrate any effects of doses of 1 mg. of stilboestrol given 4 times daily for a period of 8 weeks to 5 diabetic women aged 42 to 52. Again, Salmon and his colleagues[30] implanted stilboestrol tablets into 18 menopausal diabetic women and found an improvement in insulin requirement and glucose tolerance in only one. Thus the value of oestrogens in the treatment of post-menopausal diabetes is by no means so clear-cut in practice as it is in theory.

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[15] *Brit. J. Surg.*, 1940–1, **28**, 472.
[16] *British Medical Journal*, 1941, 1, 263.
[17] *Lancet*, 1942, 2, 750.
[18] *Nature*, 1940, **146**, 266.
[19] *Lancet*, 1936, **1**, 247.
[20] *Nature*, 1940, **146**, 589
[21] *J. Amer. med. Ass.*, 1933, **101**, 926.
[22] *Endocrinology*, 1936, **20**, 473.
[23] *J. clin. Invest.*, 1939, **18**, 715
[24] *Amer. J. med. Sci.*, 1940, **200**, 228.
[25] *Endocrinology*, 1941, **28**, 20.
[26] *Schweiz. med. Wschr.*, 1941, **71**, 1577.
[27] *J. Amer. med. Ass.*, 1941, **116**, 675.

TREATMENT OF ISCHAEMIC CONTRACTURE

Volkmann's ischaemic contracture was originally thought to be due to circulatory obstruction resulting from the over-tight splinting or bandaging of fractures in the region of the elbow-joint. This theory was upset by the clinical evidence, however, because many cases were reported in which neither splints nor bandages had been applied. So the more modern version of the mechanical obstruction theory was propounded. This supposed the obstruction to be due to internal pressure from a subfascial effusion or haematoma in the antecubital fossa, and to be venous rather than arterial. Brooks[31] showed experimentally, as later did Middleton,[32] that if the entire venous drainage from a muscle were ligated the muscle developed a contracture. This they regarded as being identical with Volkmann's, but Griffiths[33] demonstrated conclusively that the histology of the two conditions was entirely different, and in the same paper produced further evidence against the venous occlusion theory by recording three cases which followed arterial embolism—in other words, cases in which the venous system was completely unaffected.

What, then, is the essential pathology of Volkmann's contracture? According to Griffiths—and his clinical and experimental evidence is most convincing—it is due to segmental spasm of the main artery to a limb, accompanied by reflex spasm of the collateral circulation. If the main artery alone is occluded and the collateral circulation functions, then no ill effects are observed. If the collaterals go into reflex spasm, however, the result is either gangrene or Volkmann's contracture according to whether the spasm is complete or incomplete. Foisie,[34] reviewing the early operative findings in 30 cases reported from many sources during the last two years, points to their striking similarity. In all, the lower end of the brachial artery was reduced by spasm to a string-like structure in which pulsation had ceased. Barnes and Trueta[35] have now brought forward additional experimental evidence in support of the earlier work of Griffiths. By applying a wire tourniquet for four hours they were able to produce a persisting spasm of the femoral artery in rabbits, and showed by arteriographic studies that the collateral circulation was also in spasm. They further found that the spasm of the collaterals could be abolished by lumbar sympathectomy, though the main vessel remained in spasm, and that in the rabbits in which the collateral circulation was not released in this way changes occurred in the muscles identical with those seen in Volkmann's contracture.

It is obvious, therefore, that the crucial factor is the reflex spasm of the collateral circulation. It seems established that the impulses causing this spasm originate in the walls of the occluded main vessel, but their subsequent path has not been precisely determined. They travel by way of the sympathetic system, but in human beings, at all events, they do not seem always to be relayed through the paravertebral ganglia. Successful blocking of the stellate ganglion, as evidenced by the development of a typical Horner syndrome, has failed to release the collateral circulation,[36] so there must be a more peripheral reflex path The most certain method yet known of abolishing the reflex is to interrupt it at the source by resecting the segment of main artery in spasm, a procedure originally proposed by Leriche. This operation (arteriectomy) has proved reliable in all the published cases and is the one of choice, but it must not be delayed too long. Tight plasters or bandages, or overflexion of the elbow-joint, are factors that cause additional circulatory embarrassment and should be removed. Moreover in some cases, notably in gunshot wounds in which the damage is confined to the soft tissues, the reflex spasm of the collaterals may pass off spontaneously. But faced with the possibility of such a severely crippling condition as Volkmann's contracture the surgeon should not wait long now that he has this valuable weapon to hand.

THE HEAVIEST WOMAN

If the late Mrs. Ruth G. Pontico, of Tampa, Florida, was not the heaviest woman in proportion to her height that the world has yet seen, her record can seldom have been exceeded. Willoughby,[37] who has described the case in detail, states that fewer than twenty instances of weight exceeding 700 lb. are to be discovered in the literature, even if those of questionable authenticity are included. But, whereas most of these people were tall, Mrs. Pontico was only 5 ft. 5½ in. in height; yet in 1939, at the age of 35, she weighed 772½ lb., or more than 55 stone, and may well have exceeded 800 lb. before her death two and a half years later. Her chest measurement was 81½ in., her waist 76½, and her hips 91. Incidentally Willoughby discloses a curious source of error which has sometimes given these giants of girth an extra 100 lb. or so to which they were not entitled, for the weights taken after death occasionally included the coffin, a fact explained in the original record but carelessly omitted by later historians. Mrs. Pontico owed much of her professional success—for naturally she was a "fat lady"—to the fact that she had parents of the right sort. Her mother, a member of the same profession, tipped the scale at 720 lb. and was 6 ft high. Her father was also 6 ft. high and weighed a mere 250 lb. Their daughter is said to have begun her gargantuan career by weighing 16 lb. at birth; at 1 year she weighed 50 lb.; at 10 years she touched the 300 mark. It might be thought that to manœuvre such mass freely would be difficult. But she climbed to the second floor of her home once or twice a day, and every few days was able, with rests, to walk round her extensive grounds. She took about half as much food again as a normal person. When 29 she survived an attack of pneumonia, though it took her a year to regain her health and the 200 lb. which she lost. Death followed an operation for the removal of a fatty tumour.

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[28] *Lancet*, 1941, **1**, 600.
[29] Ibid., 601.
[30] *J Amer. med. Ass.*, 1941, **117**, 1843.
[31] *Arch. Surg.*, Chicago, 1922, **5**, 188.
[32] *Brit. J. Surg.*, 1930, **18**, 188.
[33] Ibid., 1940, **28**, 239.
[34] *New Engl. J. Med*, 1942, **226**, 671.
[35] *Brit. J. Surg.*, 1942, **30**, 74.
[36] Seddon, H. J. (quoted by Barnes and Trueta, above)
[37] *Human Biol.*, 1942, 14, 166

Nova et Vetera

FOLK-LORE OF THE ACUTE EXANTHEMATA

In a paper read before the Section of the History of Medicine of the Royal Society of Medicine, Dr. J. D. Rolleston said that in contrast with some diseases, particularly whooping-cough, pulmonary tuberculosis, skin diseases, warts, and eye diseases, the folk-lore of the eruptive fevers was somewhat scanty, though rich enough to justify a special communication. The amount of folk-lore connected with each exanthem was in direct relation, he said, to the antiquity and importance of the disease, so that in this respect small-pox, measles, scarlet fever, and chicken-pox were represented in the order named. There did not seem to be any folk-lore connected with German measles, which did not receive general recognition as an independent disease until after the International Congress of Medicine held in London in 1881. Dr. Rolleston made the following remarks on the folk-lore of the acute exanthemata as a group before dealing with the individual diseases separately.

With regard to causation, there did not appear to be any popular causes suggested for their occurrence, such as catching cold, sexual excess, or punishment for an evil life, as in the case of pulmonary tuberculosis, skin diseases, and venereal diseases. With the exception of small-pox, none of them had been assigned a Divine origin. In accordance with medical folk-lore generally, prophylaxis was rarely employed in the acute exanthemata except small-pox. There were many examples of the same treatment being applied to the acute exanthemata in general, such as overheating the patient or flagellation with nettles with the object of bringing out the rash, the use of red blankets and bed-hangings, and coprotherapy.

With regard to the causation of small-pox, Sir James Frazer and others gave numerous examples of outbreaks of small-pox in different parts of the world being attributed to a goddess or, much more rarely, to a god, and of the various means employed to win their favour or prevent their visitation. Examples were given, too, of the avoidance of calling the deity and the disease by their proper name, and of using instead some more or less euphemistic words or phrases. The supposed transfer of small-pox to animals, plants, and inanimate objects in accordance with folk-lore practice in other diseases was also described. Prophylaxis of small-pox by inoculation was a folk-lore method carried out by old women in Turkey long before it was adopted by the medical profession in England and France. Besides overheating the patient, the folk-lore treatment of small-pox consisted mainly of animal and plant remedies and the invocation of patron saints.

A greater number of popular errors were connected with measles than with any of the other acute exanthemata, such as the belief that it was a trivial disease, that it cleaned out the system and made the child less liable to contract other diseases, and that patients should not be washed owing to the delusion that such an act tended to drive the rash inwards. In none of the acute exanthemata was coprotherapy more often employed than in measles, especially in the early stage of the disease. There were several examples of the belief that measles could be best treated by transfer of the disease to animals and plants, and, apart from any idea of transfer, numerous folk-lore remedies were supplied by animals, plants, and minerals.

Doubtless because scarlet fever had been isolated as an independent disease much later than small-pox and measles, its folk-lore was much less than that of the other two diseases. Popular errors connected with it included the view that the term "scarlatina" meant a mild form of the disease, that second attacks did not occur, and that a mild attack could transmit only a mild attack to another person. Instances were occasionally met with in which scarlet fever was supposed to be transferred to animals, such as the dog, bear, or sheep. Amulets were sometimes worn for prevention of the disease. There did not appear to be any patron saints connected with scarlet fever as in small-pox and measles.

Although chicken-pox was probably as old as small-pox, owing to its usually mild character and uncomplicated recovery very little folk-lore had gathered round this exanthem, but it had had a large number of popular synonyms which were out of proportion to its real significance. The term "chicken-pox" was first used in medical literature in 1694 by Richard Morton, who spoke of a form of small-pox "called in the vernacular the Chicken-pox." Fuller also, in 1730 in a paragraph in his *Exanthematologia,* wrote: "I have adventur'd to think that this is that which among our women goeth by the name of Chickenpox."

Another example of folk-lore anticipating scientific medicine is furnished by the fact, recently mentioned by W. N. Pickles, that the connexion between herpes zoster and chicken-pox had been known at Aysgarth, in Yorkshire, long before this was demonstrated by Bokay in 1892.

GUESTS OF ST. DUNSTAN'S

Before the war arrangements were made for members of the Canadian Forces suffering serious eye injury in any European theatre of war to receive treatment at St. Dunstan's and at its training centre; this arrangement has now been extended to the U.S. Army. At a luncheon recently given by St. Dunstan's to senior officers of the American and Canadian Army Medical Services, Mr. Ernest Brown, Minister of Health, recalled that in the early days of the war a number of American doctors came to this country at their own expense and without remuneration to help at our general and special hospitals. When the U.S. Forces began to arrive it was arranged that any members of the American Services needing treatment should be accommodated in E.M.S. hospitals. In addition the Ministry of Health had handed over 5 new hospitals, fully equipped, to them, while the Canadian Forces had the use of 8 hospitals. Sir Ian Fraser, who presided at the luncheon, said that in this war, owing, presumably, to the increased use of armour in tanks and planes, fewer men were blinded by metal fragments than in the last war. A larger proportion, however, were blinded by concussion changes in the eye, causing collapse or irreparable damage through haemorrhage. Approximately two hundred and eighty-eight cases had come under the care of St. Dunstan's in this war; 88 of the patients had recovered some useful eyesight, but 200 would not recover their sight at all. Of these 200, half were in training or had been trained at St. Dunstan's in England and 30 were prisoners of war. He estimated that there would be 40 cases out of the recent fighting in Africa. It had been arranged that all American soldiers who might be temporarily or permanently blinded should be sent to St. Dunstan's for 3 to 6 weeks while waiting to return home; the first American guest was due to be admitted the following day. Brig.-Gen. Paul Hawley, chief surgeon of the U.S. Army in the European theatre of operations, said that the great shock to the blinded American soldier would come when he returned home handicapped and helpless to his family. Now he would be able to return after his St. Dunstan's training walking with confidence and facing the world with courage.

HEALTH ON THE HOARDINGS

Dr. Johnson declared that the full tide of human existence is at Charing Cross, and here there has lately been arranged, in the entrance hall of the underground station, a health exhibition under the patronage of the Ministry of Health. It is announced as an exhibition of photographs, but it is even more an exhibition of placards and posters, and some of the cartoons and slogans are not only pointed but amusing, which is a very good propagandist approach. Simple rules for fitness, condensed advice on maternity and child welfare, instruction on the dangers of contaminated food and of droplet infection are conveyed in such a way as to catch the eye of the most hurried traveller. The only disadvantage is the restricted space. Mr. Ernest Brown, at the opening ceremony, remarked on the steadily growing co-operation of the public with the health authorities, a co-operation which has been accelerated during the war. One of the results of the awakened health conscience in Great Britain, he said, was that the nation went into this war fitter than into the war of 1914, and now in the fourth year of hostilities the value of the careful work of the last quarter of a century was becoming fully revealed. Sir William Beveridge, said Mr. Brown, made three assumptions as the basis of a satisfactory system of social security, and one of them was a comprehensive service not only for the cure but for the prevention of disease, the others being family allowances and avoidance of mass unemployment. But the awakening is still far from complete, as is shown by the number of parents who neglect the facilities for immunizing their children against diphtheria, and also the facts revealed by an investigation of a cross-section of the public in which the investigators have reported to the Ministry that large numbers of people are "stumped" by the question as to where they should go for advice on the prevention of illness. Incidentally, the Minister gave a word of hearty praise to the work of the Central Council for Health Education and its chairman, Dr. Charles Hill.

IMPROVED ARRANGEMENTS FOR THE TREATMENT OF TUBERCULOSIS

Speaking in the House of Commons on October 8 the Minister of Health, Mr. Ernest Brown, stated that he had already acted on a number of the recommendations of the M.R.C. Committee on Tuberculosis in Wartime (*Journal*, Oct. 10, p. 436), and a circular (No. 2741) now issued to local authorities provides some further information. First, a limited number of portable sets for mass miniature radiography (in the House of Commons the number 30 was mentioned) are to be allocated to certain named county and county borough councils, delivery to begin early in 1943 and to be completed during the year. Secondly, arrangements are being made by the Ministry for training the necessary technical staff to operate this equipment, and this will be the subject of a later communication to local authorities. Thirdly, additional hospital beds are to be freed for the treatment of tuberculous patients, and steps are being taken, in conjunction with the Ministry of Labour, to provide further domestic and nursing staff. On the important recommendation of the committee that there should be special financial provision for those undergoing treatment, the circular says that the Ministry and representatives of local authorities are already working out a scheme of uniform assistance for all those who suffer loss or reduction of income while undergoing treatment and who have one or more persons dependent on them. The assistance will normally take the form of maintenance allowances for the patient and his dependants, and should also be available towards meeting reasonable obligations, in excess of a prescribed figure, incurred for rent and rates, building society contribution, insurance policies, and the education of children. The tuberculosis authority will usually administer these allowances. No charge should be made for the cost of institutional treatment, and, finally, local authorities will be reimbursed for expenditure incurred in the payment of these allowances. Particulars of the scheme will be circulated later.

Correspondence

Byssinosis

SIR,—May I call attention to the statement, which may give rise to some misunderstanding, in your leading article on byssinosis and bagassosis (Jan. 9, p. 46), that byssinosis is scheduled under the Workmen's Compensation Act? Owing to the special features of the disease it was not considered appropriate to schedule it in the ordinary way, but it was dealt with by a special scheme made under the powers obtained in the Workmen's Compensation and Benefit (Byssinosis) Act, 1940.—I am, etc.,

S. A. HENRY,
H.M. Medical Inspector of Factories

London, S.W.1.

Sick Absence among Munition Workers

SIR,—While agreeing with the opening paragraph of the article by Drs. A. Massey and R. C. M. Pearson on sick absence among munition workers (Dec. 12, p. 694), in which the authors state the value of industrial medicine, I am at a loss to understand certain aspects of both the figures given and the mode of their presentation.

First, although they state in their conclusion that "consideration of factory working hours is inseparable from the problem of sick absence," no indication is given of the hours worked by the seven firms described nor even of whether these are comparable or widely different for males and females. Again, although it is stated that "in explaining the higher absentee figure for males . . . the greater physical demands made of males by the nature of their work is also a relevant factor," very little indication is given as to the nature of the work performed, beyond saying that it is engineering, which, to say the least, is divided into "light" and "heavy" engineering. I appreciate that security considerations demand the withholding of many relevant particulars, but, even so, a division into the above category would have been very helpful and would not have imparted confidential information.

Secondly, although the authors state that their figures show a higher sick absence rate for males, it will be seen that this condition in fact prevails in only two of the seven firms they have examined—namely, Firms 3 and 7, both of which, in my opinion, should not have been included, because the former had an insufficient number of females to afford a basis of comparison, and the latter shows figures so different from the other five firms as to indicate special circumstances demanding further investigation.

In the remaining five firms the rates for males and females are to all intents and purposes approximately equal. In comparing this with my own figures for the same period relating to a number of females somewhat in excess of the total of the seven firms examined by Drs. Massey and Pearson and to a somewhat smaller number of males, all engaged on light engineering and working regular overtime, I find an entirely different state of affairs, as shown by the table below:

Percentage of Workers Absent, Sick, etc. (All Causes), Month by Month

Source	Sex	Nov.	Dec.	Jan.	Feb.	Mar.	April
Drs. Massey and Pearson (Table III)	Males	8·2	7·1	9·1	8·5	8·5	8·7
	Females	7·5	6·4	8·0	6·8	7·5	8·6
Figures obtained by myself	Males	1·95	1·8	1·7	3·0	2·2	3·2
	Females	3·8	3·8	4·2	4·6	3·9	2·6

In my case the over-all rate of sickness absence is only about half of that shown by Drs. Massey and Pearson, with the rate for females almost twice that of the males. It is difficult to understand this disparity, particularly in view of the authors' statement that the equivalent of only 50% of males and 45% of females lost time from sickness in the six months under review. My records show that at least 33% of all operators lost half a day or more by absence from all causes in a review of one month, and that 45% of all absence was caused by medically certified sickness of more than three days' duration. On this comparison the sickness rate should be less than my own, instead of being twice as great.

The authors do not, however, state explicitly whether their figures relate to medically certified sickness of three days' duration or over, or whether absences of half a day to three days are wholly or partially included. Their Table IV, however, implies that short terms of absence are excluded from all categories other than "other occupational diseases," which have an average duration of absence of, say, 10 hours as opposed to 65.8 hours for colds. I most heartily endorse the authors' recognition of the need for "improved and standardized sickness records relating to factories," and, failing this, suggest that for figures to be valuable, information as to exactly what they cover must be most precise and explicit.

Lastly, I do not agree with the authors' conclusion that "the health of the munition workers . . . is on the whole maintained." Apart from the fact that their figures in Table III show one in every twelve workers incapacitated by sickness at any given time, those same figures show, if not a persistent tendency to rise from November to April, at least an absence of the seasonable drop which one would have expected by April. I have sickness records dating back to January, 1939, and in that and every succeeding year until 1942 the sickness rate has almost doubled in January and February and returned to normal by April. In 1942, however, no return to normal has occurred; the figures, having fallen only slightly in April and having exceeded the January value for most of the year, are still steadily climbing. The absence of influenza epidemics in 1941 and 1942 should increase the probabilities in 1943, and with a resultant potentially increased sickness rate. It therefore appears that every possible measure in preventive medicine should be taken against the winter incidence of colds and influenza in the factories, and that serious consideration must be given now to the problem of working hours. While for a short spurt the health of the workers can stand up to long hours, for a sustained effort long hours can only be done at the expense of health.

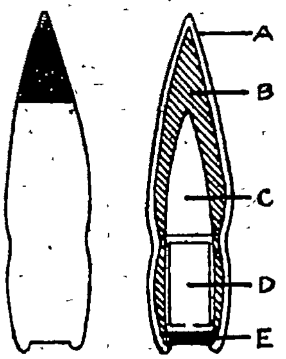
The medical profession must play its part in advising industrial managements of the long-term factors of their policy on the health of the employees, and in particular it must assist in adjusting working hours in relation to the work done and the conditions prevailing. These conditions include the demands made of workers by Civil Defence duties, the domestic situation in homes where both the man and wife are working, the decreased supplies of food available and the increased shopping difficulties in obtaining them, the increased difficulty in obtaining domestic help, laundry, labour-saving appliances, and even suitable housing accommodation itself, together with travelling and transport difficulties. Working hours should be so related to all of these factors that demands to increase output by working long hours do not defeat their own ends by causing excessive sickness absence.—I am, etc.,

JACK TARSH.

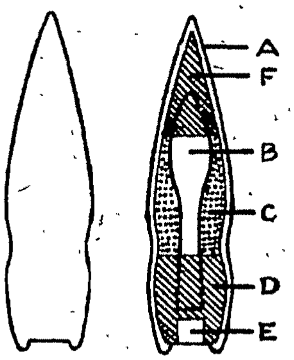
German Explosive Bullets

SIR,—In July, 1942, an enemy aircraft crashed and in doing so thousands of rounds of ammunition were scattered about. These were seized by sightseers, and no doubt many a mantelpiece is now decorated with them. As the result of a remark passed by a member of the public that this ammunition was explosive I investigated it, and found that some of these bullets contained an explosive charge and phosphorus. This information was passed on to the correct quarter.

Mr. A. J. Blaxland (Dec. 5, p. 664) described a case of phosphorus poisoning. I have since been in communication with him and mentioned the affair of July, and the results I found were the same as those of Lieut. Wheeler. As Mr. Blaxland in his article had described only one type of phosphorus bullet, we wondered whether you thought it would be of interest or benefit to the medical profession if the three common types of German bullets were brought to their notice, subject to the permission of the censor. We both thought it surprising that if the experts were aware of the types and the dangers associated with them, the medical profession as a whole were kept in the dark, especially as now there seem to be more cases of injury as a result of haphazard machine-gun fire from the air. I have therefore, with Mr. Blaxland's consent, drawn diagrams of two further types and added a description of each.



TYPE 1



TYPE 2

There appear to be three types of German machine-gun bullets in use at the present time. All types are of the .312 Mauser pattern.

Type 1.—The outside of this bullet is copper in colour, and has its nose painted black for 1 cm. from the tip. The outer case is copper-plated steel (A in diagram) with an inner coating of lead (B) more solid in the nose. Inside the lead coating there is a hardened steel bullet (C) on the end of a detonator (?) (D), which is separated from the end of the bullet by a thin lead membrane (E). The ends of the casing are curled into the base, and the lead is visible from below. The detonator (?) is encased in a cylinder of copper-plated steel.

Type 2.—This is unpainted, being copper-coloured. The outer case is made of copper-plated steel (A). It has a lead nose (F) into which is set a hardened steel cone (B) which tapers as it leads towards the end of the bullet. The end is also set in a lead weight (D), which is bored out to fit the end of the cone. The hole is plugged with a lead plug (E). The intervening space (C) is filled with 10 gr. of phosphorus. It would appear that on impact the lead weight (D) slides up the cone (C) and splits the casing, and at the same time squeezes the phosphorus out.

Type 3 (the explosive phosphorus).—This type is described and illustrated by Mr. Blaxland and contains the detonator and pin. It can be recognized by the black band that is painted around the outside, leaving 1 cm at the tip copper-coloured.

—I am, etc.,

J. R. F. POPPLEWELL.

Three Years of Military Psychiatry

SIR,—May I be permitted not only to congratulate Dr. J. R. Rees on his promotion to the rank of Brigadier but also on his most excellent article under the above heading (Jan. 2, p. 1). In this he states that it has been decided at a conference that pensions would not be given to cases presenting "neurotic" symptoms. This is to adopt the French system of the last war with this difference, that "exceptional cases" are to be recognized. I therefore wonder what will constitute an "exceptional case" and who will decide this.

I expect that others like myself have already seen quite a number of cases, including not only the "dull and backward" but also definitely mental defectives as well as "psychoneurotics," who have given endless trouble since enlistment, and been subject to repeated punishments before it has been realized that their "mental condition" was responsible for their inability to adapt themselves to Army conditions. Only a few days ago a lad of about 20 years of age, who had been enlisted last September, was referred to me on account of "nocturnal enuresis." He had passed the medical recruiting board as quite fit, but admitted to me frankly that he had suffered from this trouble all his life.

While the efforts being made by Brigadier Rees and his assistants to find suitable occupation for these "misfits" in the Army are beyond all praise, my contention is that if more serious attention were given to nervous and mental manifestations before enlistment and more cases presenting these symptoms were rejected instead of being suspected as being malingerers a great deal of time, trouble, and expense would be saved.—I am, etc.,

Exeter. RICHARD EAGER

Joint Committee on Rheumatism and Orthopaedics

SIR,—Drs. Ray, Heald, and Nissé are not correct (*Journal*, Jan. 9, p. 54). There are twelve members only of this committee, of whom six represent the British Orthopaedic Association. I am one of these, and although my name is mentioned twice in the published details I am a singular fellow (R.C.S.)! Your correspondents mention two of the physicians as being concerned with the work of the British Red Cross Clinic for Rheumatism, but they omit to note that two of the orthopaedic representatives are also on the staff of that organization.

The fact remains that the formation of this Joint Standing Advisory Committee is an important step forward in the furtherance of plans for collaboration which both the Empire Rheumatism Council and the British Orthopaedic Association keenly desire. Both have very large contributions to make in a service of great national importance for the prevention and treatment of crippling disability. Obviously the committee will have to consult other groups and individuals, working for the same cause.—I am, etc.,

Exeter NORMAN CAPENER.

Promanide in Local Treatment of Tuberculosis

SIR,—The importance of recent work in the U.S.A. and in this country on the effect of promanide (promin) on experimental tuberculosis in animals can hardly be exaggerated.

Efforts to apply, without too much delay, the results of this experimental chemotherapy to the treatment of the disease in man are to be welcomed. As one who has followed this work with the keenest interest since its inception in the laboratories of the Mayo Clinic, may I submit some observations prompted by the appearance in your *Journal* of the paper by Prof. W. H. Tytler and Dr. A. D. Lapp (Dec. 26, p. 748).

It is to be hoped that an adequate supply of promanide will be made available to those in a position to repeat and extend such tentative clinical trials as have already been made, though its use in an uncontrolled and unscientific manner is certainly to be deprecated. At present it is extremely difficult to get a supply of promanide.

The possible methods of application of the drug, as well as the types of lesion to be treated, deserve serious consideration. It would seem to me that cases in which it is proposed to make clinical trial by local application should be unconnected with a focus of deeper-lying disease, as such latter cases are unlikely to make a permanent response unless the underlying lesion (say, in bone, joint, or glands) is quiescent or can itself be directly attacked by the promanide. In Case 2 of Tytler and Lapp's series, in which the results are described as "spectacular," the two abscesses which healed with such extraordinary rapidity following the injection of promanide jelly appear to have been isolated metastatic soft-tissue lesions unconnected with a contiguous and deeper-lying focus of disease. If such selection is not observed the likelihood of failures is great, and may effect the premature disrepute of a possible new and highly important—even though extremely tentative—form of treatment.

It seems important, too, that cases treated with promanide should be controlled, so far as is possible, by very careful comparison with numbers of similar cases treated by accepted methods. I have two cases under my care comparable to Case 3 in Tytler and Lapp's series—one of tuberculosis of the dorsal spine, the other of tuberculosis of a hip-joint. Both had huge abscesses, one of which was about to point, despite repeated aspirations. Both of these abscesses absorbed in three months during a time when natural heliotherapy was possible, and neither shows any signs of recurring.

One mechanism of spread of the tuberculous process is through the lymphatic channels. Would it not, therefore, be worth while to attempt the introduction of promanide more directly into the lymph system? Dyes and Indian ink have been introduced, by way of the fauces, into the lymphatic channels and glands in the neck of rabbits and cats, the better to study the anatomy of those structures. Why not attempt a similar route for the introduction of promanide in cases of tuberculous cervical adenitis?

In connexion with some chemotherapeutic research in experimental tuberculosis to which I was witness in the Leningrad Institute of Tuberculosis, lesions were prevented from developing in the lungs of guinea-pigs and rabbits if, at the same time as the infective material was injected intravenously, cobalt oleate was injected intrapleurally. Presumably this was an effect obtained through lymphatic absorption of the cobalt oleate into the lymphatic channels of the lung. Would not a similar route be worth trying in the case of promanide, both in experimentally induced pulmonary tuberculosis in animals as well as in cases of the disease in man? M. R. Castex, E. L. Capdebourat, and E. A. Pedace (articles reviewed in the *Amer. Rev. Tuberc.*, March, 1942, p. 61) have shown that nebulized solutions of scarlet red and methylene blue when inhaled penetrate to the depths of the lung, provided the particles of the spray are small enough (not larger than $5\ \mu$). They treated 100 cases of non-tuberculous pulmonary suppuration by inhalations of nebulized solutions of prontosil, and come to the rather sweeping conclusion that "surgery is no longer needed in pulmonary suppuration." Such treatment is rendered difficult by the rapid absorption of the inhaled solutions, and this would, no doubt, hold true for nebulized solutions of promanide. Why not, however, look for a different vehicle for promanide in this connexion? Would not a solution, a suspension, or a solution-suspension of promanide in an innocuous substance of slow absorption (like, for example, poppy-seed oil—if promanide should prove soluble in such a medium) offer a means of attack on the lesions in the lung? It would, of course, be necessary for this purpose to find a solvent which would be of sufficiently low viscosity to permit of effective nebulization.

Perhaps cases undergoing external drainage of lung cavities by the Monaldi method would benefit by the introduction of promanide preparations directly into the cavity through the draining catheter. It may be, too, that the introduction of promanide into lung cavities without drainage would prove of benefit, particularly if this could be done with cavities of the closed type, when substances introduced would not be expelled by coughing. Certain types of lupus might also lend themselves to treatment by promanide, particularly the ulcerative type. And what is there to lose by trying preparations of the drug in cases of tuberculous meningitis, and introducing it for this purpose into the cerebrospinal fluid?—I am, etc.,

T. FRANCIS JARMAN.

⁂ As was pointed out in a footnote to the article by W. H. Tytler and A. D. Lapp, the drug under discussion is known as "promin" in the U.S.A. and in this country is now marketed under the name of "promanide."—ED., *B.M.J.*

Pasteurization of Milk

SIR,—Dr. A. H. Macdonald (Jan. 9, p. 52), writing on this subject, quotes a county medical officer as preferring raw to pasteurized milk. I, too, can cite one, perhaps the same, person who took a strong line against pasteurization *until* a child of his slowly succumbed to abdominal tuberculosis. His last word to me on the subject was: "My child was murdered by the farmers."

Can parents afford to wait for the much-desired time when all raw milk is rendered safe by the slow elimination of disease in cattle? Should they not rather demand instant security by a tightening up of the process of pasteurization so that once again it is adequately performed and reliable?—I am, etc.,

Northwood. ESTHER CARLING.

SIR,—Dr. A. H. Macdonald (Jan. 9, p. 52) states: "Sir Frederic Still on Dec. 28, 1938, wrote me: 'I think in several ways raw milk is to be preferred to pasteurized milk if only we could exclude infection in raw milk.'" Now, Sir, I enjoyed the friendship of Sir Frederic Still for forty years, and we did a good deal of work together with milk and wheys, and from what he repeatedly told me he dreaded the danger of tuberculous infection being conveyed to children through infected milk, and he advised pasteurization or boiling of all cows' milk before use. He was never tired of telling the story of a lady who consulted him before the last war and who was taking her child to a farm to convalesce after a digestive upset. He informed her that the danger from tubercle in cows' milk was so real that it was essential that all milk given to the child should be first pasteurized or brought to the boil. When she arrived at the farm she saw a cow with such a gentle face that she decided not to have the milk boiled. Three months later the child, previously free from tuberculosis, died from that disease, and a melancholy but now wiser mother was heartbroken at her neglect of the advice given. The cow referred to was killed and found to be riddled with tuberculosis —I am, etc.,

London, W 1. BERNARD MYERS.

SIR,—Lord Woolton, Minister of Food, has taken prompt measures to guard against the menace to public health of our milk supplies by consulting with milk interests as to a proposal requiring milk retailed in large cities to be heat-treated prior to delivery. Lord Woolton has thereby given his countrymen another example of his high practicality in statesmanship, and he is to be congratulated on a step which will prove of great service to public health, and remove one of the major causes that has been allowed to menace it far too long.

It is always to the good to have a lively and courageous opposition, even if it is to persuade us to swallow our milk with all its filth and latent possibilities! It is, at least, a caveat to the cocksure, and thereby has its uses. It has been a source of amazement to me that despite all the trouble and pains of zealous inspectors and watchful committees, milk production remains in such an unsatisfactory state, and so far removed from the goal of an abundant and really wholesome supply of this important commodity.

Farmers have complained to me that having taken infinite pains to secure healthy animals, clean and hygienic byres, and the milking technique carried out with the garb and zeal of a surgical operation, their product is carted off to the depots and mixed up with all "the rest." If this is really so, it is discouraging to the idealist to live up to any sustained standard of zeal, and makes one despair, despite all the flats and fuss, of ever securing more than a poor average. As matters stand to-day nobody could persuade me to drink a glass of milk that had not been adequately heat-treated—and so say most of us who know anything about it.—I am, etc.,

Bournemouth. J. ROSS MACMAHON.

SIR,—Some correspondents are not clear as to the meaning of "pasteurization." There are two processes: (1) the "holder" process—milk to be kept at 145 to 150° F. for 30 minutes and then immediately cooled to 50° F.; (2) the "high-temperature short-time" process—milk to be kept at 162° F. for 15 seconds and then immediately cooled to 50° F. Only milk treated by one of these processes can be called "pasteurized." The "flash" process for improving the keeping qualities of milk is undefined and is not "pasteurization." Tubercle bacilli are killed if kept at 60° C. (140° F.) for 30 minutes. It is worth noting that T.T. milk may not contain more than 200,000 bacteria per c.cm., whereas pasteurized milk may not contain more than 30,000 bacteria per c.cm. In connexion with milk the word "clean" is relative, and does not mean sterile. An infected milk can be "clean," and a dirty milk may be sterile after boiling.

Are there any figures for the percentage of cows infected with tuberculosis, and the number of epidemics spread by pasteurized milk? Have controlled and properly conducted experiments demonstrated the presence of tubercle bacilli in properly pasteurized milk?

Finally, one correspondent writes of water-borne typhoid epidemics as being accidental, but if a water supply shows faecal contamination such an epidemic is not accidental but inevitable.—I am, etc.,

Chalfont St. Peter H. G. WILLIAMS.

SIR,—The recent discussion on milk pasteurization is very opportune. We must all have had cases in which "glands" and vague gastro-enteric symptoms have developed in children a few months after taking school milk. Some parents having paid specially for T.T. or pasteurized milk used it in large quantities with excellent results, only to be confronted later with gland trouble after the children had started school milk; in consequence they became afraid of all milk and absolutely forbade it altogether. Not only is the milk itself in question, as is shown by its going sour overnight, but the whole of its distribution—dirty bottles left on the roadside for dogs to use as lamp-posts, dirty hands on full bottle necks, and dirty tools to uncap them, also dirty straws to suck it with. Both the public and ourselves would benefit by a full discussion of the whole milk question.—I am, etc.,

Peterborough A. M. PILCHER.

SIR,—It is fairly obvious that the opposition to pasteurization of milk is of the same nature as that which Jenner and Lister had to face, and argument is unlikely to convert the opponents. It must be admitted, however, that inefficient pasteurization is worse than none, and the necessary skilled supervision is hardly possible in small undertakings. After seeing a modern plant in operation I am satisfied that with proper methods the taste of the milk is unaltered and the vitamin content probably uninjured. In any case it would require a lot of vitamins to compensate for a few living tubercle or abortus bacilli. The time is, however, hardly ripe for compulsory measures.

Recognizing this, the Health Committee of this town formulated a scheme for establishing a pasteurizing plant under the control of the medical officer of health and with provision for bacteriological examination, etc. Producers were to deliver such proportion of their milk as they thought fit and to receive back an equivalent quantity pasteurized efficiently. They could then deliver either raw milk or pasteurized as the customers preferred; supplies of unsatisfactory quality would not be accepted for treatment. Inquiry was made as to whether the Ministry of Health would sanction a loan for the necessary capital expenditure, and the reply was that the council had no powers for such expenditure. Hence a promising scheme for the health of the community has had to be postponed until the pressure of public opinion compels the Government to act in the interests of public health.—I am, etc.,

Buxton. C. W. BUCKLEY.

Prophylactic Centres to Combat Venereal Disease

SIR,—May I through the medium of your *Journal* suggest the establishment of prophylactic centres throughout the country where those who have exposed themselves to the risk of having contracted V.D. could immediately attend for examination and treatment. Such a clinic was temporarily held during my tenure as R.M.O. at the London Lock Hospital, and fully justified, in my opinion, its establishment.

Subject to the decision of a body of eminent venereologists such a routine course might consist of: (1) urethral irrigation with approved bactericidal solutions whose adequate strength had been prescribed by a recognized central authority; (2) intramuscular injection of soluseptasine; (3) cleansing of the external genitalia with a solution of mercury biniodide 1 in 10,000; (4) these measures to be conducted under the supervision of a nurse or orderly trained in venereology, whose responsibility it would be to enter full particulars of all cases and to refer these subsequently to a medical officer for the routine tests.

The public have been so well informed of the dangers of promiscuity that I find they are now apprehensive and seek advice more readily than before. This especially applies to members of the Forces, who prefer to consult a civilian practitioner rather than their own M.O. This is my experience, which, I feel sure, is shared by my colleagues in private practice. The argument that such centres would serve to encourage promiscuity is, in my opinion, fallacious, as men and women are well aware of the gravity of the disease, and realize that the serious increase in its incidence justifies preventive measures being taken immediately, rather than to await the disease becoming established during a period which permits of other individuals having become infected.

By these methods I feel convinced that the rise in venereal disease would rapidly fall, and the large expenditure necessitated by the maintenance of venereal clinics would be considerably reduced. Here, surely, prophylaxis is better than cure.—I am, etc.,

London, W 1 E. SUTHERLAND-RAWLINGS

Treatment of Small-pox

SIR,—Referring to the communication of Col. S. G. S. Haughton (Dec. 19, p. 736) regarding the above, I beg to say that I dealt with an outbreak of this disease in 1902-3 and treated about 150 cases. The method of treatment adopted was the careful application to the vesicles and pustules of pure liquid carbolic acid by means of a very small camel-hair brush, and the results obtained were marked. It shortened the attack by causing the pocks to dry up. In all cases it modified, and in most cases prevented, the development of secondary fever, and obviated the usual fetid odour peculiar to this disease. It diminished the subsequent pitting and shortened the stay in hospital by 10 or 12 days. Several medical men tried this method of treatment and published their results, which confirmed these conclusions. One medical officer recorded that in his opinion it was the most efficacious treatment yet introduced —I am, etc.,

Edinburgh JAS. T. NEECH

Treatment of Chronic Ulcerative Colitis

SIR,—In diseases of unknown origin, and particularly in those like ulcerative colitis whose natural history runs a variable and unpredictable course with occasional spontaneous remissions, it is often possible to support a number of theories of causation with quite an array of evidence, though all the theories in question may prove later to be mistaken. Even a bacteriological cause in ulcerative colitis is not generally admitted, but I should like here to draw attention to the possible importance of anaerobic infection as a factor.

Perhaps the best-known organism to be incriminated is Bargen's coccus,[1 2] and it is stated to be oxygen-shy. More striking perhaps is the work of Dack, Heinz, and Dragstedt,[3] who investigated the organism in the colons of three patients who had undergone ileostomy and in whom "the organisms of the faecal current were therefore absent." In them the flora were "predominantly anaerobic," and two anaerobes were common to the three patients—a streptococcus, and another organism which was later described by the same authors as *Bacterium necrophorum*.[4]

On the treatment side Lynch and Felson[5] got the best effects by irrigation from oxidizing agents—potassium permanganate, hydrogen peroxide, and chloramin-T—and later Felson[6] claimed "encouraging results" from the introduction of oxygen gas into the colon. During recent years I have treated a dozen or more cases with enemas of a 5 or 10% freshly prepared suspension of zinc peroxide, usually given every second day. The foot of the bed is raised to encourage retention so long as possible, and a little belladonna added when the colon is irritable. Some cases have appeared to derive great benefit.

Against this background, I was interested in Dr. H. Neumann's article (Jan. 2, p. 9) reporting benefit from treatment by pneumoperitoneum, and I wonder whether this might be due to raising the oxygen tension of the tissue fluids in the bowel wall during absorption of the oxygen. I have tried oxygen breathing without result, but it is impossible to increase the oxygen in the tissues to any great extent by this method, and I should like to learn from physiologists as to the feasibility of treating patients in an atmosphere of oxygen in a pressure chamber.—I am, etc.,

Birmingham. J. W. RIDDOCH.

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[1] Bargen, J. A. (1924). *J. Amer. med. Ass.*, **83**, 332.
[2] —— and Logan, A. H. (1925). *Arch. intern. Med.*, **36**, 818.
[3] Dack, G. M., Heinz, T. E., and Dragstedt, L. R. (1935). *Arch. Surg.*, **31**, 225
[4] —— —— —— (1936). *J. Amer. med. Ass.*, **106**, 7.
[5] Lynch, J. M., and Felson, J. (1925). *Arch. intern. Med.*, **35**, 433.
[6] Felson, J. (1931). Ibid. **48** .786.

Preparation of the Hands for Operation

SIR,—Prof. G. Grey Turner's interesting account of preparation of the hands in the middle 'nineties (Jan. 9, p. 53) vividly recalls to me our varied methods of those pre-glove days. At Guy's, Howse, for whom I dressed, used to encourage us first to clean our fingers with full-strength liquor potassae and then to soak the hands for some minutes in carbolic lotion, 1 in 40. His results were uniformly good, and so were Galabin's, who pinned his faith on 1 in 1,000 perchloride of mercury, without the liquor potassae. Horrocks, another successful abdominal surgeon, used to open a bottle of Martell's 1 or 2 star brandy—7s. 6d. in those days—and he and his first assistant soaked their hands in it before proceeding to the mercuric lotion. After working under Horrocks I served as house-surgeon to W. J. Gow at the Royal Waterloo Hospital, who used carbolic 1 in 40 after a short soak in 1 in 20, and, in consequence, our hands were always as rough as files. We used to sterilize the marine sponges mentioned by Prof. Grey Turner—and I echo his regret—by soaking them throughout the previous night in 1 in 20 carbolic. However, while Gow's house-surgeon I heard him read a paper on a series of 50 consecutive ovariotomies, all completely satisfactory, in 1896. One well-loved and distinguished Guy's surgeon of this period had a most annoying run of bad luck, which he stopped by burning all his kid gloves.—I am, etc.,

Southsea. M. ASTON KEY.

SIR,—Forty years ago, before gloves came into general use at operating, much interest was taken in the questions of disinfection of the hands before operations and the general care of the hands. Most surgeons had some special technique, with or without scentific basis; many had fads. Measures intended to protect the hands from septic contact extended in some individuals to the ordinary personal sanitary procedures. A great wealth of literature, good and bad, especially in German, existed. The German *Surgical Year Book* (Hildebrand, *Jahresbericht über die Fortschritte auf dem Gebiete der Chirurgie*) devoted a special chapter each year to the subject.

Behind the cover provided by rubber gloves the present generation of surgeons has not been scientifically interested in the bacteriological state of its hands. Should the dearth of rubber become more acute it may well be that, of necessity, operations will be carried out with ungloved hands. Should that position arise, may I put forward the suggestion for consideration that scientifically it may be found desirable to use the gloves which may be available for the "dirty" cases, so to minimize septic contamination of the skin of the hands. Care of the hands and disinfection of the hands are complementary aspects of the one problem. They cannot be separated The problem is urgent and demands immediate and serious consideration. Scientifically we are back where we were at the beginning of the century.

As a basis for any such consideration may I direct attention to a small book, the best with which I am acquainted in English? It is probably out of print. It is *The Sterilization of the Hands: A Bacteriological Inquiry*, by the late Charles Leedham-Green of Birmingham (publishers: London, Simpkin, Marshall, Hamilton, Kent & Co., Ltd.; Birmingham, Cornish Brothers, Ltd., 1904)—a really excellent "objective" bit of work. Even if out of print, copies will probably be found in libraries. The book includes a remarkably full bibliography. I have no books available for reference so I cannot give further information, but there was a full-dress debate on the subject in the Section of Surgery at the B.M.A. Meeting at Oxford in 1904 and another at the Birmingham Meeting, Section of Surgery, in 1911. Detailed information will be found in the proceedings, which will be still available.—I am, etc.,

Marton in Cleveland, Yorks W. S. DICKIE.

Pancreatitis as a Complication of Mumps

SIR,—Pancreatitis is a very rare complication of mumps. Some paediatricians confess never to have seen a case. I remember one case in a girl of 10 many years ago. As cases of mumps do not congregate in fever hospitals as do other infectious diseases, and some cases, especially the mild ones, may remain undiagnosed, it is difficult to get an opinion about the frequency of this complication. It is said by some authors to be more frequent in some epidemics of mumps. In this connexion and in view of the prevalence of mumps at the present time it may of interest to report the following case.

On Dec. 14, 1942, I was called to a girl of 6 years suffering from mumps. She showed a slight swelling on the left side of the face, and developed a swelling on the right side later with very mild general malaise. On Dec. 22 I was called again to the child. The previous day she had started to complain of pains in her abdomen and sickness. She refused food, even fluids. The pains had grown worse during the night. In the morning she was constantly sick, and had been constipated for the last 24 hours. The little girl, whom I knew to be a very vivacious but not nervous child and talkative even when she had a high temperature, was lying in bed without taking any interest in her surroundings. She was pale, her face drawn, and she was moving about restlessly from one side to the other. The hands and nose were cold. She reminded me at first sight of certain cases of toxic diphtheria with severe affection of the myocardium. But throat and nose were normal, the liver was not palpable, and the heart did not appear enlarged. The temperature was 99.4° and the pulse 92. The tongue was coated, but moist She complained of pains in her abdomen, and indicated the regions above the umbilicus. On examination there was marked tenderness in the epigastric region, more so on the left side. The right hypogastric region was not tender. There was muscular resistance in the epigastric region. She was sick during the examination. To exclude an intestinal obstruction I ordered an enema, which had a normal result. The stool was of normal colour. In the evening the general condition had improved, but she still refused food except a little water with glucose. She had been sick again. The temperature was 99° F. and the pulse 90. The tenderness appeared to be less marked; urine had not been passed since the previous evening The next day her condition had improved considerably. She was taking light food and had not been sick again. There was still slight tenderness in the epigastric region. The urine was light in colour; albumin and acetone negative; no casts; the Benedict test showed green turbidity, but the precipitate did not turn yellow after 10 minutes. Recovery was uninterrupted.

The course of pancreatitis in conjunction with mumps is generally a mild one, and the symptoms often subside quickly Its nature and causation are still unknown. Pancreatitis is known to precede the swelling of the parotid glands.—I am, etc.,

London, W 9 F. MULLER.

Unwarranted Cardiac Invalidism in Children

SIR,—In a very interesting article on mitral systolic murmurs (Jan. 2, p. 8) Dr. William Evans says: "The need to recount the special features which characterize mitral murmurs receives emphasis in several departments of medicine to-day. Thus, in children the incidence of an innocent systolic murmur is high, and a faulty interpretation of this auscultatory sign is commonplace, condemning many of them unnecessarily to a life of semi-invalidism; routine medical examination of school children has inevitably subscribed to this episode. It should be a rule that no child is denied games and the healthy activities inseparable from a happy school life on account of a heart murmur of doubtful significance. Directly this suspicion has rested on a child arrangements for a special examination at a cardiac centre should operate automatically. Only in this way can unwarranted cardiac invalidism in children be avoided. Again, a young subject during convalescence from acute rheumatism is often confined to bed for several months because an innocent systolic murmur has been regarded as evidence of endocarditis or as a sign of mitral disease." Members of the Public Health Service engaged in school medical work will agree that Dr. Evans has called attention to a problem of first-class importance in the child life of the country. Whether they will feel disposed to agree with his suggested remedy is doubtful. My experience does not support his claim that unwarranted cardiac invalidism is avoided by attendance at a cardiac centre. On the contrary, such attendance is liable to confirm the invalid attitude of both child and mother.

Pari passu with the diminished incidence of juvenile rheumatism and heart disease in the last 40 or 50 years (thanks to social amelioration) there has been a remarkable growth in professional interest in the subject, culminating in the rise of "juvenile rheumatology" to the status of a special branch of paediatrics, and in the establishment by voluntary organizations and some public health authorities of "rheumatism supervisory schemes," including special clinics, schools, heart homes, and other arrangements for prolonged rest and convalescence

Meantime birth control has resulted in much fewer but much more precious children, with a corresponding increase in maternal anxiety for the welfare of the individual child and a craving for medical examination, advice, and guidance in his upbringing. In these circumstances the mention of "rheumatism" or "heart disease" is never without danger. Yet it is, in my experience, not uncommon to find these labels attached to children in whom I fail to find any history or signs or symptoms of these diseases. Sometimes the diagnosis has been made by the family doctor, sometimes by the school doctor, but quite often by a "specialist" at a rheumatism supervisory centre. When the label is attached by a specialist it has, quite naturally, greater significance in the minds of the parents and is correspondingly difficult to detach.—I am, etc.,

R. P. GARROW,
Medical Officer of Health.
Crouch End, N.8.

Adoption of Children

SIR,—My council is gravely concerned about the increasing number of adoptions which are being arranged, often without any proper safeguards, by private individuals, among them doctors, midwives, nurses, health visitors, and workers in Citizens' Advice Bureaux, none of whom has had the specialized training and experience essential for successfully carrying out so delicate a transaction. These persons, no doubt full of good will, think they are helping the mother (whether married or unmarried) of an unwanted infant and benefiting a childless couple, a wife whose husband is abroad on active service, or a lonely widow or spinster who wants an interest in life. We hear of infants being handed over like parcels at railway stations to persons about whom little or nothing is known by the no doubt kind-hearted intermediary, or of the arrival of such infants in completely unsuitable homes. To secure success in adoption long, patient, and skilled inquiries are essential; not only physical but psychological conditions need the most careful consideration. We wish to urge such intermediaries, with all the earnestness that we can command, to refer would-be adopters and parents of unwanted children to the established reputable and experienced adoption societies. These workers, through long experience, may hope to fit the right child into the right home, and thus avoid the creation of social wreckage and the causing of childish unhappiness which does not bear thinking about.

If and when the Adoption of Children (Regulation) Act comes into force many of the worst of these dangers to unwanted children will be safeguarded. Until that day we fervently beg all those interested to avail themselves of the services of trained workers and established organizations. Adoption may, and should, bring blessing and happiness to child and adoptive parents; it may, and too often does, produce results exactly the opposite. The unwanted child is the most helpless of human beings; let us bring to bear upon its problem all the skill at our command.—I am, etc.,

LETTICE FISHER,
Chairman, National Council for the Unmarried Mother and her Child.
117, Piccadilly, W.1.

Education Grants for Doctors' Sons

SIR,—I shall be grateful for space in your columns to make it generally known that under the will of Mrs. Emily Wilson Barkworth grants can be made to the sons of Fellows and Members of the Royal College of Surgeons who need financial assistance to meet the cost of their education at Winchester College. The number of candidates so far has not been sufficiently large to encourage the trustees to think that this limited application of the funds at their disposal will lead to a sufficient use being made of the income of the trust. They are, therefore, considering whether they should apply for permission to make selections from a wider field. The Council of the Royal College of Surgeons is anxious that Fellows and Members of the College should be aware of this generous bequest, and that, before consenting to any enlargement of the field, it can be certain that the applications from Fellows and Members are not likely to be sufficient to ensure full and satisfactory use of the trust. I shall, therefore, be grateful if Fellows and Members who are anxious to take advantage of this bequest will communicate with me at their earliest convenience.—I am, etc.,

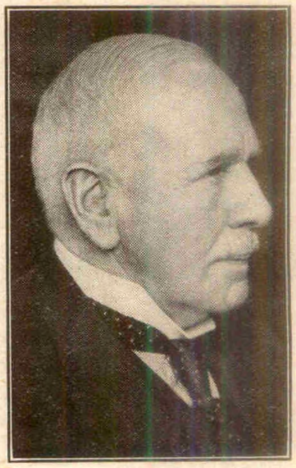
ALFRED WEBB-JOHNSON.
Royal College of Surgeons of England, Lincoln's
Inn Fields, London, W.C.2.

Obituary

SIR W. ARBUTHNOT LANE, BT., C.B., F.R.C.S.

Consulting Surgeon, Guy's Hospital

Bygone controversies will be recalled—but not revived—by the announcement of the death of Sir Arbuthnot Lane, which took place on January 16. An Irish ancestry and a Scottish upbringing combined to produce a combative and tenacious personality, partly concealed, but made more dangerous to opponents, by a mild and persuasive exterior. A man of undoubted gifts and insight, he seemed to take pleasure in the expression of extreme views, in season or—preferably—out of season, believing probably that by the clash of extremes a true balance can be maintained.


[Press Portrait Bureau

William Arbuthnot Lane was born in Scotland in 1856, the eldest son of Brigade Surgeon B. Lane, an Irish military surgeon. He was educated at Stanley House, Bridge of Allan, and received his medical training at Guy's, taking the M.B., B.S. of London, with the gold medal in anatomy and medicine, in 1881, and the F.R.C.S. in the following year, when he was only 26. The first of his innumerable publications dates from 1883, when he contributed to the *Transactions* of the Pathological Society of London a paper on fractures of the sternum, and to *Guy's Hospital Reports* on cases of empyema in young children treated by removal of a portion of the rib. His early work was almost entirely in bone surgery. He was interested in the human skeleton, its congenital deformities, the extent to which it is prone to accident, and its variations under pressure. He wrote extensively on such anomalies as cervical rib and sixth lumbar vertebra, also on knock-knee, flat-foot, and rickety changes in the spinal column and pelvis, and again on the changes produced by pressure—pressure changes in the skeleton revealing the labour-history of the individual, abnormal mechanical conditions of the hip-joint, the anatomy of the charwoman and of the cobbler, the effect of the corset on the abdominal viscera, and of the body on the mechanics of the foot. He once boasted that he could tell in the dissection room from the examination of the body of a manual worker what occupation he had followed during life. All these matters interested the young Lane. He saw the skeleton as representing the crystallization of lines of force. His belief was that the body bears certain mechanical relationships to its surroundings, and any change in those relationships has a corresponding effect on the anatomy, so that everything that Nature does to meet such an alteration in the mechanical relationships tends to shorten life.

As early as 1884 we find his name attached to nineteen papers in the medical journals, almost all of them dealing with fractures and deformities. These included an account of the abnormalities observed in the dissection room at Guy's, an annual review in which he collaborated during several years with Dr. (later Sir William) Hale-White. The earliest of many papers published in this *Journal* appeared in 1887 (**2**, 119). With the surgical department of Guy's his name was linked for half a century. He was also surgeon and later consulting surgeon to the Hospital for Sick Children, Great Ormond Street. His reputation rapidly grew, and some of the surgical procedures which his agile and emancipated mind thought out gained wide acceptance; his wonderful dexterity and surgical skill compelled the admiration of all. In the early 'nineties he was criticizing the splints then in use in fracture cases as likely to produce permanent injury and was anticipating to some extent the modern treatment of fractures. In 1893 he drew attention to the advantages of the steel screw in the treatment of fractures which failed to unite. His operation for cleft palate, introduced at the beginning of the present century, was widely followed.

It appears to have been about 1903 that Lane first published his views on the effect on general health of chronic obstruction of the large bowel, and from that time onwards his voice and pen never wearied in proclaiming that constipation was answerable for much of our disease and could be corrected by healthy habits of living. Practically all chronic diseases, he said, were merely symptoms or manifestations of intestinal stasis. So closely was his name attached to this doctrine that "Lane's disease: intestinal stasis" will be found in the medical dictionaries, as well as "Lane's operation: short-circuiting of the large intestine for chronic obstruction." His book *Operative Treatment of Chronic Constipation* appeared in 1904, and his printed papers and lectures on that theme from then onwards number at least fifty. Again and again he denounced the assumption in civilized communities that one action of the bowel a day was quite enough for health. Such assumption, he said, resulted in "constipation for twenty-four hours." If people would revert to the habit of "three motions daily," then many diseases, among them cancer, really due to intestinal stasis, would disappear. Such was the gospel he preached with the fervour of an evangelist.

The "kink of the ileum," which became known, perhaps with a little derisory significance in some quarters, as "Lane's kink," first appears in the title of a paper by him in 1910. By the "kink" he meant the anchoring of the iliac colon by the formation of thin bands or tags of peritoneum arising as a result of the excessive strain caused by the accumulation of faecal matter in the pelvic colon. This anchoring of the iliac colon, he exclaimed dramatically on one occasion, spelt the failure of civilization. He felt so strongly on this and other health questions that he did not hesitate to use the lay press—including the most widely circulated newspaper at that time—to bring them before the public. He was impatient at the lack of emphatic endorsement of them by the profession in general, and there were those who rebuked a man of such eminence for encouraging by his example doctors who courted the lay press for purposes of self-advertisement. There came a day when, as a protest, he resigned from the British Medical Association and founded the New Health Society. It was an unhappy controversy about which there is no need to say more. Sir Arbuthnot Lane's provocative statements always furnished "copy," as, for example, that "A glass of beer is better than a pint of tea," and "That which is universally accepted as true in medicine is almost always wrong." Even his platitudes were widely quoted; for example: "The future of the race is in the hands of our women." Not infrequently he castigated his own profession. In a speech at the R.S.M. in 1922 he declared that colectomy was necessary because of the hopeless ignorance and incompetence of the physicians. He would describe humorously how patients came to him and told him that a doctor had said to them, "For goodness' sake don't go to Lane. Whatever is wrong with you, even if it is only a sore throat, he will take out your colon." The controversies that he gathered round him made no difference to the affection in which he was held by Guy's men and many others, and in personal contacts nobody could be more charming.

Enough has been said already about Lane's frequent contributions to literature. Among the books which bear his name, in addition to *Operative Treatment of Chronic Constipation*, already mentioned, were *Cleft Palate and Adenoids* published in 1897, and *Operative Treatment of Fractures* in 1907. He was part-author of Carrington's *Manual of Dissections of the Human Body*, and author of the section on diseases of muscles and tendons in Treves's *System of Surgery*. A bibliography of his writings extending from 1883 to 1938 contains nearly 400 entries.

Lane was made a baronet in 1913. He was also Chevalier de la Légion d'Honneur. He married in 1884 Charlotte, daughter of John Briscoe. In 1935 he married, secondly, Jane, daughter of the late Mr. N. Mutch. His son, William Arbuthnot, succeeds to the title. Of his three daughters, the eldest took up a scholastic career, and achieved high distinction in the educational world. The other two daughters married members of Guy's staff, one becoming the wife of Mr. Harold Chapple, senior obstetric surgeon to Guy's, and the other the wife of Dr. Nathan Mutch, physician to the hospital.

Mr. H. L. EASON writes: Arbuthnot Lane will always be remembered at Guy's Hospital as the surgeon who first brought into practice the strict principles of aseptic surgery. These, combined with his uncanny dexterity and technique, made his unusual reputation while he was still a young man. His confidence in his own powers and in his own opinions made him an inspiring teacher and sometimes a combative critic of others. Unfortunately, others not endowed with his technique, and seeing the simplicity with which he appeared to do the most perilous things, tried to copy him, sometimes with unfortunate results. Of his work generally as a surgeon I am not competent to speak, but my memory reminds me, away from all records or dates, of two operations I saw him perform in 1897 or 1898. The first was his first treatment of a fracture by screws. It was a spiral fracture of the tibia, and Lane sent for one or two ordinary steel screws from the carpenter's shop and screwed the fracture right through the bone. Plating was, of course, a much later development. The second operation was for a large volvulus of the colon in a middle-aged woman. It measured about 25 inches in length and the colon was 11 or 12 inches in circumference. On the abdomen being opened the volvulus shot out and stood up like a bicycle tyre. Lane looked at it and said, "The only thing to do is to cut it all out." He therefore resected the whole volvulus, and the woman made a good recovery. The success of this operation probably suggested to his mind the possibility of his later, though possibly misguided, operations for resection of the colon. But, as has been said above, his unparalleled technique enabled him to do things with success which other men failed to do.

He was an Irishman, and he certainly had the faculty of trailing his coat-tails. In conversation he was difficult. Many people could find nothing to say to him, and he on his part had little to say to them except on the weather, and that in unstimulating phrases. His influence over his house officers and students was immense; but whether that influence was always to the good, in that they thought that what he did and preached they also could do and preach, the historian of surgery must decide. On the balance, however, he was a great surgeon, a brilliant pioneer, and a great teacher, the most distinguished Guy's surgeon of this generation.

G. W. CRILE, M.D.

We regret to announce the death on Jan. 6 at the age of 78 of Dr. G. W. Crile, Director of Research at the Cleveland (Ohio) Clinic, of which he was one of the founders.

George Washington Crile was born in 1864. He was educated at the Ohio Northern University and Wooster University (now Western Reserve University), and studied abroad in Vienna, London, and Paris. He received many honorary degrees, including the M.Ch. of the University of Dublin and the LL.D. of Glasgow. Dr. Crile was in turn lecturer and demonstrator in histology, professor of physiology, and professor in the principles and practice of surgery at Wooster University, and in 1921 played an active part in founding the Cleveland Clinic Foundation. He served as a brigade surgeon in the Spanish-American War in 1898 in Cuba and Porto Rico. In the 1914-18 war he saw service in France as Director of U.S.A. Base Hospital No. 4, Lakeside Unit; in 1919 he received the C.B. (Honorary Member, Military Division, 3rd Class), and in 1922 was made Chevalier, Légion d'Honneur. Dr. Crile was a member of many professional and scientific societies, and received several prizes and medals in recognition of his contributions to medicine. Among his publications were works on *Surgical Shock* (1897), *Haemorrhage and Transfusion* (1909), *Anoci-association* (with Lower, 1914), *Origin and Nature of the Emotions* (1915), and *The Surgical Treatment of Hypertension* (1938).

For the following appreciation we are indebted to Sir WALTER LANGDON-BROWN:

George Washington Crile's earliest work to command attention was concerned with anaesthetics, and he was one of the pioneers in blood transfusion. The conditions calling for this procedure naturally turned his mind to the study of shock. In the course of these researches he, like W. B. Cannon, turned W. H. Gaskell's great work on the sympathetic nervous system to admirable clinical use. In the retrospect it is curious to observe the lengthy time-lag between the physiological discoveries and their practical application. Cannon pointed out that the effects of sympathetic stimulation were all originally designed to activate the body for a struggle and to increase its power of defence. Crile went on to show how under less primitive conditions these effects, failing to find their appropriate motor outlet, produced perturbations which are so often mistaken by the sufferer for symptoms of organic disease. " Men's fear," he said, " is manifested in terms of his ancestral physical battle in the struggle for existence. He cannot fear intellectually, he cannot fear dispassionately ; he fears with all his organs. . . . Nature has the one means of response to fear . . . it is always physical. Under modern conditions of life neither fight nor flight is *de rigueur*. The individual under the influence of fear may be likened to an automobile with the clutch thrown out but whose engine is racing at full speed." And so in this vivid way he focused attention on the physical manifestations of psychological disturbances. Closely linked with this was his theory of " nociceptor," a view recently extended by Sir Thomas Lewis to include other receptors of painful stimuli. The nociceptor may be defined as the nerve-endings which through their sympathetic reverberations initiate a degree of shock often incommensurate with the severity of the lesion. Crile pointed out the instructive way in which animals engaged in mortal combat tried to seize on those areas of the antagonist most plentifully endowed with nociceptors. These are the views which attracted most attention to his work. He did not discover adrenaline as has been stated ; Schäfer and Oliver, as is well known, first prepared a potent extract from the adrenals, from which Takamine isolated adrenaline. Langley pointed out that it had the same effect as stimulating the sympathetic, and Crile seized on that idea, making use of adrenaline as a direct stimulant to the accelerator nerves of the heart—e.g., in collapse under anaesthetics. Some of Crile's later ideas found less general acceptance, but the work of his middle period has already passed into the general stock of medical ideas, even if their origin has been forgotten.

ROBERT BOYD, M.D.GLAS.

The death of Dr. Robert Boyd came as a great shock to his many friends in Manchester, and not least to members of his own profession, for whom he had done so much good and useful work.

Born in 1872 at Barr in Ayrshire, Dr. Boyd was educated at the Ayr Academy and at Glasgow University, where he took the M.B., C.M. in 1893, later proceeding to the M.D. After qualification he spent some years in house appointments, notably at Huddersfield. Later he served in the South African War, and in 1903 settled in Manchester. Here his absorption in his profession and his tremendous capacity for work soon ensured a large and busy practice, in which he was actively engaged to the time of his last illness. His chief hobbies, apart from his daily work, were the B.M.A. and local medical affairs, and the high esteem in which he was held by his professional brethren was well shown by the offices to which they elected him. He was chairman of the Manchester Division for 2 years and vice-chairman for 8 ; a member of the executive committee from its inception in 1915 ; a member of the Panel Committee from its start in 1913, and vice-chairman for 12 years ; and a member of the Branch Council for 20 years. Centrally he was a Representative for 20 years, being particularly concerned with the welfare of the family doctor, and proud to have taken an active part in starting the General Practice Committee, of which he became a member. For the last four years he was a member of the Insurance Acts Committee, having also served on the Hospitals Committee. Quiet, unassuming, never seeking the limelight, Boyd was a man of whom his profession may feel justly proud. By patients and colleagues alike he will be sorely missed.

We regret to announce the sudden death of Dr. **George Kenworthy Thompson** at Derby on Dec. 26. Born in 1887, Dr. Thompson was educated at Uppingham School and Manchester University, where he graduated M.B., Ch.B. in 1911 and in 1914 obtained the D.P.H. He held several hospital appointments after graduating and was assistant tuberculosis officer in Cheshire before joining the R.A.M.C. in 1915. He served in Gallipoli, Mesopotamia, and India, and on returning to civil life in 1919 became chief assistant medical officer of health in Derbyshire. He resigned this post in 1921, and from then until 1940 he was in general practice, first at Sedbergh, then successively in Cheshire, Essex, and at Coventry. Throughout this time, however, Dr. Thompson maintained a lively interest in public health activities, and he continued to hold various appointments with local authorities. When he left general practice in 1940 he became assistant medical officer of health in Derby. He was in Derby and then Mansfield for some time, and ultimately held the post of assistant medical officer of health for Northamptonshire. He had been a member of the B.M.A. for 30 years. Dr. Thompson was popular with staff and patients alike, and his untimely death will be regretted by a wide circle of friends. He is survived by a widow and three daughters, one of whom, Dr. B. Mary Thompson, is serving in the R.A.M.C.

In the *Journal* of Aug. 8, 1942 (p. 177), we published a brief obituary notice of Temp. Surg. Lieut. Eric Beresford Riding, R.N.V.R. We have now received the following appreciation from R. H. R.: Riding was a delightful companion, having a ready wit and a remarkable art of mimicry. Any function he attended was bound to go with a swing. He played soccer for the university for many years and was a natural athlete. Apart from public health, in which subject he passed with distinction, he did not strive after academic honours, but he was recognized as a sound student and a trustworthy, common-sense doctor. His maritime contacts and interests were many, and, if his end had to come in this war, it is perhaps fitting that it should have happened at sea.

The Services

Capt. G. O. Brooks, G.M., and Lieut. F. A. Macrae, R.A.M.C., have been awarded the M.C. in recognition of gallant and distinguished services in the Middle East.

Capt. K. Mariswamappa, I.M.S., has been awarded the M.C., and Brigadier (local) B. C. Ashton and Major (temp. Lieut.-Col.) V. E. M. Lee, I.M.S., have been mentioned in recognition of gallant and distinguished services in Iraq, Syria, and Persia during the period April, 1941, to Feb., 1942.

CASUALTIES IN THE MEDICAL SERVICES

Surg. Lieut. **James Langford Brownrigg MacFarlane**, R.N.V.R., was killed in action in H.M.S. *Achates* in December. He was born 28 years ago, the second son of Dr. and Mrs. J. E. MacFarlane of Whitley Cross, Reading, and received his professional education at St. Mary's Hospital, qualifying M.R.C.S., L.R.C.P. in 1941. Before entering the R.N.V.R. in May, 1942, he held the post of house-surgeon at Park Prewett Hospital, Basingstoke. He was a member of the B.M.A.

Temp. Surg. Lieut. **Archibald Barr Aiton**, R.N.V.R., is included as " missing, believed killed " in an Admiralty Casualty List published on Jan. 13. He was born on Sept. 3, 1917, and was educated at the University of Glasgow, where he graduated B.Sc. in 1938 and M.B., Ch.B. in 1941. He had held the post of house-physician at Stobhill General Hospital, Glasgow, before entering the R.N.V.R. in October last year. His home was at Strathaven, Lanarkshire.

Col. **Charles Frank Burton**, M.C., who was reported missing in the *Journal* of April 25, 1942 (p. 540), is now presumed to be dead. He was born on Jan. 16, 1889, and received his professional education at the London Hospital, qualifying M.R.C.S., L.R.C.P. in 1913. He served in the war of 1914-18, in the R.A.M.C., S.R., and was awarded the M.C. in Sept., 1918, the official citation reading as follows: " In his skilful leading of the stretcher-bearers on all occasions he has always shown great coolness under the heaviest fire." After the war he took a permanent commission as capt. in the R.A.M.C., was promoted major in 1926, lieut.-col. in 1938, and col. in 1941, and at the time of the Japanese invasion was holding an appointment at Singapore.

Capt. **Albert Joseph Antaki**, R.A.M.C., who is included as " died " in an Army Council Casualty List published on Jan. 15, entered the Palestine Section of the R.A.M.C. as lieut. in July, 1941, and was promoted capt. a year later.

Prisoners of War.—Major F. W. Allinson, I.M.S., Capt. R. W. W. Brown, R.A.M.C., Capt. W. A. W. Chapman, R.A.M.C., Capt. A. W. Chester, R.A.M.C., Temp. Lieut.-Col. G. F. A. Condon, I.M.S., Capt. A. H. R. Coombes, R.A.M.C., Capt. J. A. Falk, R.A.M.C., Capt. A. W. Frankland, R.A.M.C., Capt. J. A. Glover, R.A.M.C., Lieut.-Col. J. Huston, R.A.M.C., Acting Lieut.-Col. W. G. Kennedy, I.M.S., Capt. P. M. Kirkwood, I.M.S., Lieut.-Col. J. W. Malcolm, O.B.E., M.C., R.A.M.C., Capt. G. K. Marshall, R.A.M.C., Capt. H. V. Morris, I.M.S., Major T. F. O'Donnell, I.M.S., Capt. C. S. Pitt, R.A.M.C., Major J. White, I.M.S.

No. 52

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Jan. 2.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	95	5	18	2	6	95	6	31	5	8
Deaths		1	1				1	3		
Diphtheria . .	939	59	219	95	40	845	29	248	27	29
Deaths	29	2	3	3	—	32	—	5	2	5
Dysentery	95	14	27	—	—	93	8	5	—	—
Deaths				—	—			—	—	—
Encephalitis lethargica, acute ..	2	—	1	—	—	2	—	1	2	—
Deaths . ..		—	—				1	—		
Erysipelas		—	50	11	—		—	45	4	3
Deaths .		—	—				—	—		
Infective enteritis or diarrhoea under 2 years . ..				38						
Deaths .. .	45	5	4	20	3	39	—	6	3	—
Measles . ..	14,989	742	218	16	24	540	50	42	24	7
Deaths ...	43	1	4	—	—	2	—	—	—	—
Ophthalmia neonatorum	74	7	23	1	2	46	2	26	—	—
Deaths										
Paratyphoid fever ..	7	—	—	—	—	5	—	4	1	
Deaths . ..	—	—	—		—					
Pneumonia, influenzal*	936	60	8	3	4	751	43	8	3	13
Deaths (from influenza)	44	5	3	—	—	32	1	1	—	1
Pneumonia, primary			179	28				259	12	
Deaths .		43		22	7		40		17	10
Polio-encephalitis, acute	1	—				1	—			
Deaths .. .		—					—			
Poliomyelitis, acute .	4	—	2	7	1	11	1	1	1	—
Deaths		—	—				—	—		
Puerperal fever .	165	8	15	1	—	1	1	11	3	—
Deaths							—			
Puerperal pyrexia ..			13		2	139	10	21		2
Deaths . .										
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever .	2,159	141	287	70	61	997	28	235	25	27
Deaths	3	—	—	—	—	1	—	1	—	—
Small-pox	1	—	1		—	—	—	—		—
Deaths . ..			—	—	—		—	—	—	—
Typhoid fever† .	6	2	1	5	2	14	1	3	4	2
Deaths . ..	—	—	—	—	—		—			
Typhus fever .	—	—	—	—	—	—	—	—	—	—
Deaths . .			—	—	—			—	—	—
Whooping-cough	1,187	78	22	31	12	1,124	154	21	7	4
Deaths .	14	2	1	2	—	8	2	2	—	—
Deaths (0–1 year)	409	50	48	64	38	361	43	74	29	20
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths) . ..	5,119	784	553	272	155	4,369	604	638	147	123
Annual death rate (per 1,000 persons living)			12·4	18 2	‡			13·9	9 8	‡
Live births .. .	6,131	775	786	379	302	3,489	330	720	132	160
Annual rate per 1,000 persons living ..			16 3	25 3	‡			14·6	8·8	‡
Stillbirths	234	25	30			148	15	46		
Rate per 1,000 total births (including stillborn) ..			37					60		

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes paratyphoid A and B for Northern Ireland.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales*, as was to be expected after the big drop in the preceding week, there was a very large rise in the notifications of infectious diseases. Measles was up by 4,101, whooping-cough by 350, acute pneumonia by 265, diphtheria by 208, scarlet fever by 105. The increase in measles and whooping-cough exceeded the decrease reported last week, but the incidence of the other diseases did not reach the level of a fortnight ago.

The incidence of scarlet fever continued to diminish in most areas, although the only decline of note was 46 cases in Yorks West Riding. The principal exceptions to the general trend were rises in Staffordshire of 81 and in London of 43 cases.

The largest increases in the notifications of diphtheria were those of London 29, Cheshire 39, and Derbyshire 36. In the last-named this was due to an outbreak in Chesterfield R.D. involving 34 people.

A small rise in the incidence of whooping-cough was general throughout the country, the largest being those of Yorks East Riding 45, Warwickshire 41, Staffordshire 37, and Essex 35.

The increase in measles began in mid-September and since then has been rapid. The cases are now five times as numerous as they were then, and have reached the highest level during the past twenty months. The largest rises during the week were those of London 442, Lancashire 417, Leicestershire 335, Essex 256, Middlesex 245, Nottinghamshire 242, Staffordshire 232, Yorks West Riding 227, Warwickshire 220. Over one-third of the total cases in the country were recorded in the two counties of Lancashire and Yorks West Riding.

There was an outbreak of 20 cases of dysentery in Derbyshire, Derby C.B., during the week. The incidence in most of the other areas fell, with the result that the total was 8 fewer than in the preceding week.

In *Scotland* there was a general drop in the incidence of infectious diseases. The cases of measles and scarlet fever were 114 and 105 fewer than in the preceding week, but in Glasgow the figure for measles rose by 5. Only 27 cases of dysentery were notified, the smallest weekly total during the recent months.

In *Eire* notifications of diphtheria and of scarlet fever were 45 and 39 more than in the preceding week.

In *Northern Ireland* there was a small but general rise in the notifications of infectious diseases.

Infectious Diseases during the Year

The past year has been notable for the large number of cases of dysentery and the very low incidence of enteric (paratyphoid and typhoid) fever. The drive for immunization against diphtheria has given disappointing results, and the total notifications were only slightly below those of preceding years. A comparison of the incidence of infectious diseases in recent years, compiled from the weekly returns in England and Wales, is:

	1942	1941	1940	1939	1938
Scarlet fever	84,932	59,111	65,573	78,201	99,413
Whooping-cough .. .	65,563	171,406	53,403		
Diphtheria	42,318	51,091	46,683	47,910	65,720
Measles	285,300	406,507	407,908		
Acute pneumonia . ..	42,487	50,514	47,712	42,275	45,117
Cerebrospinal fever	6,089	11,119	12,791	1,506	1,293
Dysentery	7,177	6,597	2,843	1,963	4,210
Typhoid and paratyphoid fevers	887	4,703	2,824	1,524	1,347

The incidence of cerebrospinal fever has fallen considerably, but remains at over four times the peacetime level.

Returns for the Week Ending January 9

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,808, whooping-cough 1,302, diphtheria 841, measles 14,153, acute pneumonia 1,091, cerebrospinal fever 87, dysentery 119, paratyphoid fever 5, and typhoid 8.

C. R. Donovan and M. Bowman (*Canad. med. Ass. J.*, 1942, **46**, 525) record their observations on encephalitis in Manitoba from 1938 to 1941 inclusive, with special reference to an outbreak of 509 cases during 1941 and a concurrent epidemic of 966 cases of poliomyelitis. During the four years serological tests were reported positive in 83 cases for Western equine virus, one for St. Louis, and one for Japanese B. The 1941 cases were distributed widely throughout the province and occurred mainly in August. About 70% were in males; 81% were 20 years old and older; 78 died—a case fatality of 15.3%.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The Vice-Chancellor gives notice that the Sir William Dunn Professorship of Biochemistry is to be vacated on Sept. 30, 1943, by the resignation of Sir Frederick Gowland Hopkins, and that the Regius Professorship of Physic is to be vacated within the present academical year by the resignation of Dr. John A. Ryle.

The written part of the examination for the degree of M.Chir. will be held on Feb. 16 and 17, and the remainder on Feb. 26 and 27. R. H. A. Swain has been approved for the degree of M.D. in absence.

At a Congregation held on Dec 5, 1942, the following medical degrees were conferred:

M.D.—L. J. Bacon, R. A. Jones.
M B , B.Chir.—T. P. Pattinson (by proxy).

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

Dr. P. R. Peacock will deliver a lecture on " Gastric Cancer: An Experimental Approach to the Problem of Causation " under the auspices of the Miss Weild Fund in the hall of the Faculty, 242, St. Vincent Street, Glasgow, on Wednesday, Jan. 27, at 4 p.m.

Medical News

Dr. J. A. Ryle, Regius Professor of Physic, University of Cambridge, has been elected Professor of Social Medicine at Oxford, with effect from April 1.

Prof. J. C. Drummond, Scientific Adviser to the Ministry of Food, will give a discourse on " The History and Knowledge of Scurvy and its Treatment " at the Royal Institution, 21, Albemarle Street, W., on Friday, Feb. 5, at 5 p.m.

A meeting of the Medico-Legal Society will he held at 26, Portland Place, W., on Thursday, Jan. 28, at 4.30 p.m., when a paper will be read by Dr. H. E. Cox on " Recent Developments in Food Legislation."

A meeting of the Royal Sanitary Institute will be held at 90, Buckingham Palace Road, S.W., on Wednesday, Jan. 27, at 2.30 p m , when there will be a discussion on " Healthy Housing."

The annual congress of the Ophthalmological Society of the United Kingdom will be held at the Royal Society of Medicine, 1, Wimpole Street, London, W., on Friday and Saturday, April 30 and May 1. Discussions on " Thyrotoxicosis in its Relation to Ophthalmology," to be opened by Dr. Russell Brain and Mr. L. H. Savin, and " The Scientific and Clinical Aspects of Night Vision," to be opened by Prof. W. J. B. Riddell and Air Commodore P. C. Livingston, will take place on the first and second days respectively.

The working of the Appointments System for out-patients which Guy's Hospital instituted some months ago is being hampered by doctors failing to comply with the procedure laid down. If they wish to send patients for examination they should write or telephone beforehand for an appointment with the member of the visiting staff concerned. Letters should be addressed to the sister-in-charge of the out-patient department, Guy's Hospital, London Bridge, S.E.1, telephone Hop 3500, Extension 11.

Supplies of benzyl benzoate are available for the preparation of the aqueous emulsion for the treatment of scabies, and if doctors or hospitals have any difficulty in obtaining it they should communicate with the Director of Medical Supplies, Portland House, Tothill Street, London, S.W.1, stating the quantity required monthly and the name of present or intended supplier.

Among recent activities of the Central Council for Health Education we may note the issue of a series of practical and compactly worded leaflets on various aspects of the health of the worker, under such titles as " Rest and Relaxation," " Be Kind to Your Stomach," " Care of the Feet." Industrial medical officers can obtain these leaflets and other health propaganda material by applying to the offices of the Central Council, Tavistock House, Tavistock Square, London, W.C.1.

The Council of Epsom College will shortly proceed to award St. Anne's Scholarships to girls attending Church of England schools. Candidates must be fully 9 and under 16 years of age, and must be orphan daughters of medical men who have been in independent practice in England or Wales for not less than 5 years. The value of each scholarship is dependent upon the means of the applicant and the locality and fees of the school selected. Forms of application can be obtained from the Secretary's Office, Epsom College, Surrey.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

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TELEPHONE No.—B.M.A. and *B M J.*: EUSTON 2111.

TELEGRAPHIC ADDRESSES.—EDITOR, *Aitiology Westcent, London.* SECRETARY, *Medisecra Westcent, London.*

B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

QUERIES AND ANSWERS

Income Tax

Remittances from Abroad

A. C. N. has held an appointment under a foreign Government for 23 years. He returned to England on Oct. 23, 1941, on sick leave, and hopes to go back in the near future. He was exempt from British tax as a non-resident for 1941–2, but has been assessed for 1942–3, as a resident, on the basis of the amount of his remittances to this country in 1941–2. The 1941–2 remittances were heavy and will not recur. A. C. N suggests that it is unfair that he should be charged 10s. in the £ on this amount when it would have been taxed at 8s. 6d. in the £ if it had been assessed for 1941–2.

*** A. C. N. has at least this advantage, that he is not liable for the first 5½ months of his stay in this country. Supposing, for instance, that he returns to his appointment in June, 1943, he will have been here for, say, 17 months, but have been liable only for the 12 months ending April 5, 1943. The basis of assessment for that year is legally the amount of the remittances received in the year previous; provided that those remittances represented income and not capital. (If the total amount remitted in 1941–2 was greater than the foreign income of that year, that point should be put to the inspector of taxes) If the figures are such as to create peculiar hardship it might assist if the facts were put to the Secretary, Board of Inland Revenue, Imperial Hotel, Llandudno, and a request made for some equitable concession, but a departure from strict legality is not likely to be conceded.

Single Person's Liability

F. D. asks, " How much should I allow for income tax on £300 per annum, all found? I am a single woman."

*** The tax due for the year to April 5, 1943, assuming that the employment covered the whole year, is calculated as follows:

Amount of remuneration		£300
Deduct—Earned income relief	£30	
Personal allowance	£80	
		£110
		£190
Taxable at 6s 6d in the £—£165 .. .. .. tax	£53 12 6	
" " 10s. " " £— £25 .... "	£12 10 0	
	£66 2 6	

Employment—Bad Debts

W. J. is working under the B M.A. scheme, for a practitioner who has been called up, on the basis that he is remunerated by half the profits of the practice. The inspector declines to make him an allowance for the bad debts booked but probably uncollectable.

*** The inspector is wrong. It is clear that in calculating " profits " some allowance or deduction should be made for bad and doubtful debts—that is a general commercial and income-tax rule—and as W. J.'s remuneration is measured by the amount of " profits " they should be taken into account in calculating his " share."

Fees Paid to the Royal College of Physicians

T. T. asks whether fees paid on election as a Fellow of the College are allowable as expenses.

*** No. The fees in such circumstances are in the nature of capital outlay rather than current expenses.

LETTERS, NOTES, ETC.

An Unusual Triple Complication of Pregnancy

Dr. G. P. **MERSON** (Zanzibar) writes: An Arab 4-para aged 35 was admitted to Zanzibar Maternity Hospital with a rather unusual history. The ante-natal period was uneventful except that hydramnios was suspected. The history given was that she went into labour at 6 o'clock in the evening with a normal show and slight loss of liquor. Next morning the membranes ruptured, with the loss of four gallons of liquor amnii. Pains continued and there was a large ante-partum haemorrhage. The midwife then examined her per vaginam. She found the placenta nearly completely separated and lying in the vagina, and a shoulder presentation with the arm prolapsed at the side of the placenta. The condition of the patient on admission to hospital was poor (pulse 110, subnormal temperature). On abdominal examination the position of the foetus was transverse, the head lying in the left iliac fossa. The placenta was hanging out of the vulva suspended by the cord, which had already been tied at the vulva. The arm was prolapsed and a hand was visible at the vulva. Although the patient's condition was poor she was still having very strong contractions at short intervals and, on account of this, immediate intervention seemed necessary. Under general anaesthesia with ether, decapitation was performed. The recovery was interrupted by the development of a small ischio-rectal abscess, which required incision. This case was interesting from the association of serious complications: (1) hydramnios; (2) central placenta praevia, with expulsion and delivery of placenta; and (3) impacted transverse lie.

Surgical Emphysema Complicating Pulmonary Tuberculosis

Dr. **GERALD H. COORAY** (surgical registrar, General Hospital, Colombo) writes: The case reports of Dr. T. B. L. Bryan (December 21, 1940, p. 868) and Dr. G. Hurrell (July 5, 1941, p. 16) respectively prompt me to record a similar case with the kind permission of Dr. B. E. Fernando, visiting surgeon, General Hospital, Colombo, under whose care the patient was admitted. A female Sinhalese aged 20 years was admitted to the hospital on August 22, 1941, with fever, cough, and pain in the chest of eight days' duration. She was pale and poorly nourished. Her temperature was 102° F. and the pulse rate 120. There were physical signs of a cavity at the left apex. The following day her temperature was 100.4° F., but she had suddenly developed surgical emphysema of the tissues of the upper part of the left chest. A radiograph showed a left-sided spontaneous pneumothorax. Her cough became more severe and her temperature began to vary between 99° F. in the mornings and 101° F. in the evenings. The surgical emphysema gradually spread to the tissues of the neck and face. As she was dyspnoeic surgical treatment was contemplated, but was refused by the patient. The emphysema gradually disappeared from the face and neck and her temperature began to settle down. Unfortunately, on September 1 she insisted on leaving the hospital and was therefore discharged.

Buerger's Exercises in Comfort

Dr. **WILLIAM CAMPBELL** (Edinburgh) writes: A patient recently treated in the wards of the Royal Infirmary, Edinburgh, by the intermittent venous occlusion machine applied to the thigh was instructed in Buerger's exercises when he was discharged. Three weeks later he reported to the ward to outline "Buerger's exercises in comfort" and to extol their effectiveness. His device was this. He had taken a pair of carpet slippers and through the toe of each driven a three-inch nail. Each end of a long stout piece of cord he had tied to each nail, so that it could be suspended over a hook in the ceiling, the slippers hanging some 24 inches from the floor. Thus he could seat himself in an easy chair with an adjustable back set low, and, with his feet in the slippers counterbalancing each other, indulge in his modified Buerger's exercises for several hours. His practice was to keep one foot on the floor, the other being counterbalanced well above the body for a period of from 2 to 3 minutes, and then to lower the one foot, thus raising the other for a similar period. Thus he would continue for 3 hours in the morning and 3 hours in the evening, reading a book the while and enjoying the mild exercise entailed. He maintained that its effectiveness was equal to that of the intermittent venous occlusion machine, and the clinical evidence in this case certainly corroborated his statement.

Diphtheria with Perforation of Larynx

Dr. J. D. **ROLLESTON** writes: The case described by Dr. R. W. Stephenson (Jan. 9, p. 60) under this title is most probably not an example of perforation of the larynx in diphtheria, of which, so far as I know, no instance has been recorded. Unlike scarlet fever, diphtheria does not cause deep ulceration. Dr. Stephenson's case seems rather to be an example of the very rare condition of which I collected seven cases, including one of my own, under the title "Non-surgical Subcutaneous Emphysema in Laryngeal Diphtheria" (*Brit. J. Child. Dis.*, 1928, 25, 185). The most likely explanation of the emphysema is that put forward by Natalis Guillot to the effect that as the result of dyspnoea pulmonary emphysema occurs, that vesicles on the surface of the lung rupture, and that air passes into the hilum of the lung and so into the mediastinum and neck. A similar condition is found in measles, whooping-cough, and influenza.

Fulminating Purpura and Adrenal Haemorrhage

Dr. **JAMES SHAW** (Smethwick) writes: With regard to the correspondence about fulminating purpura, etc., perhaps such conditions are more common than is usually believed, but the cases do not find their way into the literature. Some few years ago I was called to see a child who was well and dead within a period of about eight hours. The child came out in large purpuric spots all over the body, and rapidly succumbed. I do not think there was any definite history of illness or of any associated illness of any member of the family. Dr. G. J. Jones of this borough and I did a post-mortem examination, and found what we thought to be definite evidence of adrenal haemorrhage. Curiously enough a child was admitted to hospital to-day in the early evening and died just after admission. There were haemorrhagic spots all over the body, some head retraction (but no Kernig's, etc.), T. 105° F., R. 70, definite pneumonia, convulsions, and death. The parents stated that she was playing about until 1 p.m.; she died at 7.30 p.m. She was observed to be fretful at 1 p.m. They admit that she had a cold yesterday and the day before, and after some questioning I elicited the fact that another child had had measles recently. The rash, however, did not appear morbilliform in type, and the haemorrhagic spots were punctate-like and discrete.

Books and Diversions

Hospital libraries started in a small way have proved their worth; they are now recognized departments, at all events in the larger institutions. Then there is what may be termed "diversional" therapy and the better-known occupational therapy. A correspondent, who is herself an organizer of diversional therapy at an E.M.S. hospital and supervisor of hospital libraries in a wide area, suggests that these three departments should be linked under an experienced welfare officer, whose staff would include a trained librarian and assistant librarians, a trained artist and her assistants, and a trained occupational therapist. The welfare officer would receive a list of patients from the doctors, and her staff would visit the wards in the case of those patients too ill to leave their beds and would receive others into the workshop. This correspondent has found the following work possible for bed-patients: making soft toys and dolls, string belts, gloves, and slippers, also embroidery, knitting, sewing, light fretwork, etc., and for patients in the workshop: carpentry, plastic modelling, cane work, weaving, painting, bookbinding, etc. A large part of the staff could, she considers, be voluntary.

Post-herpetic Pain and Paresis

Dr. **MORRIS CUTNER** (St. Mary's Hospital, W.2) writes: In the *Journal* of Jan. 12, 1935 (p. 91), while reporting the relief of post-herpetic pain to be obtained by the application of "red light" to that portion of the spinal cord whence arise the nerves corresponding to the distribution of the herpetic condition, I suggested that ultra-short-wave therapy, then being introduced into this country, "would appear to be an even better method of treatment." Owing to the kindness of the honorary staff of this hospital it has been possible to try out the suggestion. The results obtained were so impressive (details of cases are given in the *St. Mary's Hospital Gazette* of November, 1941) that ultra-short-wave has been adopted as the routine treatment. The relatively few failures we have had have been in cases in which the treatment had been delayed. In no case where treatment was started within a few days of the onset of the eruption has ultra-short-wave therapy failed to relieve at first and then cure the pain. While the virus responsible for herpes zoster normally attacks the posterior root ganglion, if it is sufficiently virulent it may also affect the corresponding lower motor neurone, producing paralysis (*Journal*, Feb. 15, 1941, p. 234; Dr. A. Barham Carter and John B. W. Dunlop). This latter effect suggests the possibility that, although the pathology of acute anterior poliomyelitis is different, the use of ultra-short-wave therapy may be useful in the acute stage of the disease. Once the paralyses have shown themselves, persistence of the pathological changes already present in the cord may perhaps be prevented by the application of ultra-short waves to those portions of the spinal cord involved. They produce a long-lasting heating effect, increase the defence mechanism of the infected area and also the permeability of the capillaries (which, in the case of anterior poliomyelitis, are engorged).

Corrigendum

Dr. **NOEL F. ROWSTRON** states that the penultimate sentence of his letter (Jan. 2, p. 21) should read "a proportion default," not "a large proportion default."

BRITISH MEDICAL JOURNAL

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THE NATURE OF THE RHEUMATIC CHILD

BY

DOUGLAS HUBBLE, M.D.Lond.

Assistant Physician to the Derbyshire Royal Infirmary; Physician to the Derbyshire Hospital for Sick Children

The rheumatic state in childhood has remained a profound and complex problem despite the observation and research of the last 60 years. There is little in the clinical story of the disorder as related in the textbooks of to-day which would break new ground for Cheadle, Goodhart, and Still. The problems which they stated—the nature of chorea and its relation to rheumatism, the aetiology of the rheumatic state and its relation to diathesis—still refuse solution. These clinicians would certainly remark that in the last 30 years interest and emphasis have shifted from the nature and reactions of the host to the characters of the invader, or, in Osler's parallel, from the soil to the seed. These bacteriological researches have produced much knowledge but no finality. A recent summary of them states:

> "According to one view rheumatic fever is caused by an unknown virus, an infection which is readily activated by haemolytic streptococci, but which may at times be activated under other circumstances. According to the second view the streptococci are themselves the cause of the rheumatic fever, the rheumatic symptoms being regarded as a peculiar type of host response conditioned by sensitization. It is not yet possible to decide between these views. It is a question whether the antibody response to the streptococcus infection which causes the rheumatic flare-up shows a significant difference from that encountered in individuals who show no such flare-up." (Holt and McIntosh, 1940.)

The comparative failure of these researches demonstrates the need for returning to the preoccupations of 50 years ago, to the study of the soil rather than of the seed, for it is here that the key to this "peculiar type of host response" must eventually be found.

The Mind–Body Relationship

There are other reasons for returning to the study of the disposition of the rheumatic child. There is no disorder in which the emotional and the physical components seem more inextricably mingled. There is no disorder in which the attempt to separate the psyche from the soma, the functional from the organic, is more baffling. It is a long step from the undischarged emotion of the choreic child to the adult dying from congestive heart failure, and of many of the steps in this unhappy pilgrimage we are ignorant. We shall not, however, advance our knowledge by refusing to recognize that this emotional tension exists in the child or by denying the possibility that such nervous instability can both initiate and condition physical processes. Psychiatry cannot discover the link between the emotional tension and the physical disorder; it can do no more than explore fully the emotional background. The other approach to this mind–body relationship is by way of neurophysiology, and it does not seem likely to be more fruitful than the psychiatric approach. Sherrington (1940) has discussed this problem in his Gifford Lectures, "Man on his Nature," and he writes:

> "There is, for instance, the condition 'anxiety.' None is, I suppose, more far-reaching as a warper of the mind. But where does neurophysiology contribute anything to the knowledge of the norm from which anxiety causes departure, and what has cerebral physiology to offer on the whole subject of 'anxiety'? The psychiatrist has perforce to go on his way seeking things more germane to what he needs. . . . The mental is not examinable as a form of energy. That in brief is the gap which parts psychiatry and physiology."

The introduction of the electro-encephalogram gave hope to some that the elucidation of this profound problem was imminent, and of this record it has been written (Gordon, 1939):

> "It is interesting to note that these changes in Berger's rhythm may be brought about not only by traumatic stimuli or by stimuli such as the shining of a bright light into the eye affecting the occipital cortex, but also by purely intellectual processes such as the effort to solve a mathematical problem."

It is obvious that not much can be hoped in this direction from a machine which makes little distinction between a crack on the head and the intellectual processes of an Einstein. It gives us *quantity* when we ask for *quality*, or, as Sherrington has brilliantly expressed it:

> "It has brought us to the brain as a telephone exchange. All the exchange consists of is switches. What we really wanted of the brain was, it would seem, the subscribers using the exchange—the subscribers with their thoughts, their desires, their anticipations, their motives, their anxieties, their rejoicings."

To write and talk, then, of "psychosomatic disorders" as is so often done to-day is to assume a bridge whose existence we but dimly discern and of whose nature we are ignorant. Such illnesses are better named disorders of personality, of the soil, or of diathesis. Yet we must not refuse validity, for these same reasons, to the psychological assessment of the personality of sick people before, during, and after their development of the physical signs of disease; for such studies, rightly interpreted, insist on a fundamental unity of mind and body—an integrity which can only be denied by materialists or mystics who have lost their way. Too often, however, in adults such studies have no therapeutic value. The process is irreversible. The arthritic joints, the ulcerated duodenum or colon, dominate the patient's psyche and the physician's efforts; but in children the lesion is, for the most part, subordinate to the growth of personality. The tail does not as yet wag the dog. The conditioning process of continuous adjustment to the environment goes on inexorably; but where the conditioning is too difficult or too rapid and where the adjustment is faulty, the parents, the physician, and the teacher can intervene to anticipate disaster and prevent it. The rheumatic state in childhood is to some extent a preventable disaster (since it occurs unusually in the well-to-do classes), and therefore the first questions to ask when we are confronted by a child with subacute rheumatism, with chorea, and with acute arthritis are: "Why did this child become rheumatic, and how can the aetiological factors be controlled?" To answer these questions is the further purpose of this paper.

What is a "Functional" Disorder?

It is necessary first to consider one other problem in nomenclature—the definition of a "functional" disorder. However this word is defined, it is still interpreted as denoting something of which the sufferer should be ashamed and something for which the physician may justly feel impatience or contempt. So that if I define chorea as a functional disorder, as I do, the immediate reaction of many people is: "Nonsense! How can the poor child help itself?" It is necessary at present to include under the description of "functional", disorders that must ultimately prove to be of widely different aetiology: the psychoneuroses; cerebral disorders, such as epilepsy, migraine, and chorea; the allergic disorders; the disorders of plain muscle—bronchial, oesophageal, gastric, colonic, rectal, ureteric, arterial; the disorders of cardiac rhythm, such as paroxysmal tachycardia; and many others as yet unclassifiable.

All this is so unsatisfactory that attempts are constantly made to provide a more exact nomenclature. Of recent years it has become usual to talk of physiogenic and psychogenic components of such disorders. This has been of little value because we are often unable to distinguish, as in the effects of cerebral trauma, what is physiogenic from what is psychogenic. Moreover, everyone agrees that physical disease may produce psychological disorder, and most of us accept as a fact that psychological states both indirectly and directly induce physical disease. A man is depressed, anxious, and fatigued, and develops a carbuncle, influenza, pneumonia, or herpes zoster; most of us are prepared to relate his psychological state to his ensuing physical disorder, just as we are prepared to believe that certain kinds of emotional stress may form the background for physical diseases, such as duodenal ulcer, ulcerative colitis, exophthalmic goitre, and rheumatoid arthritis. Changes in nomenclature cannot usefully run ahead of ascertained fact; for thus judgment is clouded and counsel confused. We must rest content with the adjectives "functional" and "organic" until the facts allow us to make further distinctions between them. If, then, I define chorea as a "functional" disease I mean that, although it has organic associations, it has a psychogenic component and no known structural pathology.

*The Clinical Significance of "Growing Pains"

"Growing pains" is the traditional name given to the pains in the limbs which occur commonly in children during school age. If the name was apposite it must have been generally inferred that such pains were both common and insignificant, that many children suffered from them and were afterwards none the worse. Such an estimate of their importance was strongly deplored by all physicians in early decades of this century. G. F. Still (1912) wrote:

> "The practical importance of recognizing the significance of these slight pains in the limbs in children—'growing pains' as they are too often called—can hardly be overrated. They may be the earliest indication of a rheumatic taint, and as such should always serve as a danger signal. To disregard them is to favour the onset of more severe symptoms, and it seems likely that active treatment in this early stage may not only cause the disappearance of pains but may also prevent those affections of the heart that are so distressing a feature in the rheumatism of childhood; certainly these vague pains call for the utmost care in prophylaxis, and a child who has once shown such symptoms requires continual care as to clothing, climate, and the prevention of exposure to cold and damp."

Robert Hutchison (1940) spoke more epigrammatically of "growing pains" in words which have echoed in the ears of several generations of medical students: "That, gentlemen, is a phrase which has crippled a great many hearts."

This was the general view, taught, accepted, and practised until after the last war, when the L.C.C. started its clinics for rheumatic children at the children's hospitals in London. Great numbers of children with pains in the limbs were referred to these clinics as suffering from incipient or actual rheumatic disease. It was soon obvious to the physicians in charge that they were not suffering from the rheumatic state; nor did they, in any significant number, develop it while under observation (Winnicott, 1931; Sheldon, 1936; Hawksley, 1939). Attention, both here and in America, during the last 10 years has therefore turned to the nature of these pains, their frequency, and their differentiation from the rheumatic state. They are variously regarded by different authorities as being due to "normal physiologic growth" (Shapiro, 1939), a view widely held in the nineteenth century; to fatigue and damp (Sheldon, 1936); to fibrositis (Seham and Hilbert, 1933); to postural deformities (several authors); and to emotional disorders (Winnicott, 1931, 1938). No one has yet attributed them to a deficiency of the vitamin B complex. Two of these views may be considered before discussing the nature of these pains. That the pains may be due to normal physiological growth is an opinion which will commend itself to few. The only physiological process to be accompanied by pain is childbirth, and to regard pain as a proper concomitant of growth is to live in a crazy world where the normal and abnormal coincide.

Nor is it to be accepted that fatigue is the prime cause of these pains. It is true that tiredness is frequently complained of by these children, but this fatigue is itself a symptom of ill-health. There is no fatigue in a healthy child that is not recoverable from by a night's rest. Tired children are ill children, and their illness may be emotional or physical in origin.

The incidence of these growing pains in normal children is extraordinarily high. Some observers have suggested that it is as high as 20% and even 40%; but a careful and extensive inquiry made by Kaiser (1927) in New York showed that out of 48,000 normal school children 7.1% complained of pains in the limbs. The incidence of cardiac rheumatism among 301,392 L.C.C. children examined in 1936 was 0.8%; so we may conclude that the incidence of growing pains among children is nine times greater than the incidence of rheumatic heart disease.

If the problem of the relation of growing pains to rheumatism is considered from another angle an immediate difficulty is disclosed, for there is no doubt that children who have developed rheumatic heart disease often give a history of pains in the limbs. Kaiser (1934) in his account of an investigation of 1,200 children with rheumatism said that 18% complained of muscle pains; and Sheldon reported that nearly 20% of 266 children with rheumatic heart disease gave a history of aches and pains in the extremities.

This, then, is the justification that the older physicians would have advanced for their warning as to the profound danger of growing pains. Their remedy was to treat all children with growing pains as potential rheumatics if their hearts were normal and as actual rheumatics if their hearts were under suspicion. This meant, as the quotation above from Still demonstrates, a life of partial invalidism, and it is not surprising, therefore, that the incidence of cardiac neurosis in the adult population is greater than the incidence of rheumatic heart disease. Paul Wood (1941) has written graphically of the childhood of these cardiac neurotics:

> "On the approach of the evil day when they will have to attend school they are filled with apprehension; if the dire event is not delayed by some happy illness (rheumatic fever followed by an open-air school is especially welcomed) they spend the next few years as trembling spectators of the rough-and-tumble of the miniature world about them. They evade as much as possible with the help of friendly coughs and colds; kindly doctors and soft mothers are at hand to protect them from the hazards of football, swimming, and the gymnasium."

As there is nothing in the disorders of school children that has more importance than this attitude of doctors and parents, let me recount the story of a pilgrim who narrowly escaped from this slough of despond:

Case 1.—This patient was 17 years old when I first saw him. His condition had been diagnosed as subacute rheumatism at the age of 12 by a well-known paediatrician on account of tachycardia and pains in the limbs. After this he became completely invalid. He was not allowed to go to school, but had a tutor at home. He was forbidden all games and swimming. He was kept in bed for a fortnight whenever he caught a cold, which he frequently did. His parents surrounded him with every circumstance of anxiety—they were convinced that his heart was "weak." Fortunately, it was not so difficult to convince the boy that his heart was normal. He started at 17 to swim and play tennis, and without his parents' knowledge he joined the Territorials just before the war. The start of the war found him in the ranks, and the violent change in his conditions of life was almost too much for him. He fainted several times on parade. Fortunately, the boy had spirit and the makings of a good physique, but his parents during the next year tried every manœuvre to get him out of the Army.

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* The part of this paper concerned with growing pains was read to the Derby Medical Society on August 11, 1942.

His father's heart bled for him metaphorically, but his duodenal ulcer bled literally. Fortunately again, my opinion of his heart was firmly supported by Dr. Hugh Barber and Dr. Geoffrey Bourne. The boy remained in the Army, and some time ago successfully completed his Commando training.

The moral of this story is not that the original diagnosis was incorrect. It may possibly have been right. The moral is that such treatment is hopelessly bad even for a child with rheumatic heart disease.

Pitfalls in Diagnosis

Can this diagnosis between the child with active rheumatism and the child with growing pains be made with reasonable certainty? No doubt it can, but the following characteristic examples will illustrate the pitfalls in diagnosis and the errors in treatment.

Case 2.—A boy aged 10 complained of pains in his legs. His parents had kept him in bed as he was running a temperature between 99° and 101°. There was no evidence of infection, his heart was healthy, and his joints showed no inflammation. He had a mild secondary anaemia. He said that his pains were in his calf and thigh muscles. He slept badly, was difficult to control, cried frequently, and attacked his young sister without good reason. We kept him in bed some weeks without improvement, and then at his parents' instance took him to see a well-known paediatrician. He spent ten minutes looking at the boy, declared him healthy and slapped him on the back, told the parents to send him away to boarding school, and ignored me completely. The boy returned to health and remained well.

I learnt from this salutary experience that emotional disorder in children can be established as a positive diagnosis and not a diagnosis made simply by exclusion of physical signs. The only diagnostic sign in this boy was his emotional instability. The second lesson was that emotional disorder can cause signs and symptoms that are often thought only to be physically determined—pyrexia, tachycardia, secondary anaemia, and pains.

Case 3.—A boy aged 13 was referred from school clinic on account of a pain in his left elbow which had been present for a year. He was a healthy and alert boy of good physique with a sensible and cheerful mother. His pain frequently came on at school, and it was so severe that he often wept and had to be sent home. Equally, it might come on at home, as "last night when he was writing a letter to his father." He was very much attached to his father, who joined the Army 14 months ago. Pain frequently waked him at night and he slept badly. Six months ago he was seen by an orthopaedic surgeon, who found no disease but referred him for physiotherapy. There was no improvement after four months' treatment. No sign of ill-health was elicited on examination, and he was treated by *reassurance* that his pain betokened no disease; *explanation* that the pain was due to depression at his father's absence; *insistence* that he should carry on with what he was doing at home or at school, however great the pain; *sedative* (phenobarbitone gr. 1/2 night and morning) to ensure sleep and a quiet nervous system. These simple measures brought about relief from pain in a fortnight, and the boy has remained well.

This boy illustrated one point that is commonly overlooked: the necessity for removing the presenting symptom—i.e., pain—in these children. Quite often it seems that the emotional disorder which originally produced the symptom has disappeared and the child's entire preoccupation is with the pain. Remove the pain or give the child sleep and all is well.

Case 4.—A girl aged 8 was referred from the school medical department with pains in the legs and ? early chorea. The child was evacuated from Birmingham and now billeted with a foster-mother, who brought her to hospital. Her movements were continuous as the woman told the story of her fidgetiness, irritability, and sleeplessness. The movements were not characteristic of chorea. Her temperature was 99.5°, her pulse rate 120 a minute. The apex beat was in the nipple line, but there was a short systolic murmur at the apex. She had a kypholordotic stance, and her foster-mother, facing the child while I looked at her back, went on with her garrulous repetition of the patient's defects. The child's spine suddenly twitched into a well-marked scoliosis and then went back as suddenly to the midline again. She was admitted for a few days for observation away from her foster-mother. Her symptoms settled quickly; no further organic signs were discerned; her sedimentation rate and her sleeping pulse rate were normal. The billeting officer found another home for her, and she remained well after discharge.

These last two cases raise the question of orthopaedic treatment. It is wrong, as in Case 1, to expect the orthopaedic surgeon to diagnose emotional disorder. One must not hope to "gather figs from thistles," but the orthopaedist is not without sin in treating by physiotherapy a pain which showed no orthopaedic associations. The last child, who was beginning postural deformities, might have needed orthopaedic treatment provided the emotional difficulty was coincidently treated. The emotional origin of some postural deformities is increasingly recognized by orthopaedic surgeons. Bankart has written: "To find a scoliosis look at the child's back; to find its cause look at its mother's face." Hawksley (1939) found that "a frequent cause of growing pains is a postural or orthopaedic defect such as flat-foot, knock-knee, scoliosis, or bad stance; treatment of the cause in these cases nearly always gave relief."

I agree that it is fairly common to find a postural deformity in these children, but I do not agree that this is commonly a source of their growing pains. I have often caused the disappearance of growing pains in these children (as in Case 4) without treating their postural deformity. I agree again that physical exercise is good treatment for such children: the improvement of physical poise brings a coincident improvement in mental poise.

Growing Pains and the Subacute Rheumatic State

In Case 4, above, the subacute rheumatic state was very closely imitated. The pains, the temperature, the tachycardia, and the systolic murmur suggested a rheumatic carditis, and the fidgetiness and habit spasms mimicked true chorea. Such cases are not very uncommon, and it is admitted by all clinicians that an absolute diagnosis may be difficult. In this case a positive diagnosis of emotional disorder, the absence of evidence of an active carditis, and the therapeutic test of removal from environmental difficulties provided the correct solution. Yet it is such cases that the older physicians had in mind when they wrote of a "pre-rheumatic state," of "a latent rheumatic infection or toxaemia," of "subacute rheumatism," or of "latent chorea": a state which had for its presenting symptoms muscle or joint pains, fatigue, pallor, and an emotional instability.

This idea of latent infection or toxaemia makes little appeal to a generation which is inclined to discount the kindred theory of the septic focus. An infection which cannot be demonstrated either clinically or bacteriologically cannot be assumed to be present. Moreover, the notion that such cases show evidence of a pre-rheumatic state is open to two overwhelming objections—viz., (1) that all nervous children show these and similar symptoms; (2) that to treat such children as rheumatic is to make cardiac neurotics of them.

"But," the older physicians would reply, "a definite percentage of children with an active carditis associated with rheumatism give a history of what we have called subacute rheumatism." This is true, but in some of these children the symptoms are probably due to a coincident and active carditis. The number of children in whom the first and presenting symptom of the rheumatic state was growing pains alone *without* carditis was 9% in Findlay's series of 701 rheumatic children and 8% in Kaiser's series of 1,200. Shapiro (1939) suggests that it is possible by analysis of the type of pain felt by these children to make a diagnosis between subacute rheumatism and growing pains. It is obviously of the highest importance to attempt this diagnosis in the individual child, since growing pains do not lead to carditis and the pains of subacute rheumatism may do so. Shapiro concludes that growing pains come on at the end of the day or at night, wakening the child, that they are situated in the muscles of the thighs, and that the children show none of the other evidences of rheumatic activity; while the pains of subacute rheumatism are present in the morning and persist throughout the day, are made worse by walking and are situated in the joints themselves, and such children show other evidence of rheumatic activity. The most valuable sign in this differential diagnosis is the situation of the pain. If the pain is limited to joints, even in the absence of swelling, subacute rheumatism should be suspected. All agree that in a small number of cases immediate diagnosis is impossible, and Shapiro writes:

> "In a smaller group of patients who complain of painful extremities a clear-cut differentiation cannot be made. They have symptoms which suggest both the muscular pain of 'growing pains' and specific joint pain as well, together with some signs of infection. Such children need to be observed over a period of time before a definite diagnosis can be made."

More helpful in the positive diagnosis of growing pains is the presence of emotional disorder. The child is depressed or anxious, and shows this not alone by growing pains but also by behaviour disorders and disturbance of body function—sulkiness, irritability, fits of temper, sleeplessness (almost invariably present), fatigue, and lack of appetite. The therapeutic test of simple psychotherapy and sedation often confirms the diagnosis. There is now general agreement by physicians who have watched large numbers of these children with growing pains over many years that they do not, in any significant number, develop rheumatism. Sheldon (1936) examined 189 children with growing pains after a lapse of four years and found that only two had developed carditis. On the one hand, then, there is the fact that 9% of children with active carditis give a history of subacute pains which it may sometimes be difficult to distinguish from growing pains, and on the other the fact that of vast numbers of children under observation for growing pains only a negligible proportion develop active rheumatism. Can these two facts be reconciled?

I think it is wise to keep a more open mind on this question than is generally done to-day. It is generally agreed that children with growing pains who are under proper observation and treatment do not develop rheumatism. Is it certain that the same can be said of those children whose pains are neglected and in whom emotional disorder persists? I have notes of three children whom I had previously diagnosed as suffering from growing pains and who then disappeared from my sight. They reappeared in the out-patient department, after attacks of acute tonsillitis, at intervals varying from six months to two years, each of them with an active carditis. The fact that there is sometimes, as Shapiro and all other observers agree, this difficulty in deciding between the two conditions makes one wonder still whether this state of subacute rheumatism may not be an intermediate phase, in children predisposed to rheumatism, between growing pains and active rheumatism.

This matter of subacute rheumatism awaits clarification; it should be emphasized that it is an uncommon way for the child to enter into the rheumatic state. In so far as I have seen subacute rheumatism it has been easier to detect in those children evidence of nervous instability than to find unequivocal evidence of infection. In the effort to diagnose active rheumatism at the earliest opportunity there is no doubt that these cases have been given an importance out of proportion to their comparative infrequency. They have a great aetiological interest, however, for they raise the questions—Is there sometimes a half-way house to active rheumatism?; Could the process at this stage be controlled?

The Nature of Growing Pains

Four of the theories which have been advanced for the causation of growing pains—normal growth, fatigue, latent infection, and postural deformities—have been discarded already in the course of this paper. That growing pains may be due to fibrositis finds few supporters: Hawksley discovered only one or two cases among his 115. Tenderness at the site of the pain is remarkably absent in these children. Damp as a contributory factor can also be excluded in most cases. The remaining theory is Winnicott's suggestion that these pains represent an emotional disorder associated with the child's growth. "They are to be found," he writes, "wherever human beings are developing from babies into children, from children into adolescents, and from adolescents into adults." I have accepted Winnicott's theory as a basis for treatment in the many scores of such children I have seen in the last six years, and I am firmly convinced of its truth. These children's pains respond to the simplest psychotherapeutic and sedative measures, to the great improvement of their physical and nervous health. Statistics bring no conviction in this regard—it is a matter for personal approach and experience; but statistical evidence is provided by Neustatter (1937), who examined from the psychiatric standpoint a group of 40 children with growing pains, against several groups of controls. He reported that 34 out of 40 children with limb pains showed some degree of nervous disorder, as against 15 out of 40 picked children of good physique and 22 out of 40 in a group of rheumatic children. He concluded that these children with growing pains were "suffering from the effects of prolonged emotional strain."

It is common to find evidence in support of this theory of "prolonged emotional strain" in the papers of authors who attribute growing pains to other causes. Many observers have noted the fact that these children cry frequently, unlike the children with acute rheumatism. Hawksley says: "45% of the 115 patients with growing pains had at one time or another been reduced to crying with the pain. A feature noted by many parents was the tendency of growing pains to make their children sulky and irritable. Psychological maladjustment was unexpectedly frequent, resulting in unhappy school or home life."

It is concluded, then, that growing pains in children reflect a disorder of psychological adjustment and they are quickly removed by simple and appropriate treatment. Active rheumatism should never be diagnosed unless arthritis or carditis is present. The possibility that subacute rheumatism represents the growing pains of children predisposed to rheumatism cannot be denied. This consideration is only of theoretical importance in aetiology, and is of no account in the treatment of growing pains.

The Nature of Chorea

Chorea is generally defined as a manifestation of the rheumatic state whose morbid anatomy is an inflammation of some part of the cerebrum. It is open to anyone to draw a conclusion from the known facts, but the usual inference made from this definition is that chorea is a brain inflammation caused directly by the rheumatic invader. This definition and the inferences from it differ so remarkably from a legitimate conclusion based on the available evidence that a reconsideration of the facts is overdue. In the first place, chorea is a disorder whose structural pathology is quite unknown.

> "Microscopical changes," write Buzzard and Greenfield (1921), "in the central nervous system in cases of chorea have usually been conspicuous by their absence, but attention has been called to the occasional presence of hyperaemia and of small thrombotic lesions which, however, are by no means constant."
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> Lewy—quoted by Findlay (1931): "Summing up the position in 1924, Lewy states quite categorically that changes are very seldom found, that these are of no definite nature and are no more than are to be observed in the brains of patients dying from any acute disease."
>
> Freeman (1933) makes no distinction between the morbid anatomy of the brain in acute rheumatism and chorea. He classes the changes in the brain with those seen in typhus and the rickettsias.
>
> Holt and McIntosh (1940) write: "There has been little constancy in the findings in patients who have died with chorea, and there is still some doubt as to the seat of the morbid process. Degenerative changes in the basal ganglia, the cortex, and the cerebellum have been described by Lewy and others in a number of instances. In other cases no such lesions have been found although carefully searched for, and one must assume that the disturbance is functional."

These authors define chorea as "a functional disorder of the nervous system characterized by sudden aimless, irregular movements often accompanied by muscular weakness and emotional instability." Kinnier Wilson (1928) writes: "Choreic motor disorder manifests itself through the pyramidal tracts, which must be in a condition of relative integrity for hyperkinetic symptoms to appear, and yet they exhibit some defect of function."

Chorea is a disorder which to-day steadily diminishes in frequency and severity. Even in days when it was more common and more violent Still records that "there are exceedingly rare cases in which it proves fatal by its violence. . . . Almost invariably if death occurs during chorea it is due to endocarditis or pericarditis." A survey of recently published necropsies suggests that the morbid anatomy described depends on the supervening rheumatic inflammation. The changes recorded in the brain are widespread from pons to cortex, and it can only be said of such changes that they are what would be expected of acute rheumatism by comparison with the morbid anatomy of other organs, and if these extensive lesions of meningo-encephalitis are proffered for the structural basis of uncomplicated chorea then they bear little relation to the clinical picture of the disorder.

That chorea is a functional nervous disorder unassociated with brain inflammation is borne out by clinical observation. It is accompanied by no pyrexia, by no leucocytosis, by no signs of inflammation in the cerebrospinal fluid, and by no raising of the sedimentation rate unless carditis is present. The movements of chorea cease completely during sleep, unlike the similar movements that are induced by encephalitis. Recovery from chorea is complete and there are never any organic nervous sequelae. The uncomplicated case of chorea runs its course, from onset to recovery, without one clinical or laboratory sign which indicates an infection or inflammation. I know of no other disease in which, without some positive evidence, inflammation and infection are generally assumed to be present.

It is possible that invasion of the brain by a virus, activated on the one hand by emotional stress and on the other by the haemolytic streptococcus, may give rise to the emotional and motor instability which is called chorea, without revealing its penetration by the usual signs of infection. This is an adequate and attractive theory, but without proof. It is accepted by most physicians that chorea is often preceded by a prolonged emotional strain, such as the "anxieties engendered in nervous children by the examination system" or by domestic stresses or, more rarely, by a sudden shock or fright. It occurred to Findlay that the "chorea induced by fright might be different in nature from that arising spontaneously; but of the 36 cases with a history of fright cardiac disease was present in 47%, and of the 254 cases in which no history of fright was obtained cardiac disease was also present in 47%, so that there seems little justification for such an assumption." It would be possible to quote from a dozen authors who deny that such emotional disorders have any aetiological significance in the development of chorea: believing as they do that chorea is caused by a rheumatic infection, these physicians cannot be expected to agree that it may also be initiated by the school inspector or by domestic infelicity. They therefore suggest that an attack by a dog, or whatever it may be, is too trivial an incident to occasion such a disorder. This will be generally accepted. The fright has the same relation to the ensuing chorea as the murder of the Archduke at Sarajevo had to the development of war in 1914. This view that chorea was often emotionally induced was firmly held by nineteenth-century physicians, and it is accepted as firmly by most physicians to-day.

Sheldon (1936) writes: "The important part played in the production of chorea by the stress of education cannot be doubted. There is often a history of some shock or fright at the beginning of an attack."

Carey Coombs (1924) states: "Nothing is more certain than that nervous stress precedes the onset of chorea in a number of cases—a number too large to be explained away."

Winnicott (1938) says: "In my own clinic I had no difficulty in collecting 50 cases of chorea following acute or prolonged emotional strain."

Gerstley *et al.* (1935), after a close clinical, psychiatric, and social study of 58 children in Chicago suffering from chorea, writes: "Psychic trauma seemed so intimately related to the actual onset in 22 cases as to force the question of its being the activating factor. Domestic discord was a prominent feature. It was plainly apparent in 32 families and extreme in 13. The onset of acute manifestations often followed a domestic crisis such as divorce, separation, desertion, drunkenness, and the advent of stepbrothers and stepsisters. Other types of emotional injury were common. In three girls the onset was related to attempted rape. In four others the child lived in continuous dread of assault by undesirable characters in the neighbourhood. One child was aware of the illicit sexual relations of her mother. In others the onset followed acute fright. In short, in our series psychic trauma resulting from fright or overwhelming grief stood out far more strikingly than did any history of infection."

A reflex of the Chicago underworld in the early 1930's! Of the 18 cases of chorea seen by me during the last five years four started acutely after a sudden fright. One child developed chorea actually during an air raid, in one it followed a few hours after a sexual assault, in one after an attack by a dog, and in the fourth after the child had been called to the front of the class by a school inspector and asked to recite. In six of the other children there was evidence of prolonged emotional stress either at home or at school. One child developed it after tonsillitis, and in three other children its onset accompanied an attack of acute rheumatism.

Two other facts in the aetiology of chorea concern social grouping and sex incidence. The social grouping in chorea is even more marked than in acute rheumatism. Most physicians can report instances of acute rheumatism among children of the well-to-do classes (see below), but chorea is rarely present among these children. Still (1927) saw only one case of chorea in his consulting practice in 700 consecutive cases between the ages of 6 and 10 years. Chorea is three times as common in girls as in boys. Still (1912) attributes this to the greater nervous instability of girls, and here few will be found to disagree. This remarkable disparity in sex incidence is not shown by rheumatic arthritis or carditis.

The Relation of Chorea to Rheumatism

The facts concerning the relationship of chorea to rheumatism may be concisely stated. They are that (1) rather more than one-quarter of all rheumatic children enter the rheumatic state by way of chorea; (2) in addition, another quarter of all rheumatic children develop chorea at some time in the evolution of their rheumatism; and (3) a number of children with chorea, estimated by various authorities to be between one-third and one-half, never develop any rheumatic episode.

These facts mean that chorea is a frequent associate of the rheumatic state in children. In some children the choreic state never progresses to rheumatism; in others the chorea precedes the rheumatic state by weeks, months, or years; while in others chorea develops during the phase of acute rheumatism or at some time after it. The inference from these facts is that the effect of the rheumatic inflammation on the cerebrum of a predisposed child is of exactly the same nature as the effect of prolonged emotional strain or acute psychic trauma. It is suggested that all these factors operate by heightening an emotional and kinetic instability which is already present in the child. It is apparent that the association of chorea with rheumatism is without parallel in clinical medicine. The profound difficulties in understanding this association come near to solution if the rheumatic state is regarded as a unique disorder with two components—nervous instability on the one hand and an inflammation of the heart and joints on the other. Both of these components may occur independently, but either, in some unexplained way, favours the development of the other. In any case the facts concerning chorea do not support any theory that chorea is directly due to the rheumatic "invader" or to "rheumatic toxaemia." It may be regarded either as a prelude to the rheumatic state or its accompaniment; but frequently, and fortunately, it is neither the one nor the other.

Chorea, then, may be defined as a functional disorder of the nervous system, characterized by irregular motor activity and emotional instability, which develops in predisposed individuals, particularly girls of the poorer classes, following acute psychic trauma or prolonged psychic stress, or during and after the development of the rheumatic state.

(To be concluded. A list of references will appear at the end of Part II)

The Minister of Health announces (Circular 2734) that he has had under review the arrangements for the supply of insulin free or at a reduced price to persons suffering from diabetes. Under the National Health Insurance Acts an insured person entitled to medical benefit may obtain insulin free if it is prescribed or dispensed by his insurance doctor. Insulin may also be provided as part of medical relief for any destitute person under the Poor Law Acts. As regards school children, in a few cases the Board of Education has in the past sanctioned the supply of insulin free or at a reduced price where the parents could not afford the whole cost. This sanction is now extended so that all education authorities may, for the duration of the war, supply insulin free or at a reduced price to all children at elementary schools or at institutions for higher education. The needs of other persons for whom there is no public provision apart from poor relief, such as dependants of insured persons, widows and spinsters engaged in household duties, and merchant seamen on foreign-going ships, are to be met by a wider use of the powers given to local authorities under the Public Health Act, 1936, temporarily to supply medicine to the poorer inhabitants of the district. The Minister now gives the necessary consent to the supply of insulin to such persons for the duration of the war.

A CASE OF WEIL'S DISEASE IN AN ARMY CAMP

BY

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In the last few years numerous articles on leptospirosis icterohaemorrhagica have been published in this country. The cases were either sporadic or occurred in endemics in certain occupations (sewer labourers, fish-workers, coal-miners, etc.).

The first authentic record was that of Manson-Bahr *et al.* (1922). In 1923 an epidemic of jaundice in coal-pits in East Lothian was described by Gulland and Buchanan (1924). In 1934 Hamilton Fairley reported cases of leptospirosis among sewer labourers in London. Swan and McKeon in 1935 recorded 12 cases among coal-miners in Northumberland and Durham, to which they added 17 others in 1938. Davidson and Smith in 1936, describing Weil's disease in fish-workers, gave a detailed account of its clinical manifestations. Willoughby and Shera (1934), Watson, McLeod, and Stewart (1935), Maxwell (1935), Wolstencroft (1935), Halsted (1935), Neale (1935), Alston (1935), Lendrum (1936), and Stuart (1938) each describe a case of Weil's disease. Alston and Brown have reported several cases in sewer-workers. In 1936 cases among soldiers bathing in the Basingstoke canal in the Aldershot district were published. Kenneth Robertson (1938) reported 4 cases of Weil's disease infected from the same stream. This short review does not claim to be complete.

Case Report

Soldier aged 22, admitted to hospital March 31, 1942. Previous history: At age of 6, pneumonia, measles; 1939, fracture of os calcis. The history of the present illness was as follows. March 28, 1942, in the morning felt "cold running down his back" on several occasions. At noon was giddy, went to bed, and slept the whole afternoon. In the evening he had several attacks of shivering and sweated freely. On attempting to rise his legs felt weak, and after some steps he was compelled to lie down again. Vomited. Sleepless at night because he felt very hot and had agonizing pain in legs. Following day remained in bed; refused food; was feverish whole day. Had to be helped to lavatory; complained of stabbing pain in knees, severe pain in calves, and a feeling as if knees would give way. From time to time had gripping pain in stomach, and nausea. In the evening seen by M.O., who prescribed some cachets. Restless night. March 29: afternoon temperature 102.4° F.; 30th: morning 99.3° F.; afternoon 103.3° F. Noticed difficulty in breathing deeply on account of catching pain below the costal margins. Stools normal. The patient was living in a camp which was infested with rats. Although he did not on any occasion come into actual contact with a rat, he did handle a rat-trap.

On admission, March 31, 1942, he complained of weakness and continuous pain in his legs, increasing at any attempt to get up ("as if someone was cutting through his muscles with a knife"). Loss of appetite. Micturition normal. T. 100.2–101–100° F. Skin moist, hot, slightly jaundiced. Herpes facialis at right angle of mouth. Slight congestion of conjunctiva of eyelids and eyeballs. Tongue slightly coated with white fur. Mucosa of soft palate, tonsils, and uvula congested; uvula slightly oedematous. Forcible pulsation of carotid arteries. Lungs and heart, N.A.D. Pulse 96, regular. Tenderness in right upper abdomen on pressure; no guarding, no mass palpable. Spleen and liver not palpable. Muscles of both calves extremely tender on pressure. The patient lacked the strength to lift his legs from the bed. The muscle tone was greatly diminished in both limbs. Knee and Achilles tendon jerks almost absent. Plantar reflex normal. Urine: Dark yellowish-brown; albumin ++; urobilinogen +++. Deposit: Very scarce red and white cells; no casts; some round epithelial cells, and several large epithelial cells containing bile pigment and showing degenerative changes.

April 1.—T. 101–99.1–101.5–100° F. Headache. Slight rigidity of neck; conspicuous jaundice. Urine: Albumin ++; bilirubin +; urobilinogen +++. Deposit: Numerous granular and hyaline casts; few R.B.C. and round epithelial cells.

April 2.—T. 99.2–97–99–98.4° F. Jaundice intense; orange-yellow colour. Conjunctivae very congested; pink eyes. Pains in eyes and headache. Tenderness in right upper abdomen persisting; tenderness of calves decreasing. Vomited several times. Felt very weak. Herpes spreading with haemorrhagic crust. Tongue: thick dry grey-brown fur. Capillary resistance test, negative. B.P., 90/50; pulse 68; blood urea, 100 mg. per 100 c.cm.

April 3.—T. 99–97.8–99.2–99° F. Complained of intense itching of skin. Small petechiae on sides of thorax and abdomen. Morbilliform rash over loins, sides of abdomen, and below scapulae; symmetrical distribution. Knee- and ankle-jerks: L. absent, R. very diminished. Tenderness of muscles of right arm. B.P., 95/55; urine scanty—1 c.cm. Cheeks sunken. Throat dry.

April 4.—T. 99.7–97–98.9–98.4° F. Agglutination with *L. icterohaemorrhagiae,* 1: 320. No leptospira found in urinary deposit. Patient drowsy. Rash gone. Pink eyes. Intense itching of skin. Petechiae on sides of thorax and abdomen. Sputum blood-stained. No leptospira found in sputum.

April 5.—T. 98.5° F. (max.). Passed fair amount of urine after sod. bicarb., pot. citrate, āā 30 gr. 2-hourly, and hypertonic glucose.

April 6.—T. 98.2° F. (max.). Patient drowsy. Cheeks sunken. Tenderness localized to gall-bladder area. Hard axillary and inguinal glands of pea and bean size. Sputum still blood-stained. Calf tender on left side. Urine: Trace of albumin.

April 7.—T. 98.4° F. (max.). Acid fetor ex ore. Pink eyes. Jaundice still very marked. No leptospira found in urinary deposit (stained Giemsa: Fontana's stain not yet available). Sternal puncture did not reveal leptospira.

April 8.—T. 98.3° F. General condition slightly improved.

April 9.—T. 97.9° F. Less jaundiced. Few blood specks in sputum. Herpes disappearing. Tongue coated but moist. Photophobia.

April 10.—T. 98° F. Patient less drowsy; felt better. Jaundice decreasing, as well as the hyperaemia of conjunctiva. Gall-bladder area still tender. Numbness in lower limbs.

April 11.—T. 98.9° F. Tongue almost clean, moist. Felt much better. Although jaundice less, had intense itching all over the skin Slight tenderness in gall-bladder area. Agglutination with leptospira, 1: 4000.

April 13.—T. 98.8° F. Almost complete absence of skin sensitivity to touch and pain over left leg and thigh—very slightly impaired on right side. Absence of skin sensitivity to heat over both legs and left thigh; diminished sensitivity over right thigh. Ankle-jerks present. Left knee-jerk absent, right diminished. Had paraesthesia below knees.

April 15.—T. 98.5° F. Knee-jerks absent, ankle-jerks present. Skin sensitivity over left limb reappearing, over right leg impaired. Vibration sense absent over right leg, present over left. Urine: No albumin. Deposit: A few granular casts, round epithelial cells, urethral epithelial cells, leucocytes, amorphous urates. All stained with bile.

April 16.—T. 99.2° F. Epistaxis. Knee-jerks returning. Skin sensitivity to heat reappeared over right leg; tactile sensitivity still impaired. Vibration sense normal.

April 17.—T. 99.2° F.; April 18, 98.6° F.; April 19, 99° F.

April 20.—T. 97° F. Complained of itching of skin. Jaundice slight. Skin sensitivity normal. Knee-jerks diminished (especially right).

April 24.—T. 98.4° F. Glands still enlarged.

April 27.—T. 98.8° F. Leptospira found in urinary deposit in fair amount (stained by Fontana's method). No albumin.

May 4.—T. 98.6° F. Urine: Trace of albumin. Knee-jerks diminished but present.

May 8.—T. 98.5° F. Urine: Trace of albumin. Deposit: Scanty granular casts, epithelia. No spirochaetes seen (Fontana's method).

May 9.—T. 98.7° F. Urine: Albumin present.

May 10.—T. 98.6° F. Urine: Albumin present. Glands almost entirely normal.

May 14.—T. 98° F. Urine: Trace of albumin.

May 15.—T. 97.3° F. Urine: Albumin absent. Deposit: A few leucocytes and epithelia from lower part of urinary tract. Few hyaline casts and pseudocasts.

May 28.—Patient felt well. Complained only of very slight general weakness. During last 6 weeks losing hair.

June 15.—Discharged to convalescent home.

The patient made an uninterrupted recovery.

Discussion

From a clinical point of view this was almost a classical case, showing most of the characteristic features of the disease. I would like to draw attention to the localization of the rash that appeared on the 7th day of illness and its quick disappearance. For these two reasons it could easily have remained undetected. There was a rather extensive involvement of the nervous system. In the first day or two there were signs of slight meningeal participation (neck rigidity), which subsided rapidly.

The knee- and ankle-jerks were practically absent from the day of admission (4th day). The ankle-jerks reappeared within

12 days, the knee-jerks in about a fortnight. There was an almost complete absence of skin sensitivity to touch and pain (pin-pricks) over the left lower limb, and impaired sensitivity over the right one. (It is possible that previously the right side was more affected.) The sensitivity to temperature and the vibration sense were both involved. These sensory troubles subsided at about the same time as the tendon-jerks were returning. Paraesthesia was present in the legs. I am indebted to Major-Gen. Priest for having drawn my attention to these sensory changes, which were most probably due to a polyneuritis. Lendrum, Alston, and others report absence of tendon-jerks in their cases. A detailed account of nervous complications of Weil's disease is given by Vagn Mortensen.

Our case is a further proof that whenever an acute febrile illness appears, associated with nephritis, severe muscular pain, and great tenderness in the muscles of the limbs, one must consider the possibility of Weil's disease. And if the interrogation of the patient proves that there was a possibility of infection by rats, serum treatment should be at once introduced, without waiting for the laboratory confirmation of the diagnosis. The highly beneficial result of this treatment, if started in the pre-icteric stage, has been confirmed by Schüffner, Kenneth Robertson, and others.

As to the source of infection of the present case it is interesting to note that there was no contamination by any of the ways commonly described. The patient was a young soldier living in a camp in the country. At the time of the year there was no bathing, and had it been an infection of the water source several cases would have been expected from the same unit. The only other case of febrile illness with headaches and very slight pains in the lower limbs, but without nephritis or jaundice, serologically did not prove to be a leptospiral infection. The camp where the patient was living, and especially the neighbourhood of the stores where he was working, was infested by rats which he and his comrades used to "hunt." The patient used to handle a rat-trap, and very probably was infected by the animals' excreta on the trap. He had no abrasions on the skin of his hands; therefore, infection was most probably via one of the mucosae contaminated by his fingers.

Owing to the war, the laboratory investigations were limited to the minimum. Thus, blood urea tests were made only once, on the 6th day of illness (100 mg. per 100 c.cm.). At the height of the uraemia this figure would have undoubtedly been higher. There were no reports about the degree of bilirubinaemia.

Fairly detailed haematological examinations were performed by me. The red cells during the peak of the jaundice—from about the 7th to the 17th day of illness—showed a marked macrocytosis. There were a few R.B.C. with punctate basophilia. The slight degree of anaemia at the end of the 3rd week (80% Hb; 4,045,000 R.B.C.) disappeared in the 4th week (85% Hb; 4,810,000 R.B.C.). The number of W.B.C. increased from 13,350 on the 4th day to 21,150 on the 13th, returning to normal figures (7,800) on the 28th day of the disease.

Whereas at the beginning only the neutrophils accounted for the leucocytosis, from the end of the second week the lymphocytes were also participating in it. After the return of the neutrophils to their normal figures the lymphocytosis continued. During the period of neutrophilic leucocytosis there was a shift to the left from the 11th to the 13th day, with a very noticeable number of metamyelocytes and myelocytes. In view of the good recovery of the patient we can refute the claim made by some haematologists that this is a bad prognostic sign in Weil's disease. During the stages of leucocytosis there were toxic changes of medium degree in a part of the neutrophils, such as coarse irregular granules, basophilic inclusions and vacuoles of the cytoplasm, and slightly "toxic" nuclei. Eosinophils were never completely absent, and during the jaundice and the recovery stages there was sometimes an eosinophilia. The sternal puncture showed changes usual in infective conditions with neutrophil leucocytosis.

Bacteriology.—When chemicals for the Fontana stain were provided I succeeded in demonstrating the leptospira in the urinary deposit on the 33rd day of illness. No leptospira were found after the 40th day. For the bacteriological investigations of the case I am indebted to Dr. Nancy Laughton of the Department of Bacteriology, University of Birmingham. Her report of May 11, 1942, was as follows:

> "Three specimens of urine were inoculated intraperitoneally—those of the 8th, 12th, and 20th days of the illness. The animals inoculated with the first and the last showed no illness. The former is still apparently healthy. The latter showed no sign of illness or jaundice. It was killed on the 10th day: the necropsy revealed no evidence of infection. Portions of the liver and spleen were macerated and reinoculated into another 6-weeks-old guinea-pig. This animal appears quite well after 14 days.
>
> "The guinea-pig inoculated with the 12th-day urine died on the 12th day after inoculation. The necropsy revealed marked jaundice. The peritoneum was thickened, the suprarenals were congested, and there were marked haemorrhages into the lungs.
>
> "Although we were not able to recover the living organism by cultural methods, sections of the liver and kidney stained by Levaditi's method show a large number of leptospira."

The blood serum agglutinated *L. icterohaemorrhagiae* 1:320 on the 8th and 1:4000 on the 15th day. Further specimens were not examined.

Treatment.—This was purely symptomatic, as the patient was admitted on the 4th day of the disease, when the urine examination already revealed a great increase in urobilinogen. Serum would have taken too long to obtain for it to be of any appreciable value in treatment. From the first day the patient had rich glucose drinks, and at the peak of the disease glucose intravenously and glucose-saline as intravenous drip infusions, together with pot. citrate and sod. bicarb. āā 30 gr. 2-hourly. From the 10th day the patient had hexamine 10 gr. t.d.s. The bowels were moved by enemas and magnesium sulphate. We cannot form any opinion of the effect of sulphapyridine given on the 4th and 5th days of illness in a total dose of 5 g.

From this case once again it is evident that we have to reckon with the possibility of Weil's disease occurring whenever wild rats are present (25% of all rats in this country are infected—Hurst, 1940). The means of infection are numerous, and these have been described in many excellent publications. I would merely like to point out the necessity for the systematic extermination of rats, especially in Army camps, where they usually swarm in the proximity of cookhouses and stores if not destroyed in time. Persons dealing with the destruction of rats should be made aware of the danger they run when handling objects that might have been soiled by the dejecta of these animals.

Summary

The case of a young soldier who contracted Weil's disease while handling a rat-trap is reported.

Apart from a typical clinical picture a marked involvement of the nervous system was present.

Leptospira were found in the patient's urine and in the kidneys, liver, and adrenals of the guinea-pig inoculated with the patient's urine.

Agglutination with *L. icterohaemorrhagiae* gave titres of 1 : 320 and 1 : 4000 on the 8th day and the 15th day respectively.

I wish to thank Dr. D. R. Rigg, medical superintendent of the hospital, for his interest and permission to publish the case.

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Irvine H. Page and others (*Amer. J. Physiol.*, 1941, **135**, 214) show that the liver is the chief source of renin activator. In the case of removal of or damage to the liver by toxic substances, there is no pressor response to injected renin.

THE INACTIVATION OF PHOSPHORUS ON THE SKIN

BY

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White phosphorus as a hazard may appear in a variety of physical forms. Of these the most important are: (1) solid, (2) dissolved in solvents (CS_2, benzene, mineral oil), (3) dissolved in solvents + rubber. The use of copper sulphate solutions for the inactivation of phosphorus on the skin has long been practised, and has been suggested by the Ministry of Home Security (1942) as a method in the case of burns from bombs containing phosphorus. An improved composition in which copper sulphate is dissolved in aqueous glycerol has been claimed by Godding and Notton (1942). The very high glycerol content in this preparation is a serious drawback to its general use in the event of the widespread use of phosphorus bombs. An examination of the question of inactivation of phosphorus in the conditions listed above has drawn attention to the limitations of the methods hitherto proposed. We now describe a preparation of our own which has certain advantages.

According to the form in which the phosphorus is present on the skin, the aim of treatment is:

For solid phosphorus, to coat the element with a non-ignitable layer and to render large particles visible and thus amenable to mechanical removal; in the case of minute particles, to convert the element completely to an inactive form, allowing of removal by washing.

For phosphorus in solution, to inactivate the element by means of an agent which mixes freely with the solution or which brings about efficient emulsification, allowing of intimate contact with the inactivating agent.

For phosphorus in solvents containing rubber, to inactivate the element in the highly viscous mass by means of an agent which permits ready emulsification and which, in addition, allows complete removal of the rubber from the skin.

Copper compounds in a suitable physical form can bring about all of these desired effects.

Mode of Action of Copper Compounds on White Phosphorus

Whilst the blackening which rapidly follows the application of copper salts to white phosphorus is commonly held to be due to the formation of non-igniting copper phosphide, this is not the whole story. Copper phosphide is certainly produced, but this is followed by a reaction leading to the formation of various phosphorus acids—mainly phosphoric—and metallic copper (see Straub, 1903; Bird and Diggs, 1914). The main reaction is the formation of metallic copper, as follows:

$$5Cu^{\cdot\cdot} + 2P \rightarrow 2P^{\cdot\cdot\cdot\cdot\cdot} + 5Cu$$

Thus, if $CuSO_4$ is used, a necessary accompaniment of the reactions is the formation of sulphuric acid and phosphoric acid, which adds to the acidity already present if the phosphorus has ignited. The consequent need for thorough alkalization has been stressed by Godding and Notton (1942) and Jones (1942).

In the circumstances in which aqueous copper sulphate would be used in inactivating solid phosphorus in a burnt area nothing like complete inactivation of the element could be obtained. If, further, the phosphorus is in a form with which water does not readily mix, then inactivation can be expected only at the interfaces of the two liquid phases. In the special case of incendiary-bomb compositions, of a highly viscous nature, the application of aqueous copper sulphate cannot be expected to be effective. Godding and Notton's mixture was devised to overcome this difficulty and, as we shall see, is a distinct advance, but it has the disadvantage of demanding considerable glycerol and not acting very effectively on solid phosphorus or phosphorus in solution (CS_2, benzene, oil).

If an incendiary mixture containing rubber dissolved in a solvent be smeared on the skin the rubber adheres to the skin and in a few moments white fume appears but there is no rapid ignition. If now Godding and Notton's mixture be applied and rubbed well in, a greenish mass is formed, slowly turning brown and staining the skin. With continued rubbing the rubber in the composition is in part detached, but the greater portion of it is not readily removable, and may contain active phosphorus. If the incendiary composition is treated with Godding and Notton's mixture on a watch-glass reaction is rapidly initiated, but to obtain complete inactivation it is necessary to continue to mix energetically for a considerable period.

A New Preparation for Inactivating Phosphorus

Having regard to the fact that phosphorus is essentially lyophilic in nature and thus not readily wetted by water, it appeared to us that the reaction of inactivation might be hastened by the presence of a fat-solvent, using the copper in an oil-soluble form. If, further, the solvent used were capable of dissolving rubber a marked advance might be expected. Such a mixture has been devised. It consists of copper oleate, trichloroethylene, Turkey-red oil (70% ammonia-finished), and surgical spirit, and is prepared as follows: 25 g. copper oleate, is dissolved in 35 g. trichloroethylene; 25 g. of Turkey-red oil (sulphonated castor oil, 70% ammonia-finished) is incorporated into the mixture, after which 15 g. of surgical spirit is added. The copper content of this solution may reach 2.5%, but varies according to the quality of oleate. The presence of the alcohol cannot be dispensed with in cases of compositions containing rubber; but in other circumstances (e.g., phosphorus as an industrial hazard) it may with advantage be omitted.

This solution is readily prepared (Godding and Notton's mixture is not easily prepared), is perfectly homogeneous, and is deep blue-green in colour; it is a solvent for rubber and is easily emulsified with water. The constituents are available.* Its effects on phosphorus in various forms are summarized in the following table of comparison with other preparations:

Form in which Phosphorus is Present	1% $CuSO_4$ Aqueous Solution	$CuSO_4$, Glycerol, and Starch Mixture of Godding and Notton	Oil-soluble Cu Preparation
Solid	Rapid surface inactivation only	Very slow surface inactivation	Very rapid inactivation, with disintegration of the surface layers
Solution in CS_2	Inactivation at interface only	Inactivation at interface	Rapid and complete inactivation
Solution in benzene	" "	" "	" "
Solution in liquid paraffin	" "	More rapid inactivation due to some emulsification	" "
Solution in benzene and rubber	Poor and incomplete owing to lack of emulsifying properties	Very rapid and complete if well mixed, due to good emulsification	Rapid and complete inactivation. The reaction, once started, proceeds to completion with great speed

Advantages of the New Method

The following are the advantages of the new preparation: (1) It is readily miscible with oil, being dissolved in an oil-solvent which is also a solvent for rubber. This allows intimate contact with white phosphorus as well as with any oily composition in which phosphorus may be dissolved—e.g., in an incendiary bomb or other weapon. (2) It reacts progressively with phosphorus, not merely inactivating the surface of contact but transforming the element into easily removable products. (3) Since the preparation contains its own emulsifying agent (Turkey-red oil), it is completely removed from the skin by water, carrying with it any oil or rubber that may have been associated with the phosphorus, as well as the detritus from the inactivating reaction. The skin is left almost entirely clean and unstained.

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* Copper oleate is a commercially available material, but in case it cannot be obtained, an equally effective material (although of lower copper content) can be prepared in the following way: Copper sulphate (10 g.) is dissolved in hot water (40 c.cm.) and 70% Turkey-red oil, ammonia-finished (25 c.cm.), added, with stirring. An insoluble copper derivative separates, and after cooling is decanted from the water. The oily copper compound is dissolved in trichloroethylene (35 c.cm.) and any remaining water separated off. A further addition of 70% Turkey-red oil (25 c.cm.) is made, and finally surgical spirit (20 c.cm.).

Anaesthetized rats were treated, after dehairing, with a few drops of white phosphorus dissolved in CS_2, and, after allowing the solvent to evaporate, the layer of phosphorus was inactivated by application of the above copper preparations. There was considerable difficulty in applying the 1% copper sulphate aqueous solution, since the rat's skin and the phosphorus layer are alike difficult to wet with aqueous solutions. The copper–glycerol mixture was better in this respect but reacted slowly compared with the oil-soluble copper preparation. Minute pieces of phosphorus applied to the skin were rendered inactive by the oil-soluble copper solution and disintegrated, while the copper sulphate solution and the copper–glycerol mixture rendered them inactive but left them entire. Here again the 1% copper sulphate reacted more quickly than the copper–glycerol once it had been brought into intimate contact with the phosphorus.

Phosphorus applied to the skin either alone or in solution in CS_2 appears to have no immediately deleterious action. Its danger resides wholly in its liability to ignite and cause burns which do not easily heal. This point was shown not only by animal experiments but by application to the human skin. Phosphorus allowed to ignite on the skin (after evaporation of the CS_2 in which the phosphorus was dissolved) is immediately extinguished by the oil-soluble copper preparation, and inactivation of the phosphorus begins almost at once.

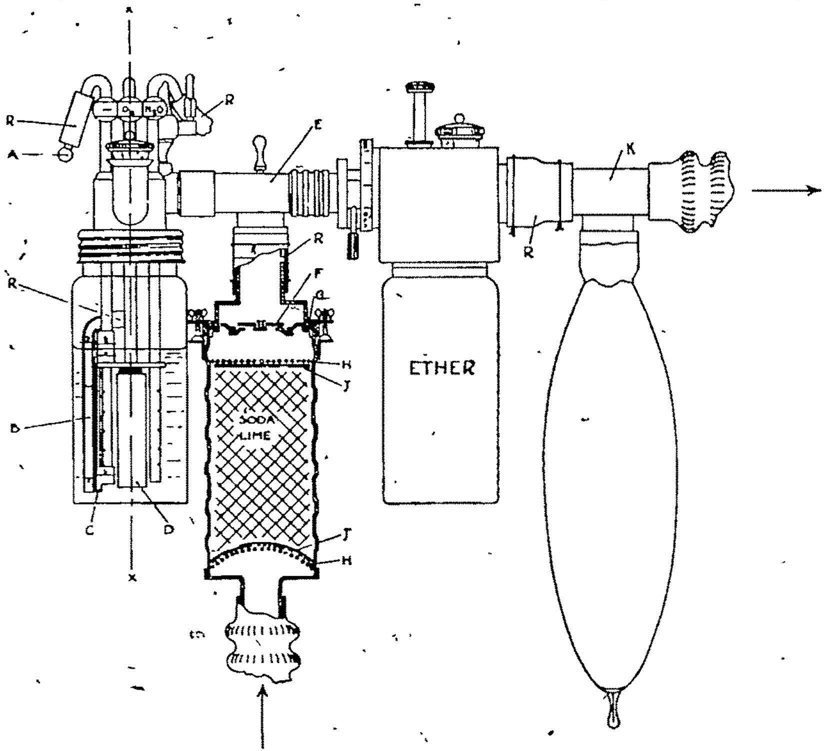

FIG. 1.—Front view; CO_2 absorber in section. A, Plug. C, Scale B, Magill's bag-mount. R, Rubber connexions. (Other reference letters explained in text. Scale of drawings, 1/4 size)

Proposed Procedure for dealing with Phosphorus on the Skin

1. Extinguish burning areas (immersion in water or wet fire-blankets).
2. Apply oil-soluble copper compound to areas contaminated with phosphorus (swabbing, pouring over areas, in some cases even immersing affected parts: manner of application will suggest itself according to circumstances. In general it will be best to deal with the affected parts piecemeal while keeping the waiting parts wet with water).
3. After well-established and obvious inactivation of the phosphorus (in general, in from a few seconds to one or two minutes), wash the treated area with tepid water and swab off the contaminating material.
4. Treat area with excess sodium bicarbonate, working up into a paste with water.
5. Treatment of the burn itself will naturally depend on circumstances, but if all the phosphorus is inactivated and removed and all acidity is neutralized, accepted methods on the lines of antisepsis and mild tanning should be applicable. The location of the burn, its depth, and the amount of tissue destroyed must all be considered in the treatment. General rules for all cases are misleading.

Summary

The phosphorus-inactivating properties of 1% aqueous copper sulphate, the copper sulphate–glycerol–starch composition of Godding and Notton, and a new composition containing copper in an oil-soluble form made from copper oleate, Turkey-red oil (sulphonated castor-oil), trichloroethylene, and surgical spirit have been compared. The last is shown to be the most effective way of inactivating phosphorus, especially when associated with oil, solvents, or rubber. A procedure is suggested for dealing with cases contaminated with material from self-igniting bombs containing phosphorus, oil, solvents, and rubber.

N.B.—It must be pointed out that the treatment proposed is for phosphorus *on* the skin. The high content of trichloroethylene precludes use of the composition for such internal injuries as were recently described by Blaxland (1942), in which elemental phosphorus was diffusely implanted in the tissues.

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MODIFICATION FOR CO_2 ABSORPTION WITH THE FIELD-PATTERN BOYLE'S APPARATUS

BY

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With the object of effecting economy of gases I have devised a modification of the field-pattern Boyle's apparatus by which carbon dioxide absorption may be used. This has proved to be very satisfactory in practice. The essential additions are a flowmeter for "basal" oxygen and a soda-lime canister. A description of these improvisations is given in the hope that it may be of use to other anaesthetists.

The Flowmeter

The flowmeter (Figs. 1, 4, and 5) was designed to fit inside the sight-feed bottle, and is of the water-depression type. Its design was restricted by the limited space available. The oxygen cylinder is connected to the middle sight-feed tube, CO_2 not being used. Oxygen thus passes to the top of the bottle by way of the metal sleeve and tube (D), and escapes through a glass capillary (M). T indicates a connexion to the glass depression tube (B). The scale was cut from zinc-alloy sheet, and is wired to the normal oxygen sight-feed tube. Calibration was carried out by timing the displacement of water from a large measuring bottle. Preliminary experiments determined the proper size of capillary tube to obtain the desired range—200 to 650 c.cm. a minute.

Nitrous oxide is run in through the normal sight-feed tube.

The Carbon Dioxide Absorber

The canister was improvised from a training-model Service respirator container (Fig. 1). The bottom (inspiratory valve end) was unsoldered and fitted as a lid by attaching lugs to receive bolts fixed to the body. There are four of these, only two showing in the section. A rubber washer (G) ensures a gas-tight joint. A flat metal cylinder and a short length of 1-in. tube soldered over the hole in the lid enables a connecting tube to be attached. All the contents of the container were removed and two of the pieces of metal gauze (H) with lint pads (J) used to retain the soda-lime, 1 lb. of which can be accommodated. The unfilled space of about 1 in. at the upper end is important to avoid "channelling."

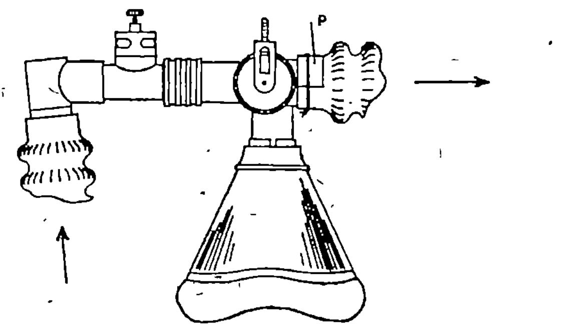

FIG. 2.—Arrangement of face-piece fittings: P, Tin strip over slot in stopcock.

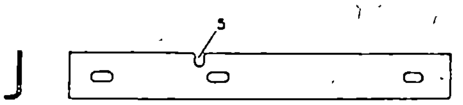

FIG. 3.—Detail of extension bracket. S, Slot for handle of bag-mount valve when closed.

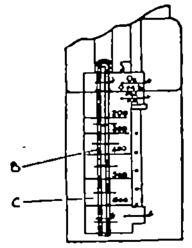

FIG. 4.—Side view of flowmeter, showing scale.

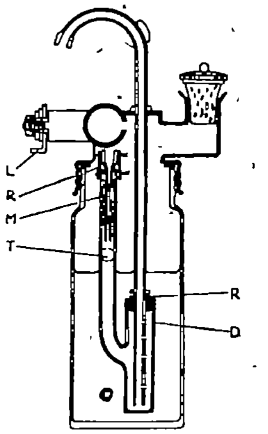

FIG. 5.—Section of flowmeter.

Arrangement of Apparatus

The arrangement shown in Fig. 1 works on the "circle" principle and permits vaporization of ether by the expired gases. The absorber is connected to the Magill bag-mount which is fitted between the ether bottle and flowmeter. The latter is supported by an extension bracket cut from brass sheet (Fig. 3, and L, Fig. 5). The bag is mounted on an improvised T-tube (K). One-way gas flow is attained by incorporating the stopcock from a nitrous oxide-air apparatus, with the cap over the expiratory valve removed, in the face-piece fittings (Fig. 2). The inspiratory valve of the respirator (F) is fitted, as shown in Fig. 1, to prevent back-flow of gases into the absorber when it is not in circuit. This assembly results in some expiratory resistance, due to the by-pass control on the ether bottle. With quiet breathing the pressure at the mask is not excessive, being between 2 and 3 mm. Hg; but an appreciable increase occurs with deep breathing and if the gases are bubbled through the ether.

Two alternative arrangements may be used. In the first, the flowmeter and ether bottle are left in their usual positions and the absorber is fitted between the ether bottle and the rebreathing-bag. In the second, the canister is fitted near the face-piece and "to-and-fro" absorption is used. Both alternatives overcome the expiratory resistance, but ether vaporization is dependent on the small "basal" flow of gases only.

Additional corrugated tube is improvised from the respirator connecting tube. All rubber connexions are secured by binding with wire. The materials used are easily obtainable in the field, and constructional work can be carried out by the nearest workshop unit. It will be noted that the Boyle apparatus is not altered structurally.

Notes on Technique

(1) Adequate sedative premedication is desirable.

(2) A full anaesthetic dose of pentothal sodium, followed by nitrous oxide-oxygen with this apparatus, has been very successful.

(3) When an intravenous anaesthetic is not used, induction is most satisfactorily carried out by the "semi-closed" method, CO_2 absorption being started when surgical anaesthesia is well established.

(4) Owing to the diffusibility of nitrous oxide it is seldom possible to discontinue its flow completely, and about 500 c.cm. a minute is required for maintenance.

(5) The composition of the gas mixture tends to change slowly during the course of the anaesthesia. As with nitrous oxide-oxygen a fine balance is struck between anoxia and the patient becoming "lighter," this is important, and is best overcome by periodically emptying the bag and refilling with the appropriate mixture.

A NEW CIRCLE-TYPE CARBON DIOXIDE ABSORBER

BY

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With the collaboration of Messrs. Coxeter and Son, Ltd., who initiated this endeavour, a circle-type absorber with certain unique features, and in which anaesthetic requirements have been combined with mechanical efficiency, has been produced. The aims of its design and the way these aims have been achieved are as follows.

The machine was specifically intended to fit the standard Boyle machine that has been distributed widely in the E.M.S. It slides on two runners fixed to the table frame, and can be pushed under the top shelf when not in use. Minimum restriction to breathing was achieved by using wide-bore gas channels throughout, and making the patient's respirations take a path with as few changes of direction as possible. Large control drums are used and special glanding arrangements provided to eliminate leakage. In the ether vaporizer, wicks, which to be effective need several thicknesses and which soon cause restriction, have been eliminated. The moving parts of the reservoir bag are carefully balanced on ball bearings, and move with the slightest respiratory effort. The measured restriction of the circuit is 2 mm. H_2O with the ether and soda-lime "off" and 4 mm. H_2O with both "on."

High-efficiency absorption of CO_2 was achieved by departing from the orthodox type of circuit and employing one in which both inspirations and expirations pass through the soda-lime, thus combining the absorptive efficiency of the "to-and-fro" type with the practical advantages of the "circle-type" absorber.

The type of ether vaporizer normally used in an absorber circuit has a wick to give sufficient surface of contact of the ether to provide a high enough concentration of ether in the mixture. The disadvantage of this type is the restriction caused by the wick and the gradual loss of efficiency due to condensation of water on the wick. Both these disadvantages are overcome in this vaporizer by dispensing with the wick and, instead, causing the gases to be deflected by baffles several times on to the surface of the ether. By bringing the gases into the vaporizer at the centre of a concentric nest of baffles the lowest ether temperature is reached at the centre of the container. The temperature drop in the peripheral portions of the ether is at a minimum, and the gases before leaving the vaporizer are in contact with the warmest possible ether. The baffles, like the ether pot, are made of copper, and act as conductors of heat from the rest of the apparatus to the liquid ether.

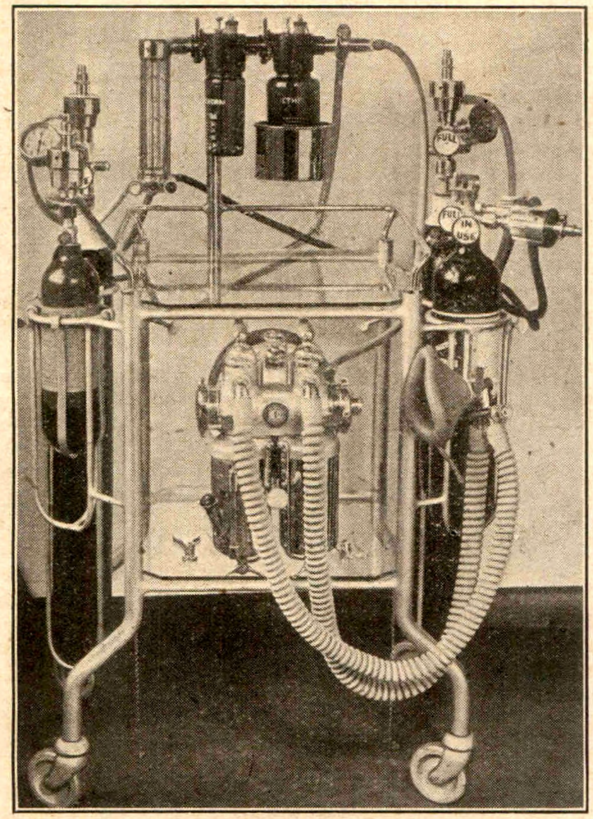

FIG. 1.—Boyle machine with absorber in place.

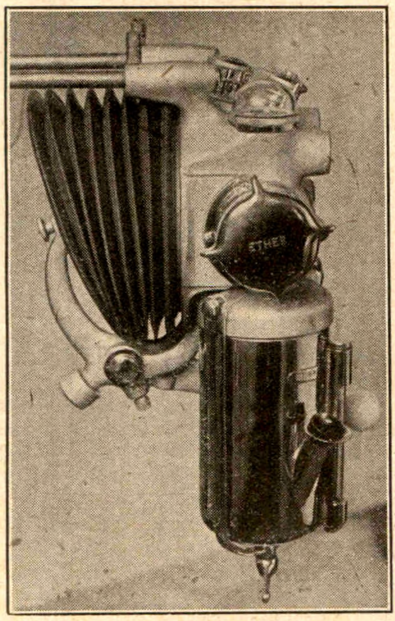

FIG. 2.—Side view of absorber showing bag and lever mechanism.

To make inflation of the lungs easy, whether for control of the respiration or for the purpose of artificial respiration in emergency, the bag is of concertina shape. It is connected to a lever ending in a conveniently placed knob on the front of the machine. Depression of this knob compresses the bag with little effort on the part of the anaesthetist. The lever system is carefully balanced on ball bearings so that the bag moves with the slightest respiratory effort.

Other features of this absorber are: (1) The body of the machine is cast in one piece with the drum channels bored in it, to avoid leakage. (2) The slightest movement of the bag is transmitted to the knob, which can be easily seen. (3) Both expiratory and inspiratory valves are fitted on the machine, as well as a nipple through which air can be introduced. (4) The soda-lime canister is quickly removed by swinging aside a large easily loosened sling. (5) The gravity valves are made of scolam, a compressed fibre which allows them to be twice as thick as metal, thus lessening the possibility of warping, without increase of weight. These valves are visible, and in wartime are easy and cheap to replace.

Several of my colleagues have given a clinical test to this absorber, and for their helpful suggestions I am most grateful. They have confirmed my opinion that only as a result of collaboration between manufacturers and user can a real advance in the design of anaesthetic apparatus be made. A detailed account of this machine with the results of laboratory and clinical tests will be published shortly.

Medical Memoranda

Spina Bifida in Binovular Twins

In view of the rarity of spina bifida in twins and of the absence in the literature of any reference to its occurrence in binovular twins, the following case may be of interest.

CASE HISTORY

Mrs. B., a healthy 3-para, had had a normal pregnancy and was due to be confined about July 4, 1942. Labour started on May 28 about 11 p.m. The first twin was born at 12.40 a.m. on May 29 and the second ten minutes later. Both were males, and there was rather a large amount of liquor amnii. The first infant weighed 4 lb. 12 oz. and was 16 in. long; it had an open spina bifida (without a sac) in the lower dorsal and lumbar region 2¾ in. by 1¾ in., with an associated hydrocephalus showing separation of the bones of the vault of the skull. The infant lived 33 hours. There was some leakage of cerebrospinal fluid. The second twin weighed 3 lb. 12 oz. and was 14 in. long; it also had a spina bifida without a sac in the lumbar region, 2½ in. by 1½ in.; the head was of normal size. There was also some leakage of cerebrospinal fluid. This infant became slightly cyanotic after a few hours and lived 36 hours. There were two separate placentae, which looked perfectly normal, and two chorionic sacs. There is no family history of twins or congenital abnormalities, and there was no history of any maternal trauma during pregnancy.

COMMENTARY

Spina bifida is described as a condition (*Gray's Anatomy*, 1938) in which the coalescence of the lamina is not completed: a cleft is left in the arches of the vertebrae, through which protrusion of the spinal meninges (dura and arachnoid), and generally of spinal cord, takes place. It is commonest in the lumbar and sacral regions; its frequency is given as about 1 in 1,000 births. A sac may be present or absent; in the latter case there is a leakage of the cerebrospinal fluid, which is incompatible with life. Spina bifida is often associated with congenital hydrocephalus (Boyd, 1938).

There were no definite records of the occurrence of spina bifida till the middle of the seventeenth century. Tulpius (1652) described a case in *Observationes Medicae*, Lib. III, **129/130**, p. 240. There are several theories of the causation of spina bifida. J. F. Meckel maintains that it is produced in some mechanical way, involving interference with the nutrition of the embryo (Good, 1915). Wertheim (1857) advances the theory of maternal impressions and external influences, and as a proof of this he quotes a case of twins one of which died early while the other showed a large spina bifida with the absence of the sacral and coccygeal vertebrae. The mother had received a kick in the left groin from her husband some weeks before the mid-term of gestation. Koch (1881) believes in the theory of arrested development. The London Clinical

Society committee appointed in 1885 to report on the origin of spina bifida gave as a cause the primary defect in the formation of mesoblast from which the structures closing in the vertebral furrow are developed.

Bland-Sutton (1888) advanced a theory in which he regarded the spinal cord as a highly differentiated section of the primitive alimentary tract. Its central canal was originally part and parcel of the system, but is now functionless and, like obsolete canals in general, is often the seat of cystic dilatation. The conclusion arrived at by Good is that it is the arrested development of the mesodermal tissues from which the spinal meninges are produced, and that it is due to a mechanical cause which prevents the neural plate becoming converted into a neural tube; there is no evidence as to the nature of this mechanical agent.

A few cases are on record of spina bifida occurring as a family defect. Butler-Smythe (1889) reports 3 cases of spina bifida with hydrocephalus occurring in the same family. Pybus (1921) describes a family in which 4 children had congenital defects of the spine. The eldest child died at 18 months with spina bifida associated with hydrocephalus; the second, 10 years old, had spina bifida occulta, indicated by a scar and depression in the upper part of the thoracic region of the spine, a radiograph of which showed a defect of the underlying vertebrae; the third had a meningomyelocele in the lumbo-sacral region, treated successfully by operation; the fourth child had an exaggerated coccygeal dimple.

The only case on record of spina bifida in uniovular twins is from Norway (Eskelund and Bartels, 1941). There are no cases on record of spina bifida in binovular twins.

The dizygotic origin of the twins in the present case is confirmed by the two separate placentae and chorions and the absence of striking similarity in the general appearance of the two infants, which is in conformity with the foetal-membrane method and similarity method of diagnosis of zygotic origin of twins (Newman, Freeman, and Holzinger, 1937). This case tends to support the theory that the cause of spina bifida is primarily a defect in the development of the mesoblastic tissues from which the spinal meninges are produced, as this is the only factor that is likely to affect equally the two separate ova, rather than the mechanical agent or the external influences mentioned in the several theories advanced.

South Norwood. A. Fry, M.R.C.S., L.R.C.P., D.M.R.

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The Rh Factor in Haemolytic Anaemia of the Newborn

Boorman, Dodd, and Mollison (*Journal*, 1942, **2**, 569) suggest that only group O Rh-negative blood should be used for transfusion in cases of haemolytic anaemia of the newborn, with or without severe jaundice. This suggestion is based on the assumption, for which there is already some evidence, that blood of this group will prove to be immune to the action of the immune bodies responsible for the haemolytic process. Unfortunately, at present few laboratories have supplies of potent anti-Rh serum with which to establish a panel of suitable donors. I should like to make an alternative suggestion on the basis of the following two cases.

Case I

A female infant aged 5 weeks was admitted to the Children's Hospital, Birmingham, on Aug. 2, 1939. She was the second child and was delivered at term; the first was said to have been very pale for two months, but was now healthy. Jaundice was observed within a few hours of birth, but was never more than a lemon colour and had faded by the seventh day. Pallor soon became marked and it persisted till admission. On Aug. 2, 4, and 8 transfusions of maternal blood—45, 45, and 50 c.cm. respectively—were given, with substantial improvement in the blood picture and the general condition. A sudden drop in colour index, mean cell volume, and mean diameter was noticed at this time, and the change in shape of the Price-Jones curve was such as only to admit of the conclusion that the infant's cells had been completely replaced by those of the mother. An aregenerative phase ensued from Aug. 5 to Aug. 15, during which no change occurred save for a steady though relatively slow drop in the red cell count. The onset of a fresh reticulocytosis, however, was accompanied by a dramatic change in the Price-Jones curve indicating the steady replacement of the donor's cells by those of the infant. The child died shortly afterwards of a severe intercurrent infection.

Table showing Laboratory Data of Case I

Date	Red Cells (mill.)	Hb %	C.I.	Retics. %	M.C.V.	M.D.	σ
2/8/39	1·23	27	1·08	16·3	92 μ^3	7·92 μ	0·885 μ
5/8/39	2·30	44	0·98	0·4	86 μ^3		
8/8/39	3·52	58	0·83	0	70 μ^3	6·80 μ	0·542 μ
14/8/39	2·54	40	0·80	0·6	71 μ^3	6·83 μ	0·495 μ
17/8/39	3·19	53	0·83	5·9	68 μ^3	7·26 μ	0·974 μ
21/8/39	2·61	45	0·88	14·4	77 μ^3	7·72 μ	1·102 μ
Donor's blood, 10/8/39 ..			0·86		68 μ^3	6·92 μ	0·495 μ

Case II

A female infant—fourth pregnancy. First pregnancy: breech delivery, stillbirth. The second child was a full-term female infant who developed a mild form of haemolytic anaemia of the newborn with moderate jaundice. She was treated with liver extract (campolon) only, and is now healthy. The third pregnancy miscarried at 24 weeks.

The mother was delivered at term in the Maternity Hospital, Loveday Street, Birmingham, early on Sept. 2, 1939. The infant's spleen was found to be one fingerbreadth below the costal margin at birth. Jaundice was evident at dawn and rapidly became more pronounced, but it was never severe and faded completely by the fifth day. There was no anaemia at birth, but pallor became progressively more obvious despite frequent injections of campolon. Transfusions of the mother's blood were given on Sept. 10, 12, and 14—45, 50, and 50 c.cm. respectively—with great improvement. Here again the change in colour index, mean cell volume, and Price-Jones curve indicated replacement of the child's cells by the donor's; there was also a short aregenerative phase from Sept. 15 to 20, and thereafter a steady increase in the reticulocyte count, though no significant improvement in the red cell count occurred till Oct. 13. From this date recovery was rapid and uneventful. It is perhaps worth noting that this sudden improvement followed an injection of 1 c.cm. of campolon on Oct. 10. This is the only occasion in my experience of noteworthy improvement following or coinciding with liver therapy in this disease.

Table showing Laboratory Data of Case II

Date	Red Cells (mill.)	Hb %	C.I.	Retics. %	M.C.V.	M.D.	σ
2/9/39	4·90	121	1·21	33·5	108 μ^3	7·99 μ	0·885 μ
8/9/39	1·33	32	1·23	11·3	108 μ^3		
10/9/39	1·01	24	1·20	3·6		8·04 μ	0·745 μ
15/9/39	3·08	58	0·97	0·4	80 μ^3	7·56 μ	0·580 μ
22/9/39	3·06	59	0·96	1·4	79 μ^3	7·50 μ	0·565 μ
3/10/39	2·86	52	0·91	10·4		7·59 μ	0·603 μ
10/10/39	2·31	44	0·96	11·1	75 μ^3		
13/10/39	3·28	60	0·91	21·6			
20/10/39	3·52	62	0·90	22·2	80 μ^3		
17/11/39	5·15	88	0·86	3·5	77 μ^3		
Donor's blood, 12/9/39 ..			0·98		79 μ^3	7·39 μ	0·550

Discussion

These two cases illustrate quite well the point I wish to make. When the degree of anaemia is such that transfusion is urgently needed it may be preferable to use maternal blood, the survival of which for some time is certain, rather than to risk repeated unsuccessful transfusions from a donor selected at random, and therefore probably Rh +, even though rapid destruction of the few native cells remaining may occur. I do not feel that this last is a valid objection to the procedure, for I take it the object of treatment in future will be to circumvent the haemolytic process in the early days by replacing the child's cells so far as possible by Rh-negative cells. On the other hand one would not willingly inject large doses of antibody if it could be avoided. There are two ways out of this dilemma. In the first place it is to be hoped that the serum of every woman whose child is affected will be examined for anti-Rh agglutinins. Where these are present in sufficient strength it will be possible, perhaps, to find a donor whose cells are compatible both with the serum of the child and with that of the mother, and in any case these women should be regarded as unsuitable as donors. The alternative, where facilities are available, would be to use the washed cells of the mother suspended in fresh plasma or saline (a suggestion I owe to my colleague Dr. H. S. Baar).

It may be argued that it is undesirable to depress bone-marrow function so far as in the cases described. I do not believe this effect to be due to the extra dose of antibody, but attribute it rather to success in raising the blood count substantially above the pre-transfusion level. Aplasia and hypoplasia of the bone marrow are exceedingly rare in icterus gravis and haemolytic anaemia of the newborn, which suggests that the main action of the antibody is exerted on the circulating erythrocytes rather than on the erythron as a whole.

T. W. Lloyd, D.M., M.R.C.P.

Reviews

IMMUNOLOGY

Immunology. By N. P. Sherwood, Ph.D., M.D., F.A.C.P. Second edition. (Pp. 639. 33s.) London: Henry Kimpton.

There are so few modern textbooks on immunity that the publication of a second edition of Sherwood's *Immunology* should be an important event. A good deal of very recent work is in fact quoted, and several new chapters have been introduced, while others have been rearranged and revised. That the book is nevertheless disappointing is due to several factors. A work on this subject should presuppose a sound knowledge of medicine, yet oddly naïve statements occur which on this supposition are superfluous: "Below the ileocecal valve is a lymphoid vestigial organ, the vermiform appendix"; "It is obviously quite serious for the genito-urinary system, heart, central nervous system or lungs to be impaired by acute infections." There is a lack of logical arrangement, seen at its worst in Chapter XV, which, although entitled "Toxins and Antitoxins," deals with, among other subjects, the treatment of pneumonia, sulphonamide chemotherapy, and cerebrospinal fever. In discussing immunization against infections by *Streptococcus pyogenes* the difficulties imposed by the antigenic heterogeneity of this organism are not mentioned. Griffith's work on streptococcus types is mentioned on p. 365, but misdescribed and grossly underrated, and no references to his papers are given. Other omissions and misstatements are fairly numerous, and modern work is sometimes presented in an incoherent form, with too little effort to adjudicate upon it. The author is more successful in tracing the historical development of each aspect of his subject and in laying down well-established principles, and good accounts are given of serological methods, particularly those used in the diagnosis of syphilis.

PSYCHOLOGICAL EFFECTS OF WAR

Psychological Effects of War on Citizen and Soldier. By R. D. Gillespie, M.D. (Pp. 251. 12s.) London: Chapman and Hall. 1942.

One of the few pleasant surprises of the war has been the failure of the predicted epidemic of psychoneuroses to materialize. Dr. R. D. Gillespie's *Psychological Effects of War on Citizen and Soldier* is a valuable and important inquiry on that subject. His opening chapter, on changing concepts in psychoneuroses, is entertaining and rather reminiscent of the first act of *The Doctor's Dilemma*: it emphasizes the willingness of the patient to adopt the doctor's theories, and reminds us that in psychotherapy the relative position of observer and observed is of as much importance as in Einsteinian physics. He goes on to discuss constitutional factors in psychoneuroses, and adds his authority to those who have been forced to adopt the concept of the psychopathic personality. As Osler said, there are some people who will never be able to stand up by themselves. In this respect the earlier psychotherapists were too optimistic. His figures support the view that in the sufferers from war neuroses the trouble started very early in life. That the "broken home" is an important factor is true, but scarcely less important is the inheritance by the patient of genes which contributed to the break. The earliest cultural factor, the family, he concludes, is of great significance in the genesis of psychoneuroses; he discusses both the economic and the constitutional factors, but regards them of much less importance. We like his substitution of "histrionic" for "hysterical": as he says, the hysteric's emotional displays are compensatory for a lack of feeling.

Further consideration of social factors leads him to say: "I suspect that the main preventive of neuroses in doctors and in professional men generally might be summed up in the phrase 'professional attitude.' The individual identifies himself with his job, which becomes a pivotal value for him." In another sphere—namely, shelter life—the appreciation of gregariousness has proved an asset, finding its expression in "We would rather be bombed than bored."

The mediaeval Church condemned *accidie*—i.e., apathy and lethargy—as a deadly sin. For Dr. Gillespie it is a significant symptom in many cases, preceding psychoneuroses on the one hand or antisocial acts on the other; for the skilled and semi-skilled their work is a stabilizing factor, hence the special dangers of unemployment. Unlike some earlier writers the author does not much believe in nervous exhaustion, as if the nervous system were a storage battery which could run down. Genuine exhaustion syndromes, such as were seen after Dunkirk, are rare, and may simulate Parkinsonism.

His opinion that the more slavishly subjected to the will of the State the individual has been the greater the liability to panic or apathy was interestingly confirmed by a German refugee who contrasted the strong inner discipline of the British people with the German, on whom discipline was imposed by authority from without.

It is curious, as he says, that it should have needed a war to bring realization of the truth of old time-worn ideas. The desire of the R.A.F. for anonymity within a community to which one belongs and to which one owes something recalls the attitude of the mediaeval craftsmen. Psychopathology, social science, religious and moral philosophy, agree in asserting that the harmony of human relationships is the highest good. In the thoughts of our younger generation we can discern possibilities for a future civilization. "The common people of England, in their patient endurance, their tolerance, and their sense of fair play, and their readiness to forgive and forget, are such an embodiment as there is anywhere of a national will to that goal." Thus ends a wonderfully heartening book.

THE YEAR BOOK OF EYE, EAR, NOSE AND THROAT, 1942

The 1942 Year Book of the Eye, Ear, Nose and Throat. The Eye: Louis Bothman, M.D. The Ear, Nose and Throat: Samuel J. Crowe, M.D With the collaboration of Elmer W. Hagens, M D. (Pp. 640; illustrated 18s) Chicago: The Year Book Publishers, Inc; London: H. K. Lewis and Co.

The 1942 Year Book of the Eye, Ear, Nose and Throat has reappeared with its customary regularity and with undiminished excellence. It remains in the hands of the same pair of editors, Dr. Bothman of Chicago for the eye, and Dr. Crowe of Johns Hopkins of the ear, nose, and throat. The general arrangement is the same as usual, and at the beginning there is a special article by Dr. Bothman on avitaminosis in ophthalmology. There is no special article by Dr. Crowe, but the editorial comments at the end of many of the abstracts form much of the best reading, and no illusions are allowed to remain to a writer whose opinions or conclusions are not considered to be well founded. A good example of this is the comment on the article on oestrogenic implants in treatment of atrophic rhinitis. The importance of the ear in flying, a subject which received special attention in the Year Book for 1941, is not neglected, and the editor has revived two articles by Dr. Arnold Rich on the physiology of the Eustachian tube and its related muscles, and on the innervation of the palatal muscles, dating back to 1920. Modern developments in flying lend a renewed interest to these, and it is probably not generally known that Dr. Rich showed that the sole influence in causing the Eustachian tube to open is the contraction of the tensor palati muscle. A word of appreciation is due to the precision, brevity, and clarity with which the abstractors have performed their task. The Year Book for 1942 is well up to the established standard, though it is inevitable that some of the articles abstracted should be of a repetitive character.

Notes on Books

In producing the eleventh edition of his excellent *Text-Book of Midwifery* Prof. R. W. JOHNSTONE has thoroughly revised the whole volume. A new chapter dealing with radiology in obstetrics has been added and those sections concerned with hyperemesis gravidarum, disproportion, abnormal uterine action, and menstrual pathology have been largely rewritten. The result is a considerable improvement in a book which was previously good. It is published at 25s. by A. and C. Black.

The thirty-seventh edition, for 1942-3, of the *Girls' School Year Book* has been issued by Messrs. H. F. W. Deane and Sons, 31, Museum Street, W.C.1, at 7s. 6d. This is the official book of reference of the Association of Head Mistresses, and, in addition to the usual authoritative information, it gives, so far as is possible, the details of many moves of schools necessitated by the war.

SURGEONS AND SURGERY IN LENINGRAD*

BY

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Leningrad has been besieged for over a year now. The absence of a normal influx of food products (at one time its complete cessation) and the severe bombardment have had their effect on the life of the town and in particular on the work of the surgeons.

The beginning of the siege was heralded by violent air raids and frequent bombardments, as the result of which there were a large number of wounded among the civilian population. It became necessary to open new surgical wards in already existing hospitals and even to create new hospitals. The civilian hospitals were all transformed into military ones and also served as evacuation hospitals. The wounded were admitted straight from the battle front, after first-aid treatment only. The ordinary surgical work of the town had to be done in addition to this.

The deficiency of food and the use of "food substitutes" have changed the type of patients admitted to the hospitals. There were very few patients with acute appendicitis, but the number of cases with perforated gastric ulcer increased more than tenfold as compared with peacetime, and there were very many with strangulated hernia and obstruction. There was an especially large number of cases with coprostasis on account of the faulty and rough food.

Planned surgical operations were not performed; only emergencies were done. The usual principles of treatment of gunshot wounds were observed: excision of the edges of the wound, etc.; the wounds were not sutured. In some clinics a sulphonamide was applied locally. Fractures from gunshot wounds were, as a rule, treated by plaster dressings; extension was seldom applied as the wounded had to be moved from one hospital to another. The method of closed plasters left on for a long period was used widely. In the treatment of shock, blood transfusions, blood replacements, and anti-shock solutions were extensively employed. There was no shortage of blood or of solutions. The Blood Transfusion Institute began scientific and practical work on the method and technique of preparation of different blood-replacing solutions. Some surgeons made a habit of using sphagnum moss for surgical dressings.

As surgeons had for the most part been mobilized, there were not many left to serve the civilian population. Short two-week courses were organized by the Postgraduate Institute and new cadres of surgeons were formed. Several hundred doctors received postgraduate training in that way. Two scientific conferences were held in October and November, 1941, to discuss methods and results: 500 doctors attended and 17 addresses were delivered on a variety of subjects.

Then severe cold weather set in; on account of extensive damage the electricity supply failed in most of the buildings, so work had to be done with the aid of oil-lamps or night-lights. Then the water supply gave out. There was very little coal for central heating and practically no wood, so the temperature of the wards, operating theatres, and dressing stations was very often at freezing-point. Temporary stoves were installed, and by using fences and wooden huts as logs the staffs of the hospitals were able to raise the temperature several degrees above freezing-point. The doctors made their rounds in fur overcoats covered by white gowns, and dressings had to be performed in the wards. The wounded often had to lie in bed fully dressed. The author of this article frequently had to do blood transfusions in a fur coat and a fur hat and keep his hands warm by putting them in warm water. Only in the older hospitals could some of the work be performed in the operating theatres. Later the number of surgical cases diminished abruptly and surgical beds could be filled by medical cases.

The severe cutting down of rations and the intensely cold weather produced a peculiar disease—an alimentary emaciation, which appeared in different forms (oedematous and dry) with a variety of surgical complications such as gangrene of fingers, trophic ulcers, etc. This was followed by avitaminosis. With the advent of the spring surgeons began to get active again. In April, 1942, the first surgical conference of the year was held: 150 civilian and military surgeons were present. After that regular meetings were held every third Sunday. There were several scientific conferences on blood transfusions, trauma, etc. It showed that surgeons were active even during the worst part of the blockade. Most of the debates and meetings were on treatment of different types of wounds, but some of them dealt with other subjects, such as conservation of blood, preparation of dry plasma, and transfusion of sterile homo- and hetero-sera. One meeting was devoted to the question of alimentary emaciation and its treatment by transfusion of blood, plasma, and blood-replacing solutions, and also by the use of blood preparations (ferro-haematogen compound). The biochemical laboratory of the Institute gave a detailed account of the biochemical changes in the blood of emaciated patients. Altogether 22 lectures were given. Two conferences were held at the Traumatological Institute. At the conference held in September, 1942, and organized by the town council's health department 400 surgeons attended. Samarin gave a lecture illustrated by 200 cases on the marked action of sulphonamides on the healing of gunshot wounds. Blinoff dealt with the classification of complications after blood transfusion. Kasakevitch and Nadein summarized their experience of 1,000 cases of gunshot fractures treated by the application of closed plasters. Epstein reported on contractures due to scurvy. A special meeting was devoted to wounds of the chest. In spite of heavy gunfire and bursting bombs during the sittings the hall was full all the time. A conference of nurses also roused great interest. No surgical journals appear in Leningrad now, but surgical literature is printed in pamphlet form.

The experience of Leningrad has shown the great variety of responsibilities of surgeons in civilian hospitals. In spite of the very reduced number of surgeons the whole population was efficiently looked after, as everybody worked with redoubled energy. The second winter in the besieged city does not cause any anxiety to the surgeons of Leningrad. The atrocious conditions of work during the last winter will not recur. The hospitals are now adapted for winter work; they have enough wood for heating purposes, there is a better assortment of drugs and dressing materials. The surgeons will be able to give their help to the population remaining in Leningrad more confidently, because they know that the Red Army will not allow the enemy to enter the town. The Soviet Union is proud of the defenders of Leningrad.

VENEREAL DISEASES

Distribution and expansion of treatment facilities, the value of educational work, and the special measures to be taken under Regulation 33B are the subject of the Ministry of Health's latest circular (No. 2727) on venereal diseases. In the first place, the circular states that a local authority should aim at a distribution which provides that no part of its area is more than 10 miles from some treatment facilities, though in present circumstances a treatment centre within this distance may not always be practicable. The services of general practitioners should, therefore, be used as set out in Circular 2226 (*Supplement*, Jan. 4, 1941, p. 2), which provides for the employment of suitably qualified G.P.s who would give treatment at their own surgeries and undertake any necessary training. Secondly, local authorities are urged to make full use of the literature, posters, etc., prepared by the Central Council for Health Education. The council will advise authorities on ways of expanding their own educational arrangements, supply films and literature, and suggest lecturers. In addition, each authority should publish locally regular information about treatment centres and arrange for publication of articles on venereal diseases and their treatment. Finally, the circular refers to the powers conferred on special practitioners and medical officers of health under Regulation 33B (*Journal*, Nov. 21, pp. 611, 616). A memorandum on the Regulation by Sir Wilson Jameson with some notes for the guidance of special practitioners and copies of the Rules and forms are enclosed with the circular, which has been sent to local and port health authorities and their medical officers of health.

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* Cable received by the Anglo-Soviet Medical Council.

BRITISH MEDICAL JOURNAL

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A MEMBER RESIGNS

During the 110 years of its existence the B.M.A. has not been without its critics, and at times the tide of criticism has risen high. Much of this has been unjust and founded on ignorance of what the Association has in actual fact done and of what it intends to do in terms of its declared policy. No organization that does not remain static can avoid making some mistakes in attempting to achieve what it conceives to be its true aims: it is here that the help of the constructive critic is welcome. At a time like the present, when so much is in flux, when so much is being challenged, discontents tend to come to the surface, and in some, but rare, instances so acutely that a doctor may resign his membership of the B.M.A. by way of protest. As it is possible that the expressed grounds for dissatisfaction may be held by others, we feel it may clear the air to publish a recent letter of resignation, and to examine its contents critically in the interests of both the writer and other members who may in part share his views. The letter reads as follows:

> "I wish to resign my membership of the Association for the following reasons:
>
> "1. The Association is not representative of the profession and particularly of the younger members. The British Medical Association has made no effort to ensure that members of the profession in the Forces shall have a major say in planning the medical services of the future. In short, the medical officers of the future will have to practise their profession according to the plans of a previous generation, in whom they have little or no confidence.
>
> "2. The British Medical Association, on account of their inability to inspire confidence in the minds of the younger members of the profession, have split the profession into various other groups of medical thought. This is likely to retard rather than advance medical progress and destroy its necessary precursor, the confidence and support of the general public.
>
> "I assume that you will not wish to publish this letter in view of your policy to publish only 'soft letters' which do not conflict with high British Medical Association policy, but should you decide to do so I have no objection."

Let us take his first point—that "the Association is not representative of the profession and particularly of the younger members." It is difficult to see how the Association could be representative of anything but itself, being—as it is—a voluntary organization of medical men. Surely the Association is what its members make it, no more and no less. The men who "built" the B.M.A. constructed a machinery for giving effective expression to the wishes of its members. No policy can become the declared policy of the B.M.A. unless it is accepted by the Annual Representative Meeting—that is, by the representatives elected by the members of the B.M.A. If the members of the Association do not attend their divisional meetings in sufficient numbers, and do not see that their views are put before the A.R.M. through their elected representatives, then who is to blame?

The second point made by our correspondent is that "the British Medical Association has made no effort to ensure that members of the profession in the Forces shall have a major say in planning the medical services of the future. In short, the medical officers of the future will have to practise their profession according to the plans of the previous generation, in whom they have little or no confidence." This is not true. Since the Medical Planning Commission was set up the Association has been very fully aware of the great disadvantage of not having the active participation of men in the Forces in drafting blueprints for the future. And the awareness of this disadvantage has been fully shared by the other bodies appointing to the Commission—the English Royal Colleges, the Royal Scottish Corporations, the Society of Medical Officers of Health, the Faculty of Radiologists, the Medical Women's Federation, and the Parliamentary Medical Committee. So far as the B.M.A. is concerned, it has made constant efforts to obtain the views of serving doctors on the future of medicine, and to this end has successfully urged study groups to invite the attendance at their meetings of serving doctors from neighbouring units. When the matter was debated at the Annual Representative Meeting in September, 1942, the Secretary of the Association recounted how a group of R.A.M.C. men had complained to him that their C.O. had forbidden them to transmit the substance of their discussions on medical planning, and how he had at once successfully taken this matter up with the Director-General of Army Medical Services, asking him to instruct Commands to allow such meetings and the transmission to the B.M.A. of the findings of such meetings. It should nevertheless be borne in mind that not all the younger members of the profession are serving with the Forces, and that those who are do not constitute the majority of the profession. May a centenarian modestly suggest that it is somewhat arrogant for men just beginning to learn the difficulties of their profession to assert that the future is their own special province and that men with experience of the past are thereby incapable of having any ideas on what is to come.

The third criticism is this: "The B.M.A., on account of their inability to inspire confidence in the minds of the younger members of the profession, have split the profession into various other groups of medical thought." Is it not largely the case that some members of the profession take very little interest in the work of the Association to which they belong until something goes wrong which affects them personally? And is it not true that when this happens they look round for a scapegoat—which is conveniently present in the form of "The B.M.A."? The apparent apathy of younger B.M.A. members arises in normal times from many factors which are social and general rather than professional. When a young man qualifies, medicine is for him a matter almost entirely of healing the sick and preventing illness, and when he begins to practise he is preoccupied with matters affecting his career, with the business of earning a living for himself and perhaps for a family. As his responsibilities grow he gradually becomes more aware of himself as one of a group of men earning a living in a certain way, and of the possibilities of altering terms and conditions of work to the advantage of himself and of his patients. And on top of all this some years must elapse before he finds himself with enough leisure to devote to such problems. This state of affairs is not peculiar to the medical profession but is characteristic of modern society. We believe that this state of affairs is unsound and that all men—and perhaps especially young men—should have leisure in which to reflect upon the kind of professional life they are leading and upon the professional ideas and ideals they hold. But why blame the B.M.A.? And why accuse it of having "split the profession into various other groups of medical thought"? It is self-contradictory to assert that the B.M.A. can formulate views which are not held by its members, because it is the members—and once more reiteration of the fact seems imperative—who do the formulating.

It may be, however, that the feeling behind the criticism is one of dissatisfaction with the conflicting aims of groups of the profession formed for various reasons but certainly not because of any malign activity of the B.M.A. There are differences within the profession, and most unfortunately these are not always based upon intellectual or idealistic conceptions of what the aims of medicine are or should be, but upon a selfish and narrow view of the interests of the particular group to which this or that man belongs. If there is one policy that has been characteristic throughout the whole history of the B.M.A., it is the policy of uniting medical men, whether in their professional interests or in the interests of the health of the people among whom they live. Without labouring the point any further, we would like to quote from an article by Prof. R. S. Aitken in our contemporary[1]: "If we had an integrated medical profession, loyal and pulling together, we could exert an undreamed-of influence for good in politics and economics. . . . 'Idealism!' you say mockingly. 'You will never get doctors to work together like that.' Why not try?" We can only echo his question.

The last sentence of the letter printed above we reproduce with reluctance because of its absurdity. But, absurd though it appears to us, the view has been expressed before, and so it should see the light of day and be finally disposed of. We should have thought, for example, that the publication in this journal of the correspondence condemning the setting up by the B.M.A. of a Planning Commission would once and for all have laid low this odd legend of the crafty censor. Obviously no editor of a journal can be a passive retailer of other men's views, and obviously he must select and reject matter for publication, if for no other reason than that printing space has its limits. If any bias is shown, it is in the direction of giving more space than some would think justifiable to "the other point of view," especially when it is at times intemperately expressed. If anyone doubts the fact of this policy, he should turn to the first three letters on the pasteurization of milk which appeared in the *Journal* of Jan. 9.

Whatever may be the turn of medical events in the near future, the direction they take will be determined in no small measure by the fact of unity or disunity of the doctors of this country. Strong individualism has always been characteristic of British Medicine. If the profession is to be able to resist the imposition on it of a medical service out of harmony with medical ideals, then sectional interests must yield before the common aims all doctors share, and before the common decision on how these aims are to be reached. And the common ground must be sought if the medical profession is to offer the public a service which will make available to every man, woman, and child in the country the complete benefits of medicine in the prevention and cure of disease and in the promotion of health; and if the fundamental ideals of medicine are to be respected and preserved by Government. Such a unity cannot be reached without some sacrifice of personal, sectional, and institutional interests. Are the doctors of this country prepared to do this? The testing time may not be far off.

HOUSES TO LIVE IN

Those who were brought up in stuffy Victorian houses, large or small, must sometimes wonder how they ever escaped alive. Francis Bacon said that houses were built to live in, not to look at; but many houses of the last century fulfilled neither requirement. The builders paid scant attention to health or aesthetics or even domestic convenience. The neglect of natural lighting and ventilation, and of dryness and warmth, the primitive sanitary arrangements, the likelihood of vermin infestation, the lack of provision for food storage, the unventilated passages, the dark staircases, the basement living rooms must all have had their reflection in the heavier mortality and morbidity rates of the generations which inhabited them. The modern house is better—decidedly better—but it is not as well planned as it might be. And its planning in relation to other houses—as in ribbon development—almost makes the observer doubt whether this country really has a right to be called civilized. At the request of the Central Housing Advisory Committee of the Ministry of Health, the Royal College of Physicians, through its Committee on Social and Preventive Medicine, has drawn up a memorandum on "Design of Dwelling Houses," having in mind the small house, and principally, though not exclusively, the house built under a local authority housing scheme.

Health considerations enter even into the disposition of rooms in a house in relation to one another. The parlour or "best room" in the small house has no longer the mortuary air which it once had, but this memorandum proposes its abandonment altogether. It is a room only used on special occasions, difficult to keep warm, and apt to become damp and unwholesome. It would be better to add to the size of the living room than to have two smaller rooms one of which is rarely used. Another house convention is the "second" bedroom, presumably where the children sleep. The College, intent on scotching the foolish and unhealthy doctrine that children require less air space than adults, urges that the second should be at least as large as the principal bedroom occupied by the parents. Three bedrooms are regarded as the minimum for families of between two and five persons. Another suggestion is that the local authority should reject any plan for a new house unless it includes a bath with proper arrangements for a piped supply of hot and cold water. It is thought advantageous to place the bath and the water-closet in the same room, for the water-closet is then more likely to be kept in a wholesome condition, and also people are thereby encouraged to wash their hands after using the toilet. The combined bathroom and water-closet should be kept apart from, and not communicate directly with, any public room or bedroom. The kitchen-scullery should be the housewife's workshop, fitted solely for her convenience, and not used as a second living room. The food store, something better than a mere cupboard, should have a northerly aspect, and its external opening should be protected by wire gauze. Perhaps after the war there will be refrigerators for all. Something will have to be done about the dustbin, which is a possible source of contamination as well as an unsightly tail-end to the domestic procession. In block dwellings the "shute" system with movable container is preferable. The College does not come down wholly against the coal fire. It considers it desirable, partly on psychological grounds, that there should be at least one open fireplace burning coal or smokeless fuel.

Up to now houses have generally been constructed for occupation by the married couple with a family, and any differentiation has been on economic grounds. It is useful that housing authorities and private builders should be reminded that houses need to be adapted to the social condition of the prospective tenant as distinct from his purse. There is, for example, the question of houses for the old, which is becoming more important with an ageing population. It is calculated that by 1950 about one person in eight will be over 65. Many old people, of course, are able to live comfortably with relatives; some have to be transferred, on account of infirmity, to institutions; but many require houses, and the College suggests that every housing scheme should include a number of houses suitable for old persons. These would not be of the almshouse type but possibly bungalows, in the construction of which the lessened agility of the old, their liability to accident, and their simpler needs would be kept in mind. When stress is laid, as it is in this memorandum, on the helplessness of old people and the difficulty they have in maintaining personal and domestic cleanliness it is forgotten that the septuagenarian of to-day is a much more lively person than his frequently bedridden predecessor of fifty years ago. He has lived through a generation of health instruction in one form or another; the force of a healthier habit will not be easily broken even by increasing infirmity; moreover, the complaints which attend old age seem now to be less disabling. Nevertheless, it is a good thing that there should be some special houses for the old.

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[1] *Lancet*, 1942, 2, 235.

Similar considerations apply to the housing of the tuberculous and the crippled. The College believes it to be a sound principle not to segregate the tuberculous in colonies, but to have them in the general community, in houses in which at any rate one bedroom is favourably situated as regards access of sunlight and fresh air, and has special windows opening more widely than the usual pattern. There is also the question of the mentally defective, the dirty, and the anti-social. The suggestion is made that certain houses of a rather bleak kind should be designed for the worst type of undesirable tenant, that these houses should include such features as concrete floors, impermeable walls, and, so far as may be, indestructible fittings, and that they should be open to rigid inspection by competent officers of the local authority. Such a system has been carried out in Holland, where these tenants on good behaviour are permitted to "graduate" to houses of a better type.

Flats will continue to be the choice or the necessity of large numbers of people. The College favours a three-story house consisting of a two-story tenement for a family and a single-story flat on the top floor for childless persons. But whatever the type of dwelling, just as no man liveth to himself, so no house is built to itself. The sense of incompleteness which clings about many new housing estates is the lack of community basis. Town and country planning hardly comes within the scope of this memorandum, but it does urge that all housing estates should be grouped around certain centres of public service, education, and recreation. Among these is mentioned a health centre, not in the wider sense in which that term has been used in recent discussions, but the assembly under one roof of all the services of preventive medicine. In this memorandum—which is not the first of its kind which the College has issued: there was a very useful one in 1936 on domestic heating by gas—an important contribution has been made to a major problem, and we hope that its counsels will be duly considered in the rehousing to which the Government intends to give high priority after the war. For the College to give a lead in this important matter of housing in relation to individual health and social welfare is an encouraging sign of the times.

STATISTICS OF VENEREAL DISEASE

During recent discussions on venereal disease various widely differing estimates of the number of patients defaulting during treatment have been made. That such large differences can arise emphasizes the paucity of data on what is an important social and health problem. The deaths resulting from venereal disease are classified and tabulated in the Registrar-General's Statistical Review, but national statistics relating to the incidence of venereal disease are scanty. The number of cases dealt with at treatment centres in England is given in the annual report of the Ministry of Health. The number of cases dealt with for the first time at centres in England and Wales is stated in the annual report of the Chief Medical Officer in slightly greater detail, and totals are given which include and exclude cases transferred from centre to centre and those returned with the same infection after being struck off the books in previous years. These form a considerable number: in 1938 the total number of cases by the first method was 60,800 and by the second 49,415. The deductions that can be made from the statistics published in these reports are that the number of cases of syphilis had been steadily declining in recent years, whilst the number of cases of gonorrhoea fluctuated around a fairly constant level; the ratio of male to female cases was 3 : 2 for syphilis and almost 4 : 1 for gonorrhoea. No further information is published for the country as a whole, although apparently it was available, because in 1936 the Minister of Health was reported[1] as stating: "So far as discharge and tests of cure after treatment were concerned there was an improvement, for in 1925 the percentage was 12.9, whilst in 1935 the figure had risen to 17.5." No indication of the fate of the remaining 82.5% was given. Various speculations on the history of these patients can be made; the easiest guess is that they were not cured and were either incurable or defaulters, but such a conclusion seems too obvious to be true.

Although no information is available from national figures, the reports of the medical officers of local authorities indicate the approximate position. These reports, in which the administrative aspect is naturally important, tabulate the statistics in varying ways and detail. The numbers of cases discharged after completion of treatment and final tests of cure during 1938, which was the last year for which detailed reports are readily available, in the cities of Liverpool, Manchester, Birmingham, and Glasgow were 17.4, 19.2, 21.2, and 20.2% respectively of the total cases treated during the year. The percentages of defaulters were 18.8, 23.5, 15.7, and 26.4. The defaulters can be divided into two classes: (1) those who ceased to attend before completion of treatment (known to be in an infectious condition and responsible for the spread of much disease); and (2) those who ceased to attend after completion of treatment but before final tests of cure. In the former 15.5, 16.2, 10.7, and 16.0% of the total cases defaulted; and in the latter, 3.3, 7.3, 5.0, and 10.4%. Those transferred to other centres amounted to 19.5, 6.9, 8.5, and 12.7%, and those remaining under treatment at the end of the year were 44.3, 50.4, 54.7, and 40.7% of the total cases. If these local figures can be taken as giving a broad picture of the conditions within the country we should expect, for the whole country, the percentage transferred to other treatment centres to be much lower, as only those transferred to private practitioners would appear in this group. The percentage of defaulters might be higher, because in the local returns the transferred cases appear in the denominator. These cases are, in the four cities, more numerous than the entrants by transfer, and it would not be safe to make the assumption that there were no defaulters among transferred patients.

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[1] *Hlth. Emp.*, Sept., 1936, 11, 231.

If adequate national statistics had been made available confusion as to the percentage of defaulters would not have arisen. It is possible that with a percentage of 17.5 patients who completed treatment and tests of cure the defaulter rate was in the neighbourhood of 25–30%, and almost three-quarters of those who defaulted were known to be still in an infectious condition. About half the patients were probably still under treatment at the end of the year.

OPERATION FOR THE ORCHITIS OF MUMPS

The orchitis caused by the virus of mumps may be as acute as the epididymo-orchitis caused by the gonococcus. Within a few hours the testis swells to three or four times its normal size and becomes so acutely sensitive that the patient cannot bear to have it touched. The infection is often associated with a high temperature and sometimes even with delirium. What is still more important is that the acute infection is followed in 54.7% of cases by testicular atrophy due to cell necrosis brought about by the great rise in intratesticular pressure. In 1864 Henry Smith advocated that an acute epididymitis due to gonorrhoea should be treated by multiple puncture of the tunica albuginea. A. Wesselhoeft and S. N. Vose[1] recommend that the same method should be applied to the severe orchitis in mumps. It would indeed seem that relief of the increased intratesticular pressure is more necessary in the case of mumps than in that of gonorrhoea, because the risk of subsequent atrophy in the former case is far greater. The writers emphasize the necessity for intervention before the inflammatory process has reached its peak. In the 9 cases in which they operated sufficiently early the testicle recovered without undergoing subsequent atrophy. In the one instance in which incision was postponed some degree of atrophy followed. For multiple punctures they substitute complete exposure of the swollen organ and a longitudinal, or sometimes a crucial, incision of the tunica albuginea. The operation not only affords an immediate relief of pain but also brings about a rapid fall in the temperature. It is only necessary in the fulminating type of case, which constituted 10 out of the total of 24 cases reported upon. Atrophy is only likely to follow the very acute infections, and the less severe cases need not be subjected to operation.

DIAGNOSIS OF PERIPHERAL NERVE INJURIES

In all medical and surgical practice good treatment is based upon careful investigation and accurate diagnosis. In this war many special problems come to the less experienced in unusual numbers. Among such problems, requiring the most careful investigation in early treatment, are injuries to peripheral nerves, and for this reason alone the valuable pamphlet[2] issued by the Nerve Injuries Committee of the M.R.C. is to be warmly welcomed. This excellently illustrated atlas should prove of great help. It comprises mainly a series of excellent photographs which demonstrate one method of testing the action of every important muscle of each limb. The nerves are taken separately, and the muscles supplied are shown in the order of the origin of their branches from the parent trunk, an arrangement which will be of use in determining the level of the lesion. In the legends the spinal segments chiefly responsible are indicated, and thus further help is given in the elucidation of radicular injuries. Sensory distributions and their variations are represented in line drawings of typical lesions at different levels. With the atlas itself there is little to criticize, it is so good. Among minor points that might be improved is the differentiation of the action of abductor pollicis longus from that of the abductor brevis. It would perhaps have been better if it could have been made clear that during the test for quadriceps action the heel is completely raised off the examination table. The illustrations Nos. 47 and 48 dealing with the action of the tibialis anterior and extensor digitorum longus have been misplaced. The legend 47 refers to 48, and vice versa. The introduction, however, is open to serious criticism, especially because the pamphlet is intended for the inexperienced. There is much obscurity, and even inaccuracy, in the statement concerning the action of a muscle as prime mover, fixator, synergist, and antagonist. The use of the flexor carpi ulnaris as an example is unfortunate. Its action as a prime mover is to flex and adduct the wrist. In the movement of flexion of the wrist it acts as a synergist with flexor carpi radialis. The flexor carpi ulnaris is an *antagonist* (with radialis) "when the wrist is actively extended," and a *synergist* "when the fingers, but not the wrist, are extended." The booklet describes these actions the other way round, and so the inexperienced reader will be led astray. The valuable system of recording the strength of muscular action used by most orthopaedic surgeons for charting paralysis in anterior poliomyelitis is mentioned, but it is a pity that the method of carrying out the test for each of the five gradings mentioned was not described for a representative muscle group. There is paper left bare in the pamphlet, and without such description the reference to the system is not very helpful.

DR. BOYD'S GIFT TO MANCHESTER

The late Dr. Robert Boyd, formerly Chairman of the Manchester Division of the Association, concerning whom an obituary notice appeared in our issue of January 23, made a most generous bequest to the Association for the benefit of his professional colleagues in the Manchester area. The gross value of Dr. Boyd's estate is in the region of £100,000. Subject to certain life interests, the residue of the estate is left to the British Medical Association "to be applied as to as well the capital as the income thereof for the purpose of endowing or contributing to the endowment of a British Medical Association House in the district of Manchester for the benefit and use of all qualified and registered doctors practising in Manchester and the surrounding districts, the power of making regulations for the conduct and use and the powers of managing and administering the said House to be vested in the Governing Committee or Body for the time being of the Manchester Division of the British Medical Association."

"B.M.A. House, Manchester," will be a fitting memorial to Dr. Boyd in his own city. His great gift will, we hope, serve as an inspiration to others, singly or collectively, to establish "B.M.A. Houses" in the principal regions of the country, so that each large grouping at the periphery may have a local habitation and a name.

The Central Council for Health Education has arranged for a whole-day conference on Friday, Feb 26, on "Health Education and the Venereal Diseases." The morning session, from 11 a.m. to 1 p.m., will be devoted to the general problem and will be opened by the Minister of Health; he will be followed by the Archbishop of Canterbury, President of the C.C.H.E. Afternoon speakers will include Lord Winster, Dr. Thomas Garland, and Dr. Hamilton Wilkie

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[1] *New Engl. J. Med.*, 1942, **227**, 277.

[2] M.R.C. War Memorandum No. 7. H.M.S.O., 1942, (2s

ASPECTS OF WAR MEDICINE IN THE R.A.F.

BY

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The first duty of the Service medical officer in war is to maintain the effective strength of his unit by every means in his power. This duty precedes his individual obligations to his patients even as those obligations precede his personal gain; moreover, it charges the medical officer of the Royal Air Force with a threefold responsibility. He must be a sound, responsible, and decisive clinician in both medicine and surgery; he must show an imaginative appreciation of the physiology and psychology of flying; and he must always concern himself not only with the physical welfare of his men but above all with their morale. Failure to recognize this underlies the fallacy that much of a junior M.O.'s work is exasperatingly trivial, whereas an intelligent grasp of this aspect of war medicine enables him to render unique and invaluable service.

Sick Parade

The morning sick parade is one example. On the average station of the Royal Air Force not more than 15 men and 3 or 4 women are likely to report sick on any normal morning. Yet even of that handful several may appear and reappear with melancholy and improbable tales of woe. The daily sick list admits of an immediate division: one section being a minute proportion, constantly changing, of the vast healthy majority who happen to have something wrong; the other a large and more consistent selection from the minority of feeble spirits and faint-hearts—some martyrs to a consuming self-pity, some hopeful scroungers, some simply malingerers, all essentially indifferent to the challenge of this war and unable to accept its reality. Their symptoms, as an escape from disagreeable duties, concern them far more than the purpose of those duties or the need for their performance. Even as neuropaths they are clinically insignificant—trivial in everything but the waste of man-power they represent and the sick-hearted spirit they display. Yet unless the M.O. succeeds with them their numbers may increase until the sick parade itself swells and the efficiency of the station begins to decline. Here the M.O.'s function is mainly interpretative. From the resources of his own conviction he can give them insight not only into the shallow inadequacy of their symptoms but also into the nature of their obligations. Simply, vividly, in a few words he can make them see that sick quarters exist to give help and encouragement but not sanctuary, to maintain or restore fitness rather than to excuse on grounds of ill-health. The reality of war needs emphasizing to many whose nearest approach to it was the sound of a bomb "in civvy street"; but the explanation must be crisp and vital, its implications focused on the job of each individual. After this "pep-talk" the relations of the patient and the M.O. are on firmer ground, a placebo if indicated becomes a tonic, and resolve may well be rekindled: without it, rebuke, no matter how just, may fail.

It is easy for an unreflective tradesman in the R.A.F. to imagine that he will never be called upon to fight for his life or his unit with his hands or a gun. That is the business of the Army—or the "Ground Defence," as the R.A.F. Regiment was previously called. He feels no thirst for battle; he is a rigger or a flight-mechanic, not a soldier: so runs his mind. So when he is included in the Emergency Reserve or sent on a "backers-up" course he is tempted to react by reporting sick. This is not his trade, not what he joined the R.A.F. to do; if he'd wanted to be a ruddy soldier he could have waited until he was called up for the Army.

At this point the M.O., faced by a querulous patient with his grievance thinly disguised as a vague ache or "terrible pains," has a chance once and for all to prise the scales from those unwilling eyes. Even the most skilled artisan is useless with a bayonet through his belly; and we may all share that fate unless each can help to avert it by his own efforts, as well as practise his specialty. The man who requests a chit excusing him from elementary combatant training may justly be asked to whom he intends to present it: to the German paratrooper who is about to kill him? Does he suppose that the trouble of learning a soldier's job when he already has a trade warrants its evasion, even in his own interests? Might it not perhaps be better to learn all he can about how to fight on the ground? The enemy forces who will attack aerodromes will be the best-trained and best-equipped troops available. When they arrive, will ignorance then be bliss? The airmen who were massacred on the aerodromes at Crete learnt too late the answer to that question.

By this time the trivial ailment occupies a less prominent place in the airman's mind. Such essentially belligerent medicine is an inevitable daily routine with the Service M.O.

The M.O.'s Great Responsibility

But it is in his relations with his air crews that the highest degree of responsibility rests upon the M.O. He must be their friend, their adviser, and sometimes to the younger members of his squadron their elder brother. He must inspire their respect as a man as well as their confidence as a doctor Apart from the preservation of their health, in itself a considerable undertaking, he must ensure that they fully understand the essentials of first aid in the air, the use of oxygen, the effect of pressure changes at altitude on their bodies, and the relevant facts about venereal disease.

To give his advice about first aid in the air a background of experience, to widen his own horizon, and to enter as completely as he can into the realities of their existence, he should take every available opportunity of flying with the crews in the squadron aircraft. If he is keen, willing, and unassuming about this he will not find such opportunities hard to secure. The familiarity that flying by day and night will give him with the problems of space and stowage in twin- or four-engined aircraft, the position and accessibility of first-aid outfits, and the difficulties of movement in full flying kit will sooner or later stand him in good stead: for after a crash with bombs on board, followed by fire—one of the most serious and urgent disasters that confront an M.O.—there is a space of minutes only in which to effect rescues before the bombs explode. The use which can be made of this period depends on the M.O.'s knowledge of the crews' positions in the aircraft and their ways of escape. The respect and confidence that an M.O.'s performance in such crises will command among the flying men in his squadron, coupled with the companionship gained from having had him fly with them, will equip him to fulfil his surpreme obligation—the responsibility that he shares with the squadron and flight commanders for the maintenance of air crews' morale.

This is not the place to discuss the details of that responsibility or the problems of its fulfilment. It is enough here to say that the guidance and instruction so freely proffered to the young M.O. by the R.A.F. Medical Service are positive and intellectually acceptable; once understood, enriched by experience, and applied with courage, imagination, and common sense, they increase substantially his value as a doctor. His task is not easy, nor is it always pleasant. Decision and responsibility rest more heavily and more individually upon him than ever they did in his days as a house-officer. But in the indispensability of this special service lies its merit and its reward.

Another feature of the M.O.'s life is general medical instruction. Apart from his lectures to air crews, he is responsible for the training of his staff in sick quarters and for the guidance of airmen in simple hygiene and first aid. Under present conditions it is not practicable to give all the airmen on a station an extended course of medical lectures. Postings overseas, courses, and the usual changes of station personnel preclude this even if it were desirable. But it should be possible to tell airmen all that they need to know about first aid in one lecture, of which the recognition and treatment of shock are the keystone. Haemorrhage, fractures, burns, penetrating wounds, and unconsciousness can all be introduced and related to the central theme, in diagnosis and treatment. The men will probably then know at least enough to do as little as possible to a gravely injured man without forsaking common sense for rule of thumb. The idea that first aid is a special subject with a literature and academic tradition of its own has always seemed to me to be a dangerous presumption. A course of lectures with apparently detailed and separate instructions for various types of injury may rob men of their precious natural humility in the presence of physical disaster without really equipping them to relieve it. It is not in the patient's interest that the partly trained should feel a surgical confidence.

Training of Medical Orderlies

The training of medical orderlies calls for a different approach. They make up a small but essential section of the station, directly under the command of the M.O. They are recruited largely from completely untrained and inexperienced civilians, and, apart from an initial six-weeks course, are wholly dependent upon the M.O. for their instruction, the interpretation of their duties, and the inspiration to perform them to the utmost of their ability. He in turn is dependent upon their loyalty, efficiency, and enthusiasm for the smooth running of his department and its reliability under all conditions; for he will have no highly trained sisters or nurses to appreciate the immediate medical implications of an emergency or anticipate his needs in a time of stress. His staff will reflect the value of his teaching and his example; it behoves him always to remember that. The very obligation is stimulating: to teach as well as to treat, to explain as well as to diagnose. This involves both lectures and demonstrations. In practice it is a sound plan to include teaching rounds in the ward whenever there are suitable cases, as this not only stimulates interest and accustoms orderlies to observation at the bedside but also gives them a feeling of studentship which they enjoy and which fosters discipline and loyalty to their officer.

He must display leadership and a capacity for organization as well as professional ability, for the grouping and handling of medical resources in men and equipment are also among his responsibilities. Practical schemes for dealing with casualties from land or air attacks, from crashes, or from aircraft returned with wounded on board demand constant practice and revision. Simplicity cannot be too highly prized in such schemes. Under the impact of extreme crisis—for example, collision of two bomber aircraft on a runway while landing at night, with perhaps eight seriously injured men in urgent need of trained attention—the simple, easily remembered routine with its scope for elasticity and improvisation under the immediate orders of the M.O. will steady the orderlies, whereas a more elaborate organization delegating complex individual duties to each member of the staff may break down.

Every orderly can, however, be trained in the essentials and rationale of anti-shock treatment, including the administration of morphine by tubunic ampoules, in the control of haemorrhage, the utmost gentleness in handling fractures, the preparation of a trolley for intravenous injection or anaesthesia, and the technique of sterilizing instruments and assisting at minor surgical operations. Above all they can be imbued with enthusiasm and a feeling of confidence and pride in their performance as a team under the guidance and leadership of their M.O.s.

Conclusion

Because of all this the M.O.'s job in the R.A.F. is an extremely important and responsible one. His knowledge of general medicine and surgery is by no means doomed to decline on a station; rather will he gain a breadth and background to his judgment, increased by the necessity for independent action and decision in many cases. He will encounter the special psychological problems of modern flying, and may gain personal experience of flight in modern operational aircraft. No matter how young he is, his position in the community of his brother officers is established; to them he is "the Doc."—to be consulted at all times and in all places. He is expected to advise his commanding officer on all matters relating to the hygiene and health of the unit—advice to which a good commanding officer attaches considerable importance and upon which he acts.

To the unit as a whole, the M.O.'s capabilities and attitude to his job are equally important. Service life has meant changes and sacrifices for them far more fundamental than those he has to accept—the diversion of his career and the severance, at any rate for some time, of his hospital connexions. He is bound still to follow his vocation; the least he can do is to display the utmost energy and enthusiasm for its every aspect.

The aspects that have been stressed here are perhaps less obvious than the more material and generally recognized responsibilities for the care of the sick and injured, the supervision of sanitation, and the keeping of medical records. But they are no less exacting; moreover, they are vitally important, because indifferent morale can rot the fittest body of men. The influence of a medical officer on the morale of his unit—the inescapable obligation for its upkeep that he shares with his senior officers—inspires with an Aesculapian touch his first duty: to maintain the effective strength of his unit by every means in his power.

AN INVESTIGATION INTO THE STANDARD OF MILK SUPPLIED TO CHILDREN

BY

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The British Paediatric Association recently organized an inquiry into the standard of milk supplied to children throughout the country. It is felt that the findings would be of interest to the medical profession and should be made more widely known. This article is based on information so received from eight separate areas in England, Wales, and Scotland, representing a London borough, a Scottish city, a West of England city, a South Wales urban area and a South Wales rural area, two Northern industrial towns, and a Midland county. As the reports received were in the nature of confidential comments the areas are subsequently designated by the initial letters A to H.

Results of Questionaries

A questionary was sent to each area and the following is a summary of the replies received:

1. Is there any Evidence of an Increase in Bovine Tuberculosis in Children Since the War?

Area	Non-pulmonary Tuberculosis			
	1938	1939	1940	1941
A*	—	—	—	—
B†	120	126	107	143
C	30	36	29	54
D	No increase			
E	,, ,,			
F	,, ,,			
G	—	527	—	664
H	No increase			

* Double the number of cases of meningitis in 1938 as compared with 1941.

† From P.M. material: 1935–9, 15·7% primary abdominal; 1940–1, 58·3% primary abdominal.

Accurate evidence on this point has been difficult to obtain owing to the shifting population. Some observers report a clinical impression of an increase, especially of tuberculous glands in the neck.

2. Is there any Evidence of an Increase in Tuberculous Cattle Since the War?

Area A.—Samples of milk containing tubercle bacilli:
1938, 8%; 1940, 5·3%; 1941, 6%
Areas B, C, and D.—No evidence
Area E—Cases dealt with by Ministry of Agriculture and Fisheries:
1939, 267; 1940, 192; 1941, 164
,, F.—No evidence
,, G.—Samples of milk containing tubercle bacilli:
1939, 9·4%; 1940, 6·3%; 1941, 6·0%
,, H.—No evidence

Evidence on this point has been difficult to collect, as tuberculin testing has been reduced, slaughterhouse statistics are no longer reliable owing to different allocation of carcases by the Ministry of Food, and there is a shortage of inspectors.

3. Is there any Evidence of an Increase in Milk-borne Infections, other than Tuberculosis, Since the War?

Area A.—No evidence
,, B.—Increase in notification of undulant fever
Areas C, D, and E.—No evidence
Area F.—? Increase in gastro-enteritis due to milk?
Areas G and H—No evidence

In a personal communication Prof. G. S. Wilson of the Emergency Public Health Laboratory Service states that in the area covered by that service there have been two small outbreaks of undulant fever, three outbreaks of dysentery due to the Sonne organism (one of them involving over 1,000 people), two outbreaks of diphtheria, and one of typhoid fever, all due to the use of raw milk, and one of paratyphoid fever probably due to its use.

4. What Percentage of Milk is Pasteurized?

Area A.—70 to 75% sold as pasteurized
,, B.—40%—not all sold as such
,, C.—30%
,, D.—65%
Area E.—60%
,, F.—90%—only 50% sold as such
,, G.—80%
,, H.—40%

Several areas comment on two points: first, that not all pasteurized milk is sold as such; and, secondly, that any heat-treated milk is often erroneously referred to as pasteurized.

5. What Percentage of Milk is Sold Ungraded?

Area A.—12 to 15%
,, B.—70%
,, C.—50%
,, D.—32%
Area E.—?
,, F.—48%
,, G.—2 to 3%
,, H.—40%

6. Has the Bacterial Content of Milk Changed Since the War?

Area A.—Higher bacterial content. Pre-war, 10% pasteurized milk failed to pass test; post-war, as high as 50% at times
,, B.—Higher bacterial content One district reports samples over 100,000 orgs./c.cm.: 1938, 11%; 1939, 19%; first half 1940, 35%
,, C.—Higher bacterial content. One district reports: "Still as bad as ever"
,, D.—Higher bacterial content
,, E.—25% samples of "accredited" milk unsatisfactory
,, F.—Higher bacterial content
,, G.—No change
,, H.—Higher bacterial content

7. What Standard of Milk is Supplied to Nursery Schools and Day Nurseries?

Area A.—Pasteurized
,, B.—Variable
,, C.— ,,
,, D.—Pasteurized
Area E.—Accredited or pasteurized
,, F.—Pasteurized
,, G.— ,,
,, H.— ,,

8. What Standard of Milk is Supplied to Schools?

Area A.—Pasteurized
,, B.— ,,
,, C.—Variable
,, D.—Pasteurized
Area E.—Accredited or pasteurized
,, F.—Pasteurized
,, G.— ,,
,, H.—Variable

9. What Standard of Milk is Supplied to Children's Hospitals?

Area A.—Pasteurized or T.T.
,, B.—Variable
,, C.—Ungraded
,, D.—T.T.
Area E.—?
,, F.—Pasteurized
,, G.—T.T.
,, H.—Pasteurized

10 Do Welfare Centres Mainly Recommend Liquid or Dried Milk?

Area A.—Liquid
,, B.—Dried
,, C.— ,,
,, D.— ,,
Area E.—Liquid and dried
,, F.—Dried
,, G.— ,,
,, H.— ,,

11. What Proportion of National Dried Milk is Used?

Area A.—11%
,, B.—20%
,, C.—30%
,, D.—High proportion
Area E.—Hardly any
,, F.—55%
,, G.—Hardly any
,, H.—90%

12. Are You Satisfied with the Standard of Milk in Your Area?

Area A.—No
,, B.—No
,, C.—No
,, D.—Yes
,, E.—No
Area F.—Only one sample of pasteurized milk in 1942 failed to pass standard
,, G.—No—so long as 6% samples contain tubercle bacilli
,, H.—No

13. What Standard of Milk do you Recommend?

Area A.—Dried milk for infants; pasteurized for older children
,, B.—Dried milk up to 9 to 12 months old; pasteurized for older children
,, C.—Dried milk for infants; pasteurized for older children
,, D.—Good quality milk from a herd free from tuberculosis. All fresh milk to be scalded
,, E.—Dried milk or pasteurized
,, F.—Dried milk up to 12 to 18 months old; pasteurized for older children
,, G.—Dried milk for infants; pasteurized for older children
,, H.—T.T. and bacteriologically clean

Comments

In a field survey of this kind it has not been possible to obtain accurate figures, but, representing as it does the findings of paediatricians in their respective areas, it is disquieting to note that so many are dissatisfied with their milk supply. Comments received from medical officers of health also suggest that they too are concerned about the problem, with little if any power to correct matters. It would, however, seem possible for health authorities at least to ensure a safe milk supply for children in their nursery schools, day nurseries, schools, and hospitals.

The fact that certain areas report 6% samples of raw milk containing tubercle bacilli is a reflection on our cattle supervision, but it must not be forgotten that, although tuberculosis is perhaps the most serious of milk-borne infections, it is by no means the only one, and measures such as tuberculin testing of herds deal with only half the problem, and not too well with that half. There is no alternative to pasteurization, which alone can prevent all milk-borne infections.

The problem of efficient pasteurization is many-sided, and therein lie its difficulties. One medical officer of health reports that of three firms selling pasteurized milk in his area only one, as judged by the phosphatase test, is satisfactory, yet little attempt is made to bring offenders to book. If milk below the specified fat content is sold fines are readily imposed, but the selling of milk improperly pasteurized is too often ignored by legal, health, and sanitary authorities alike. Perhaps the commonest faults in pasteurization are inefficient cooling of milk at the farms and delay in transport to the pasteurization plants, both accentuated by wartime conditions. This can only be corrected by proper inspection by responsible authorities. To examine the plant only is not enough; if milk is to be pasteurized it must be of a sufficiently high standard of bacterial cleanliness, otherwise rapid souring may take place. As Wilson (*The Pasteurization of Milk*, 1942, London) says, "Though it may make a dangerous milk safe, pasteurization can never make a dirty milk clean."

That so little has been done by responsible authorities, including the Government, to tackle the problem of safe milk in spite of urgent recommendations by such bodies as the B.M.A., the Royal College of Physicians, and more recently the M.R.C. Committee on Tuberculosis in Wartime, is an indictment on our preventive-medicine policy. The M.R.C. Report sums up the situation by saying: "If all milk for human consumption were pasteurized in licensed plants under adequate supervision, it is no exaggeration to say that tuberculosis of bovine origin would be eliminated." Why, then, cannot this be done, with the example of the U.S.A. and Canada before us? In a personal communication Dr. Enid Williams says that in a small number of cases of tuberculous meningitis which she has investigated 50% were found to be due to the bovine bacillus. Here we have a fatal disease untouched by clinical therapy, yet preventable in a large proportion of cases by safe milk. There is no other field in which preventive medicine can hope to achieve such dramatic results. If the British Paediatric Association's findings can help to stimulate the powers that be to legislate for a safe milk it will have served its purpose.

Summary

The following recommendations have been made by the British Paediatric Association as the result of the above investigations, and have been forwarded to appropriate authorities:

1. All milk to be efficiently pasteurized. Increased inspection of cooling facilities on farms and pasteurization technique is essential.

2. These investigations revealed that the safeguards to ensure that pasteurization is efficient are not reliable, and it is recommended that steps be taken to remedy this state of affairs.

3. Until all milk is efficiently pasteurized the public should be instructed to scald all liquid milk for children up to 5 years of age, but preferably dried milk should be used for infants.

The services of the family doctor are to be called on as part of the Ministry of Health's campaign for the immunization of all children against diphtheria. The Ministry (Circular 2753) points out that, in response to its first appeal in the early part of last year, local authorities concentrated on school children and those of pre-school age attending maternity and child welfare centres, as the centres were the obvious places for immunization of the child population. But the time has come, the circular continues, to find out just which children in an area are not yet immunized, and for the local authority to make whatever arrangements are necessary to deal with the position. If for any reason a child cannot attend a centre, immunization should be carried out at home by the family doctor. Doctors should be asked to undertake this work, the local authorities informing them at the same time of the fee they are prepared to pay for the service. The prophylactic will be supplied in suitable containers free of cost. It is pointed out that this domiciliary immunization should not be regarded as precluding doctors from being employed at centres, but as supplementary to their work there.

Reports of Societies

RADIOLOGICAL DIAGNOSIS OF DISPROPORTION

At a meeting of the Section of Obstetrics and Gynaecology of the Royal Society of Medicine on January 15, Dame LOUISE MCILROY presiding, the subject of discussion was the radiological diagnosis of disproportion.

Prof. J. CHASSAR MOIR said that the question of fit or misfit, adjustment or maladjustment, was ever present in obstetrics, and radiology would solve some of the problems which remained obscure on clinical examination. Three radiological views of the pelvis were desirable, though with careful clinical examination one or even two of these might be unnecessary in a given case. The lateral view was by far the most important in any single examination. He proceeded to speak from an experience of 410 obstetric cases examined radiologically. This had been done in the later weeks of pregnancy, partly because he was reluctant to subject the young embryo to mass radiation, and partly because it was in the later stages that the foetal head could be better defined.

With regard to the value of cephalometry he found on an analysis of 82 cases that in 75 the forecast was correct to within 1 mm. over and 3 mm. below the stated figure. In 2 cases the head was less than the stated figure by more than 3 mm., and in 5 it exceeded the stated figure by more than 1 mm., but these were all cases of abnormally shaped heads. In approximately 90% of cases radiography gave a useful estimate of the size of the baby's head. He believed the growth of the foetal head to be from 1 to 1.5 mm. per week during the last weeks of pregnancy; this was borne out by measurements of the rate of growth after birth. The most important of the measurements in radiological diagnosis was the conjugate measurement of the brim. The pelvic brim should not be regarded as a kind of sieve, and it should not be thought that any head which could pass through the brim would also negotiate the lower reaches of the pelvis.

Maternity hospitals were increasingly asked to provide facilities for normal confinements, but there were also women who elected to be, but should not be, confined at home. It might be said that this should not happen if ante-natal examination were properly performed, but at present there were not enough ante-natal examiners. Radiology could differentiate between those patients in whom delivery would be easy and spontaneous and those in whom difficulty might arise. The time might come when all women entering their names for domiciliary midwifery would be radiologically examined as a routine. Patients who had an unreasonable fear of obstetric difficulty might be reassured by a radiological examination. Obstetric radiology had been criticized on the ground that it emphasized certain features of the birth process and ignored others which also played a major part in deciding the course of labour. But disproportion was one of the greatest causes of difficulty at birth, and it was here that radiological examination had its use. Some feared that the use of radiology would lead to unnecessary surgical intervention, and this was possible when bad radiology was combined with bad obstetrics; but a similar misgiving might obtain when radiology was used in examination of fractures and other conditions. Radiology had oftener influenced him against Caesarean section than in its favour. The obstetrician's clinical judgment was improved by the increased knowledge of the birth mechanism which radiology afforded. But it was not a short cut to the solution of every problem of birth mechanics. Some people endowed radiological reports with an infallibility which was quite mistaken, to the disadvantage of obstetrics and radiology alike. In its proper place obstetric radiology was a valuable adjunct to clinical methods.

Dr. E. ROHAN WILLIAMS said that his personal experience was virtually confined to ante-natal examination. In 1941 an *x*-ray department was opened at Queen Charlotte's, with facilities for the examination of out-patients, but the provision of an *x*-ray unit for the labour ward had been delayed by the war. The radiologist might be said to have a special responsibility when there was disproportion in the mid-plane or at the outlet of the pelvis. It was, of course, in borderline cases that the clinician was most likely to seek radiological help, and it was precisely in these that radiology might still leave the matter in doubt. It was in such cases that he had hitherto been too pessimistic about the value of radiology, but his own judgment had improved since charting in two projections—a method which he illustrated by means of a film—had been done as a routine. He believed that this charting offered a fair and reasonable basis for forming conclusions on the relative proportions of foetal head and pelvis.

Dr. CLARK NICHOLSON said that it was an advantage to have got away from the consideration of the shape of the pelvis and to consider its size only. He had been concerned with pelvic measurements now for ten years and had a series of over 700, mostly normal, cases, but he thought it quite reasonable to argue from the normal to the abnormal. The average foetal head entering the average maternal pelvis occupied no more than 55% of the area, and, from his calculations, if the proportion of the foetal head to the maternal pelvis exceeded 75% (or more probably 80%) the case might be defined as disproportion. Disproportion therefore could not arise in the average pelvis. But the foetal head was not the only part which could cause disproportion; the over-weight foetus was also a problem, quite apart from the size of the head. With regard to the outlet, the average measurement, taking the area of lowest pelvic diameter, was 108 sq. cm. Here the proportion of 80% did not hold good. The outlet was a different matter altogether from the inlet. He thought the outlet to be capable of enlargement, certainly much more than the inlet. The brim was more or less fixed; it could alter its shape a little but not its size, whereas the outlet could undoubtedly be enlarged by tilting of the bones which formed it. It was time to consider why disproportion arose at all. It was largely a question of pelvic contraction, and the governing factor was nutritional defect. If malnutrition were dealt with thoroughly disproportion would disappear very largely within the next generation.

FUNCTIONS OF THE PYLORIC CANAL

At a meeting of the Section of Anatomy and Physiology of the Royal Academy of Medicine in Ireland, with the president, Prof. J. F. DONEGAN, in the chair, Dr. J. W. MILLEN read a paper on the subdivisions of the stomach.

Dr. Millen said he wished to draw attention to the normal subdivisions of the human stomach, and, in particular, to the importance of the pyloric canal as a distinct region which differed in its anatomy, mobility, and function from the other divisions of the stomach. In the normal adult human stomach three primary parts could be recognized: (1) a region for reception and storage—this was the primary function of the stomach, and in this sense the stomach was present in all but the lowest invertebrates; (2) a terminal closure mechanism—the pyloric sphincter—which assisted in the maintenance of storage; (3) an active milling region—the pyloric canal—for the physical trituration and fine subdivision of food; this region was interposed between the first and second parts. The receptive storage region comprised the body and fundus of the stomach and a more or less well-defined part—the pyloric antrum—specialized for the active filling of the pyloric canal. *X*-ray photographs of the stomach of a young adult showed that in the early stages of canalization of the empty stomach by an opaque meal the food did not at once enter the pyloric canal. When a small amount of the meal was manually pressed into the pyloric canal the longitudinal folds of the mucous membrane could be seen in the canal, and the pyloric sphincter at its distal end was well defined. After about half a pint of the meal had been given further pictures showed that the pyloric canal had now become rounded and globular in shape, but was still distinctly recognizable as a separate region filled from the pyloric antrum by deep peristaltic waves which traversed it. In approximately one-third of the dissecting-room subjects examined no pyloric canal could be defined, the whole stomach consisting of a single cavity closed distally by the pyloric sphincter. In two-thirds of the subjects examined the normal subdivisions described above were to be found. The absence of a pyloric canal in the first group was thought to be due to its incorporation in the proximal part of the stomach, and this might represent a shift towards the single-chambered stomach of the adult carnivores. He concluded that the pyloric canal had, therefore, two functions: first, as an active milling region; and, secondly, in the emptying of the stomach, either as an active or passive region co-ordinated with the body of the stomach. Congenital hypertrophic stenosis of the pylorus—a hypertrophy of the pyloric canal and not of the pyloric sphincter—might, therefore, be due to the pyloric canal functioning as a mill, but failing to act in harmony with the proximal part of the stomach in its function as a part of the emptying mechanism.

Correspondence

“Calorie Control” Diabetic Diet

SIR,—Dr. A. C. Crooke and Miss Ella Scott have described (Jan. 16, p. 64) a “new dietetic treatment” of diabetes which so radically contravenes accepted dietetic principles and, still worse, the known physiological facts of insulin action on blood sugar and carbohydrate food, that I hurry to criticize the system and the statements therein. In a way I am glad it has been published because several patients on the scheme have been referred to me and I found them as mystified as I was.

The essential new feature in the scheme is the assumption that carbohydrate, protein, and fat (C.P.F.) have the same effect on the diabetic metabolism and are replaceable and equivalent in the diet if they contain the *same number of calories*. The diet prescribed is to be weighed to the last 1/4 oz. of butter, and an accurate list is given of the weights of all foods, C.P. and fat, containing 50 calories: 1/4 oz. of butter and 3/4 oz. bread (each 50 calories) are interchangeable, and it appears that the carbohydrate of any meal, usually thought necessary to balance the action of the insulin dose, can be replaced by protein and fat without any concern. “Thus a patient can take a protein and fat breakfast of bacon one day and a carbohydrate breakfast of cereal the next.” I know that my diabetic patients would develop serious hypoglycaemia if they replaced their breakfast carbohydrate by equicalorie protein and fat, and can hardly believe that Dr. Crooke can maintain the contrary. Does he really mean this or do I misunderstand him?

Dr. Crooke states that, although the new diet often requires more insulin, the glycosuria is less and insulin reactions are not increased; which latter fact surprises me if his patients apply C. ⇄ P.&F. substitution. But do these patients really follow and apply the principles of the diet? All the cases who have been referred or transferred to me had no scales, never weighed the diet, and did not understand or indulge in calorie exchange; they ate enough C. to buffer their large doses of insulin and followed, if anything, the sample diet in Table I. These may be exceptional cases, but as 1/4 oz. scales have hardly been available on the market since June, 1941, I do not see how the diet could be applied at home. Has Dr. Crooke provided the scales necessary for his scheme?

The article contains several statements and conclusions which it is impossible to appreciate as insufficient facts are given, and so I ask a few questions: (1) Results are given on a group of patients on the new and old diet, but the level of the new diet is insufficiently mentioned and the old not at all. What were they? (2) He states: “It has long been our custom to give patients who are not excessively obese a diet which corresponds as nearly as possible to that which each individual might be expected to take if he had not got diabetes.” Does this apply to the old and/or the calorie diet? If so, this sounds like a free diet (eat what you please), so why bother about a diet system and a weighed intake? (3) His insulin cases are classed as severe if on more than 60 units a day, as mild if on less. Surely this indicates the use of very large doses, as most people would call a case on 50 to 59 units a severe one, and the vast majority of my patients have under 60 units a day.

I have written many letters in your correspondence columns, but never before in such a critical and challenging spirit. But I feel that the fundamental principle propounded of unconcerned replacement of carbohydrate by equicalorie protein and fat is untrue and dangerous for insulin cases.—I am, etc.,

London, W.1. R. D. LAWRENCE.

SIR,—Dr. Lawrence is mystified by the simple diabetic diet which was described in your issue of Jan. 16 (p. 64). He asserts that the essential new feature of the scheme is the assumption that carbohydrate, protein, and fat have the same effect on the diabetic metabolism. This assumption was never made by me or any other thinking person. There can be no misunderstanding, however, that the diet is designed so that carbohydrate foods may be exchanged for protein or fat foods of the same calorie value within the limits of experiments described in our paper. These experiments were designed so that the daily variation in the proportion of carbohydrate to protein and fat exceeded anything that any ordinary patient might be expected to indulge in. He says that if his patients replaced their breakfast carbohydrate with protein and fat they would develop serious hypoglycaemia, but when our patients replaced their breakfast cereal with bacon or eggs no hypoglycaemic symptoms occurred.

Dr. Lawrence is worried because the new diet contravenes the accepted dietetic principles, but he ignores the fact that it has worked most satisfactorily in a series of 528 diabetic patients during the past eighteen months. The only exceptions have been a few patients with long-standing diabetes mellitus who refused to continue with it because it was against their own principles. Several of these have devoured all the bacon, eggs, and even butter that has come in for a household of 4 or 6 people, and they have been enraged when they have been told that this is unnecessary. Fortunately, these greedy people are very exceptional, but they so resent being given our new diet that perhaps Dr. Lawrence has met some of them.

Dr. Lawrence is also worried because the new diet contravenes the known physiological facts of insulin action on blood sugar and carbohydrate food, but he cannot have read the paper by Prof. Ellis referred to in our article. Prof. Ellis showed that when a patient's diet was changed from the ordinary type, in which the daily intake of carbohydrate, protein, and fat was kept constant, to a diet of 600 g. of glucose only for periods up to three weeks the patient's insulin requirement became progressively less. It is upon this physiological observation that the principle of the calorie control diet rests. Dr. Lawrence states that I said that patients on the new diet often require more insulin. His statement is misleading. Actually, patients' insulin requirements were found to have increased only when the value of their new diets exceeded that of their old ones by more than 50 calories. When the values of the new diets were the same as those of the old ones the patients were found to require less insulin than they would have done if their diets had never been changed. This is because they were able to take a relatively higher proportion of carbohydrate, and it is in keeping with Prof. Ellis's observations.

Dr. Lawrence asks for details of patients' diets. A typical example of an old diet for a working man would be carbohydrate 230 g., protein 90 g., and fat 80 g. This would usually be replaced by a new diet of 2,000 calories. These diets were tabulated for the 192 cases which were analysed, but the table was much too big to include in our article. Nor was it necessary to include it because we were concerned with the statistical results of treatment in three groups of cases. In the first group the new diet was more than 50 calories in excess of the old one; in the second it was within 50 calories of the old one; and in the third it was less than the old one by more than 50 calories. Dr. Lawrence then asks if it is not really a “free diet” when we give patients a diet which corresponds as nearly as possible to that diet which each individual might be expected to take if he had not got diabetes. This is obviously not so, for the whole object of the diet is to keep the calorie value of each meal constant from day to day. Finally, he objects to the classification of diabetes as severe when patients require 60 or more units of insulin a day and mild when they require less than 60 units a day. This classification is arbitrary, and was designed to see if there was any statistical difference in response of the different groups to treatment. It happened that all groups did equally well on the new diet.

We do not provide our patients with food-weighing scales. They are very difficult to get, but many patients have their own. We urge all those who have none to try to buy them in the local shops or to borrow them from friends. It would be interesting to know if Dr. Lawrence provides his patients with scales with which to weigh his own diets.—I am, etc.,

London Hospital A. C. CROOKE.

Dietetics of Pregnancy

SIR,—Will you allow me to make as briefly as possible some criticisms of your leading article entitled "Dietetics of Pregnancy" (Jan. 2, p. 16).

1. Your leader writer purports to quote the conclusions of Nixon *et al.* What they have shown is as follows: (*a*) In a group of toxaemic patients the mean rate of excretion of aneurin was significantly less than in a group of non-toxaemic patients. (*b*) In a group of toxaemic patients the mean aneurin concentration in the placenta was significantly less than the mean concentration in the placentas of a group of non-toxaemic patients. (*c*) They also showed, though they did not comment on this finding, that the mean weight of the placentas of this toxaemic group was roughly half that in the non-toxaemic group.

Since no attempt was made to discover how far the lesser rate of aneurin excretion in the toxaemic group was associated with deficiencies in renal function (which might reasonably be expected to be more frequent in this group than in the non-toxaemic group), the assumption tacitly made by Nixon *et al.*—that the lower mean rate of aneurin excretion in this group implies a difference in nutritional state—is certainly not proven. They use the data for aneurin content of the placenta to support the notion of aneurin deficiency in toxaemic patients, but they fail to draw attention to the fact that in a group of patients in which the mean placental weight is *half* normal the placentas are certainly not normal in constitution, and differences in concentration of a variety of chemical constituents are to be expected in such patently abnormal tissues, quite apart from any changes of nutritional state.

It will be seen that, although Nixon *et al.* have established relations of interest, their conclusions are not the only or even the most probable ones that can be drawn from their data. In any event, the extent to which they imply that aneurin deficiency may occur in toxaemia is that they say: ". . . It is suggested that vitamin B_1 might be beneficial to such patients." This appears in your leading article as: "Nixon, Wright, and Fieller, who find a highly probable correlation between suboptimal intakes of aneurin and the incidence of oedema and pregnancy toxaemia."

2. The qualifications of your leader writer for the critical appraisal of quantitative data are demonstrated clearly in the following passage dealing with the work of Williams and Fralin:

> "Their subjects, according to their own statement, failed to demonstrate 'any positive relationship between dietary adequacy and the occurrence of certain complications of pregnancy and childbirth'; *yet this is not altogether consistent with their observation that '84% of a group who presented a history of nausea and vomiting in early pregnancy had an intake below the pregnancy standard of 600 units of vitamin B_1.'* It must be noted, moreover, that of their 514 cases only 10 were receiving diets that 'could be termed good,' so that positive controls were largely lacking in this investigation."

The italics are mine. The figure of 84% may have a meaning when it is compared with the corresponding figure for patients not showing nausea and vomiting; but in view of the fact that 504 out of 514 patients in the series (i.e., 98%) are on diets that were not good, it seems probable that at least as great a proportion of those not suffering from nausea and vomiting might have been on a diet containing less than 600 I.U. of aneurin daily. There is, of course, the point that nausea and vomiting might more properly be called diagnostic features of early pregnancy, but this point is secondary to the present discussion.

3. Your leader writer experiences the same difficulties in dealing with figures in his treatment of the work of Tisdall and his colleagues. Numerous points of importance in the evaluation of this work seem to have escaped him. Some of them are discussed below.

(*a*) In the paper in the *Journal of Nutrition* the authors, in referring to the supplemented-diet group, say that they were "on an especially poor diet until the *fourth or fifth month* of pregnancy and then received extra food from us." In the paper in the *Canadian Medical Association Journal* they say (p. 2, col. 2): "90 women who were on poor diets until the *fifth or sixth month* of pregnancy and were then given extra food until 6 weeks after delivery . . ."; but in the summary of this paper they say (p. 5, col. 2): "Milk, eggs, tomatoes, oranges, and cheese were supplied to 90 of the women from the *fourth or fifth month* of the pregnancy until four weeks after discharge from hospital." The discrepancy between the second of these statements and the others is of some importance. The authors report a high frequency of "miscarriages" in the poor-diet group compared with that in the supplemented group. "Miscarriage" in this country denotes expulsion of the foetus before the 28th week of pregnancy. It occurs far more frequently before than after the end of the 4th month.

If miscarriage means to Tisdall *et al.* what it means in this country, the frequency of miscarriages in the period of the experiment is surprisingly high, even in the supplemented group, whether we take it that the supplementing began at the beginning of the fourth month for the majority of patients or at the end of the sixth month.

These weaknesses of definition are such that it is clear that the data are not fit to indicate relationships of importance in this field, let alone to support any edifice of policy.

(*b*) Tisdall *et al.*, in the regrettable clinical fashion, present their results as percentages. Any of your readers who has had the curiosity to convert the percentages referred to in your leading article into numbers of cases will have come across a puzzling and unsettling phenomenon. The figures reproduced by your leader writer for the numbers of patients in the groups (120 poor diet, 90 supplemented, and 170 good diet) are correctly reproduced, as are the reprinted percentage frequencies of threatened miscarriage, actual miscarriage, premature birth, stillbirth, and toxaemia. But when an attempt is made to derive the actual number of cases falling into each category, we have:

	Poor	Supplemented	Good
Threatened miscarriage	10	1	4
Actual miscarriage	7.2*	0	2
Premature birth	9.6*	2	5
Stillbirth	4	0	1
Toxaemia	9.1*	3	5

In the instances marked with an asterisk the percentages given by Tisdall *et al.* are given to two significant figures (6.0, 8.0, and 7.6 respectively), whereas, if there were 7, 9, and 9 cases in these categories, the percentages should have been 5.8, 7.5, and 7.5 respectively. It is curious that these differences should have occurred only in the poor-diet group: they certainly suggest that the data as presented are not to be relied on.

Three other features of this table are of importance. First, instances of different *complications* and not of *patients* are entered in it. There is no telling what proportions of the patients in the different groups suffered from complications of pregnancy. The experiment was one in which women and not complications were fed. Secondly, the good-diet group is not to be compared with the others as instancing the effects of diet, since it comprised patients whose social and economic status were generally better than patients in the poor and supplemented groups. Thirdly, it appears from consideration of the data in this table that the whole evidence on which Tisdall *et al.* can rely as showing an effect of diet on the complications of pregnancy is that in the first two columns of the table. It has already been indicated that their definition of miscarriage would appear from the evidence to differ from the English one. If it does not, then any effect of the supplementing of diet on the frequency of miscarriages must have been more magical than nutritional. As for the remaining complications—premature birth, stillbirth, and toxaemia—it would seem that an elementary knowledge of the subject would indicate that more than one of these was likely to coexist in the same patient. There is no way of telling from the data presented by Tisdall *et al.* whether or not in the poor-diet group these figures refer to as few as 9 patients who exhibited two or more of these complications or as many as 23 who exhibited one each. Similarly, in the supplemented group there may have been as few as 3 or as many as 5 patients exhibiting complications. This, then, is the evidence, so far as it can be dignified by the name, for the effect of diet on the complications of pregnancy which is presented in this "highly significant" survey. This consideration of the figures of Tisdall *et al.* is not an exhaustive one. There are sundry other inconsistencies in their work which effectively undermine any confidence one might have initially been inclined to feel in their data.

The work of the People's League of Health has been dealt with ably and forcibly by Doyne Bell in a discussion at the R S M., and has been reported in your columns; I would refer your readers to the full report in the current issue of the *Proceedings of the Royal Society of Medicine.*

The most disturbing feature of the current treatment of this subject of dietetics in pregnancy is the irresponsibility displayed by a section of the medical profession in a matter affecting a vital aspect of public policy. To begin and to perpetuate a clamour for better feeding in order to diminish the hazards of pregnancy is a laudable object if there is evidence that it is a real object. But to do so irresponsibly on "evidence" of the sort so far presented, at a time when the satisfactory feeding of the people as a whole calls for all the skill of a skilful organizer, is tantamount to an act of sabotage of the first magnitude. It is for this reason that I have felt it was imperative to combat the impression conveyed by your leading article of the state of knowledge of the effects of diet on the incidence of the hazards of pregnancy.—I am, etc.,

Department of Biochemistry, Oxford R. B. FISHER.

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Pituitary Extract for Congenital Pyloric Stenosis

SIR,—I should like to report a case of congenital pyloric stenosis cured by treatment with anterior-pituitary-like hormone. On Sept. 26, 1942, a woman of gipsy extraction gave birth to a healthy male child weighing 6 lb. 15 oz. Delivery was normal. At first the infant sucked well, but after three days he showed increasing incompetence at feeding and increasing tendency to vomit. The vomiting became projectile. At 10 days he vomited after every third feed, and on the 11th day he vomited a large projectile vomit after alternate feeds. His loss of weight was 1 lb. 12 oz. He was lethargic and looked ill.

On Oct. 8, 1942, Mr. John Levis of Bath saw the child. He and two other observers felt the tumour typical of congenital pyloric stenosis. He ordered the treatment he had studied, which had been used with striking success in Geneva before this war—namely, injections of 7½ rat units of pregnyl on Oct. 8, 15 r.u. on the 10th, 22½ r.u. on the 12th, 30 r.u. on the 14th, 16th, and so on. The child vomited once on the 9th, once (small amount only) on the 11th, and once on the 12th. On Oct. 10 he ceased to lose weight, and on the 11th he had gained 1/2 oz. Subsequently he continued to gain at an increasing rate. He began to have an appetite on about Oct. 18, and was discharged looking well and feeding well on Oct. 22. He had no further treatment. He was seen by the sister (who had taken such excellent care of him in hospital) in December, and was still well.—I am, etc.,

Trowbridge. E. CURPHEY.

A Case of Balantidiosis

SIR,—In view of the recent articles on intestinal infections in the *Journal*, I feel that a short account of one of my patients in a mental hospital will be of interest.

The patient, a man aged 71, was suffering from an infection which, from its rarity, is of more than common interest—namely, balantidiosis. He was a "ground parole" patient, and found that the occupation most congenial to him was the care of the piggery on the hospital farm. He had been working in this capacity for some little time, when, on June 29, 1942, he complained of loose motions. The stools were examined in the laboratory for dysentery bacilli (as dysentery had been fairly common), but *Balantidia coli* were found. Obviously he had received contamination while working among the pigs.

He was removed at once to an isolation ward, and 1% methylene blue enemata, in doses of one pint, were administered on alternate days, commencing on July 7. The faeces were examined daily in the laboratory and showed balantidia constantly present. On the suggestion of the deputy medical superintendent, Dr. J. E. Howie, a course of artificial pyrexia was given by intravenous injections of pyrifer on alternate days commencing on Sept. 19. The course consisted of eleven injections, the highest temperature reached being 104° F. As before, the faeces were examined during the therapy, and showed gradually decreasing numbers of balantidia until on Oct. 12 these were entirely absent. Loose motions again made their appearance on Dec. 5, and further investigation of the stools showed numerous protozoa once more.

Owing to the inability of obtaining fresh supplies of methylene blue under war conditions, at least for some time, an empirical course of sulphaguanidine was given in the recognized doses according to body weight, beginning on Dec. 11. The stools showed no organisms on Dec. 17, but these reappeared on Dec. 21. With the arrival of fresh supplies of methylene blue, and acting on the suggestion of Mr. Bean, in charge of the laboratory, a further course of enemata, in doses of one quart, was begun on Jan. 5, 1943. Unfortunately, the patient had relapsed mentally, and was unable to retain such a quantity in the bowel, which had been given in the hope of reaching the organisms in the more remote diverticula and crypts of the gut.

For a short time before this last course of treatment he had been showing increasing signs of cardiovascular degeneration (which had been present for some little time), and he succumbed to this condition before a full trial of the treatment could be completed. The last stools, obtained the day before his death on Jan. 8, showed no balantidia, and a specimen of the contents of the transverse colon taken at a post-mortem examination revealed mucus, pus, and blood cells but no organisms or cysts. As the post-mortem examination was performed more than twenty-four hours after death, the presence of the organisms was not to be expected.

To sum up, the efficiency of the last treatment is indefinite, and cannot be judged accurately owing to death occurring before treatment could be completed, although disruption of the protozoa was marked with methylene blue *in vitro*.—I am, etc.,

County Mental Hospital, Warrington, Lancs.
P. A. M. ROBERTSON, Assistant Medical Officer.

Mitral Systolic Murmurs

SIR,—In his interesting paper on mitral systolic murmurs (Jan. 2, p. 8) Dr. William Evans does not mention the pulmonic second sound as useful in estimating the significance of a mitral systolic murmur. If there is no accentuation of the pulmonic second sound there is no mitral regurgitation; if there is accentuation, and especially if reduplication as well, the mitral murmur is important.—I am, etc.,

Hove. WALTER BROADBENT, M.D., F.R.C.P.

Skin Diseases in War

SIR,—I am prompted by my correspondence to make two brief comments on my article in the war medicine series (Dec. 26, p. 760).

In the first place I do not advise sulphanilamide or its derivatives in the treatment of the common varieties of impetigo, which respond quickly to mild antiseptics in lotions, creams, or pastes. Sulphanilamide has no demonstrable effect upon the brief course of the disease. In the exceptional case the indication for the use of sulphanilamide amounts to subclinical erysipelas, and this is clearly stated.

In the second place the Editor's note that the paper was based on a lecture recently given is misleading, because, in fact, the article was based on lectures given in 1941, was mostly written in that year, and submitted in January, 1942. This contretemps is only unfortunate as it affects the discussion of the treatment of scabies, and although the Editor kindly allowed me to insert a brief reference to the official emulsion of benzyl benzoate, it was not possible without rewriting the whole paragraph to give adequate prominence to the effective technique described in the memorandum on scabies and published by the Ministry of Health in June, 1942. Benzyl benzoate emulsion is undoubtedly the best and most elegant cure for scabies, but it is hoped that the discussion on the principles of treatment will be helpful when substitutes have to be used.—I am, etc.,

London, W.1. REGINALD T. BRAIN.

The Specialist in Medicine

SIR,—In the *Journal* of Dec. 26 (p. 764) the opinions of the Group of General Surgeons of the Johannesburg General Hospital on specialists are recorded. These views are uncomplimentary to specialists, who are said to be prone to a "somewhat confined outlook and lack of broad perspective," and it is suggested that in dealing with disease manifesting itself in a part of the body they do not pay due consideration to the whole organism.

I venture the opinion that these observations are based on the most slender justification, if any. In my experience specialists are very much alive to the relationship of one organ or part to the body as a whole, and are also familiar with the difficulty of persuading many of those who do not regard themselves as specialists that disease which is locally manifested has nevertheless always a general significance. "General" surgeons and, perhaps more especially, "general" physicians have by no means a monopoly of wide outlook and broad perspective, while they themselves are far from immune to the shortcomings attributed to more restricted specialists. The specialist who devotes himself to a particular organ or system does not regard disease disclosing itself in that organ as a disease of that organ but as a local manifestation of some general disorder.

In his textbook on the eye, Von Beer, the teacher of MacKenzie, "the father of English ophthalmology," wrote as long ago as 1813: "Everything that acts upon the whole acts also upon the part, and everything that acts upon the part must also act upon the whole; therefore everything that acts upon the organism of an individual cannot remain without action upon the eye and vice versa" (Von Beer, *Die Lehre von den Augenkrankheiten*, Vienna, 1813. Von Beer was a specialist, and there is a tincture of holism in his words that should appeal to South African surgeons.

The tendency towards isolation and canalization is a product of the development of medical practice and is liable to affect all doctors in greater or less degree. It is not the fault of any class of practitioner, but is inherent in the system under which the practice of medicine is at present conducted.—I am, etc.,

Edinburgh. H. M. TRAQUAIR.

Electric Convulsion Therapy and Brain Damage

SIR,—In reply to Dr. F. T. Thorpe (Jan. 2, p. 23) I would suggest that if the application of x volts to a criminal in the electrocution chair can destroy the most stable centres of heart and respiration, it is a logical conclusion that any considerable fraction of x volts would still do damage to the more delicate and vulnerable neurons and centres. This would account for the impairment of intelligence which many have noticed after electrical treatment, and other symptoms. Since the application of electrical treatment has moved from schizophrenia to involutional melancholia, it has been said that impairment of intelligence does not matter in these old people.

The New York State Hospital have treated 1,000 schizophrenics with insulin, 1,000 with convulsions, and kept 1,000 controls without treatment. The insulin group did three times as well as the controls, and the untreated controls did better than the convulsion group. The ratio between the insulin recovery rate and that of the convulsion group was nearly 7 to 1. As electrical convulsion treatment leads to impairment of intelligence, so does removal of part of the frontal lobe convert a patient who might possibly recover into a mental deficient. Personally, I prefer to use the combination of histamine and insulin.—I am, etc.,

Salisbury. HORACE HILL.

Testing for Night Vision

SIR,—With reference to the articles by Major B. W. Rycroft (Nov. 14, p. 576) and Mr. N. Bishop Harman (Jan. 9, p. 43) I think it should be stated that the instrument used by Major Rycroft was designed for the Military Personnel Research Committee of the Medical Research Council by Dr. K. J. W. Craik. The intensities of illumination are accurately calibrated, and if the instrument is used meticulously according to the instructions drawn up by Brigadier Sir Stewart Duke-Elder and issued to those concerned the results are strictly comparable.—I am, etc.,

Leeds. J. HERBERT PARSONS.

Staffing Mass Miniature Radiography Units

SIR,—My own practical experience of this problem, so far as the medical staffing of each available portable unit is concerned, shows that Dr. Norman P. Henderson (Jan. 16, p. 81) would appear to raise difficulties which should never exist. The experienced chest physician working in close co-operation with a similarly experienced radiologist with specialized knowledge of chest disease is an indispensable and essential team for the staffing of each unit. The two are complementary and in no way antagonistic. Their independent opinions on each technically satisfactory miniature film are the only real safeguard for the individual subject in mass work of this nature. Such experienced workers will obviously refuse to express an opinion on any film whose quality is not satisfactory, and they will wisely safeguard against this by the inclusion in their team of a first-class technician.

Clark, Cordiner, and I, working as a team of technician, radiologist, and physician in 1940 and 1941, co-operated in an experimental study with direct radiographs as controls. Our results have already been recorded (*Brit. J. Radiol.*, 1941, **15**, 54). Subsequently I had the privilege of co-operating with two experienced radiologists, Drs. Courtenay Gage and Poullsen, again with direct radiograph controls. My findings were compared with the independent interpretation of these radiologists and the results of the analysis have already been recorded (*Proc. roy. Soc. Med.*, 1941, **34**, 595). From these experiences I am convinced that an essential need for the staffing of each unit is: (1) the close co-operation of chest physician and chest radiologist interpreting films independently and scrutinizing results conjointly; and (2) a first-class technician with additional assistants properly trained and experienced. The numbers examined must of necessity depend upon the accommodation, assistants, and dressing space available.

The claim of Continental workers that these examinations can be carried out at a rate of 300 or more per hour would not appear from personal experience to be compatible with good quality films, which are surely of greater importance than speed.—I am, etc.,

PHILIP ELLMAN.

X-ray Department at Health Centre

SIR,—Dr. Brailsford's letter (Jan. 16, p. 83) suggests an answer to many of the questions about which he is still in doubt.

1. I think it is not only advisable but essential to equip every health centre with apparatus suitable for conducting all routine examinations for all patients, irrespective of their size and build.
2. I do expect every centre to have the services of an expert radiologist.
3. I do not deprecate the transfer of patients from one centre to another for further investigation, but rather hope that when transferred they will go with radiological evidence that will be comparable with that obtainable in the parent hospital.
4. Miniature mass radiography will be unlikely to miss the early active case of phthisis, and there is certainly no slur to be cast on the medical examination which missed it without radiological aid.
5. Miniature mass radiography will discover the tuberculous lesion arising in a patient within three to six months of an initial negative radiograph at the second routine miniature examination, should the patient's symptoms not have developed sufficiently to cause him to have consulted his doctor in the intervening period.
6. Radiology is a clinical method which should always be used in conjunction with other clinical methods.
7. To say that a chest lesion is of no significance until it is associated with clinical signs sounds untrue, and the signs, if present, may be insufficient to have caused the patient to seek medical aid.—I am, etc.,

London, S.W.3. J. V. SPARKS.

Search for Health

SIR,—In view of the lack of response from competent authorities I should like diffidently to correct a misapprehension on the part of Prof. J. A. Ryle in his most instructive article on the science of health (Dec. 26, p. 746), in which he deplores the lack of an "observational science devoted to the fireside or field-side or laboratory study of health." In fact, such a scientific study of health was inaugurated as long ago as 1926 in the Pioneer Health Centre, Peckham, which, after nearly three years of encouraging trial, was successfully continued on a larger scale from 1935 until the beginning of the war. You gave a short summary of its working a week before the publication of Prof. Ryle's article (Dec. 19, p. 735).

The primary purpose of the Pioneer Health Centre was to seek the answer to Prof. Ryle's question, "What is health?" Prof. Ryle's own answer makes health synonymous with wholeness. But this definition later leads him into the trap of referring to "the preservation of health," a phrase implying its previous attainment, which is clearly impossible for mankind if it denotes complete wholeness, physical, mental, and spiritual. If health equals perfection it must always be beyond man's imperfect grasp. The Pioneer Health Centre, on the other hand, suggests that health is not a state but a process: "the smooth progressive process of synthesis . . . the expression of the adaptative function of the organism operating progressively upon the extrinsic medium—the environment" (*Biologists in Search of Material*, 1938, p. 90; Faber). The attainment, rather than the process, of such a synthesis clearly equals Prof. Ryle's conception of wholeness; so that wholeness becomes the goal instead of the equivalent of health.

In order to test the validity of this dynamic conception of health the Pioneer Health Centre provided an environment "for the more intimate study and measurement and cultivation of health" in those families availing themselves of its facilities. A regular family overhaul and consultation provided the essential base-line for the estimation of the degree of health development brought about by use of the Centre's athletic and social amenities, as well as uncovering a wealth of previously undiagnosed ill-health. Therefore, in exploring the means "to teach health and the causes of health and the necessary provisions for health," Prof. Ryle will surely find a guiding hand in the idea and accomplishments of the Pioneer Health Centre.—I am, etc.,

Oxford. S. J. G. SPENCER.

Pasteurization of Milk

SIR,—May I through your pages offer Prof. L. P. Garrod (Jan. 16, p. 80) the information that streptococcal mastitis, in both acute and chronic forms, is one of the commonest infections of the cow, that human infection from this source is very rare, but that local lesions in the udder, caused by streptococci from human beings, may contaminate the milk. Sir William Savage, formerly M.O.H. for Somerset, has done good work in the investigation of streptococci in milk. Prof. P. S. Minett of the Royal Veterinary College says that this hypothesis of Sir William Savage's—that streptococci originating from human beings produce mastitis in the cow—has received a good deal of support from observation and experience, "so much support indeed, that it could not be doubted it was correct" (*Proc. roy. Soc. Med.*, Feb., 1937). Dr. F. Griffith of the Ministry of Health isolated scarlet fever (Type II) from milk in the Doncaster epidemic of 1936-7. During a period of six weeks six samples contained these streptococci (*Journal*, 1937, **1**, 519).—I am, etc.,

A. H. MACDONALD.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

Dr. M. F. Perutz is giving a course of lectures with demonstrations on "Methods of *X*-ray Analysis and their Application to Biological Problems," on Fridays at 5 p.m., in the Molteno Institute of Biology and Parasitology.

The title of the degree of M.D. has been conferred by diploma on Mrs. C. M. Hall, of Newnham College.

NATIONAL UNIVERSITY OF IRELAND

UNIVERSITY COLLEGE, CORK

The following candidates have been approved at the examinations indicated:

M.D.—B. J. O'Driscoll

M.B., B.Ch., B.A.O.—*D. F. Thomas, *K. V. J. Kearney, *W. P. F. Kearney, *P. J. Galvin, A. J. Beckett, E. Breen, J. Burke, T. Burke, M. F. Cahill, M. J. Collins, P. F. Corkery, M. J. Cosgrave, N. J. Dinan, R. J. Fitzgerald, Rose MacAuliffe, M. McCarthy, M. B. Millerick, D. Moroney, J. D. Morrissey, E. D. Murphy, C. O'Brien, Geraldine O'Callaghan, Maureen O'Driscoll, D. Ollivere, J. Osborne, H. P. J. O'Shea, R. F. O'Sullivan, Eileen M. Ring, J. R. Ryan, D. B. Sheehan, W. J. Shinkwin, M. J. Twomey, Mary T. Woods. *Part I:* Mary P. Moroney, J. O'Mahony. *Part II:* J. I. Buckner, L. J. Collins, T. A. Collins, Muriel C. Hurley, Maire MacCurtain, D. Murphy, B. O'Brien, J. J. Sheehan, J. J. Twomey, Winifred A. White. *Exempt in Mental Diseases:* T. Barrett, J. J. Sheehan, Winifred A. White. *Exempt in Pathology:* T. Barrett, Muriel C. Hurley.

D.P.H.—Abina T. O'Connor.

DIPLOMA IN PSYCHOLOGICAL MEDICINE.—T. McCracken.

* With first-class honours.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

At a quarterly meeting of the Council, held on Jan. 14, with Sir Alfred Webb-Johnson, President, in the chair, Mr. J. Newman Morris, F.R.A.C.S., was introduced and conveyed to the Council a message of greetings from the Royal Australasian College of Surgeons, which was cordially reciprocated. A resolution of condolence was passed on the death of Mr. L. R. Braithwaite, Vice-President, and the death of Dr. G. W. Crile, Hon. F.R.C.S., was reported. Mr. H. S. Souttar was elected Vice-President for the remainder of the collegiate year. Brigadier W. H. Ogilvie and Mr. L. E. C. Norbury were appointed representatives of the College on the Council of the Imperial Cancer Research Fund. It was decided that the first notice of the Council election should be published in the medical journals, as in 1942, and not sent by circular to Fellows resident in the United Kingdom, and that the second notice enclosing the ballot papers should be circulated as usual. All changes of address should be notified to the secretary. Communications in regard to the institution of the research chair in ophthalmology were received from the Council of British Ophthalmologists and from the joint committee of the ophthalmic hospitals in London.

A Diploma of Membership was granted to R. H. Maudsley.

Diplomas in Psychological Medicine were granted, jointly with the Royal College of Physicians of London, to the following successful candidates:

F. S. Adams, A.-el-A. M. Askar, C. Bard, Jean Durrant, Ada Glynn, E. C. O. Jewesbury, F. Post, Constance D. Roberts, P. H. Tooley, J. W. Wigg.

Diplomas in Laryngology and Otology were granted, jointly with the Royal College of Physicians of London, to the following successful candidates:

E. Benjacar, W. D. Doey, J. B. M. Green, B. L. Harbison, H. Mower, D. D. Steele-Perkins, W. M. L. Turner.

SOCIETY OF APOTHECARIES OF LONDON

At a recent meeting of the Court of Assistants, Sir Stanley Woodwark, Master, presiding, a letter of thanks was received from the University of London upon the completion of the Society's donation of £500 towards the cost of building the Ceremonial Hall of the University. A legacy of £50 to the Widows' Fund from the estate of Mrs. Freeman, widow of Past-Master Col. E. C. Freeman, was reported. A report on the recent session of the General Medical Council was made by Dr. J. P. Hedley, the Society's representative. The practical sections of the revived pre-medical examination were held at St. Mary's Hospital on January 7. Brigadier H. C. Edwards, Examiner, and A. G. S. Bailey, Licentiate, were Admitted to the Freedom of the Society by Redemption. Ralph Jordan Dodds was Bound Apprentice to Prof. E. C. Dodds for seven years.

The following candidates have satisfied the examiners in the subjects indicated:

SURGERY.—K. M. Donahue, J. H. Dransfield, M. A. Hamdy, E. E. Leiber, M. V. Matthew, R. Webb, C. E. C. Wells, R. A. Bush, D. B. Lawrence, J. M. Macdonald, J. M. Thomas, L. N. Yhap.

MEDICINE.—H. Gottschalk, H. V. T. Payne, J. H. Dransfield, J. A. Dryden, C. E. P. Grocott, E. R. Jones, W. C. Salter, C. E. C. Wells, L. N. Yhap.

MIDWIFERY.—F. G. Brindley, D. Headley, A. F. Rogers, J. H. Scarlett, J. M. Hanson, J. J. Maskell, C. E. C. Wells, L. N. Yhap.

The diploma of the Society was granted to J. A. Dryden, C. E. P. Grocott, E. R. Jones, E. E. Lieber, M. V. Matthew, W. C. Salter, C. E. C. Wells, R. A. Bush, L. N. Yhap.

Obituary

T. W. E. ROSS, M.D., F.R.C.S.ED.

We regret to record the death in Edinburgh on Jan. 14 of Dr. T. W. E. Ross at the age of 63. Educated at George Watson's College and Edinburgh University, Thomas William Edmondston Ross graduated M.B., Ch.B. with honours in 1902. After holding appointments as house-physician and house-surgeon at the Royal Infirmary of Edinburgh and the Maternity Hospital, he went to Vienna for further study. On returning to Edinburgh he took his M.D. and the Fellowship of the Royal College of Surgeons. For the next five years he was in practice in Cardiff, and at the end of that time he spent a year in Edinburgh studying diseases of the ear, nose, and throat under the late Drs. Logan Turner and J. S. Fraser. He began his general practice in Edinburgh in Morningside district in partnership with Dr. R. M. Ronaldson, and when the latter retired he moved into the centre of the city. For many years he has been one of the busiest doctors in the city, having a large and widespread practice. He was also principal medical officer to the Scottish Insurance Corporation. In the last war he joined the R.A.M.C. with the rank of captain and was with the Edinburgh Hospital at Salonika for some time. He was responsible for the radiological work in that hospital, and at the end of the war was awarded a decoration of the Order of St. Sava by the Serbian Government. In this war he not only took his share in the examination of recruits but was in charge of a first-aid post.

Dr. Ross was a man of sterling qualities. Under a somewhat rugged exterior was hidden a kindly and strong personality. His rather abrupt manner might be prejudicial at a first meeting, but his patients soon got to know that this was only on the surface and beneath was a man who was thorough and earnest in his work and who inspired confidence and trust. There are many in Edinburgh who will long mourn him, not only as a physician but as a friend to be consulted in difficulty. He had always been a hard worker and everything he undertook he did thoroughly. He never spared himself, and died as he would have wished, busy with his work to the very last. His chief recreation was golf, but he was also interested in music and general reading. His wife, who was a daughter of the late Rev. George D. Low of Fountainbridge Free Church in Edinburgh, died some years ago. He is survived by two daughters and a son, who is now serving abroad as a captain in the R.A.M.C.

R. C. L.

Dr. JOHN MORGAN REES of Pontypridd, who died on Dec. 29, 1942, in his 79th year, was the senior practitioner in the district. Educated at Queen's College, Taunton, and King's College, London, Dr. Rees took the M.R.C.S. and L.S.A. in 1887. He began practice as assistant to the late Dr. Webster at Merthyr Tydfil, and it was while he was there that he was awarded the diploma of the Royal Humane Society for rescuing a youth from drowning. Dr. Rees started practice on his own account at Pontypridd in 1897, and became one of the leading practitioners of the district. His interests were varied; proceedings of the Cardiff Naturalists' Society, archaeology, Welsh folk-lore and literature occupied his leisure. His chief interest, however, was in the practice of his profession and in the welfare of its members. He was a faithful member of the B.M.A. for 54 years, the offices he held including that of chairman of the North Glamorgan and Brecknock Division in 1916-17 and president of the South Wales and Monmouthshire Branch in 1927-8. He was a representative at five Annual Representative Meetings, a member of the Welsh Committee for many years, and in 1927-8 was a member of the Central Arrangements Committee in connexion with the Annual Meeting at Cardiff. He was also on the Glamorgan Panel Committee from its inception, and at the time of his death was the treasurer; he was one of its representatives at the Panel Conference. No meeting of medical men in the county of Glamorgan was complete without Dr. Rees, and it can be said that he was one of those who succeeded in promoting professional amity in this part of South Wales. His death removes one of the old type of medical men—a cultured gentleman, dignified, and always courteous. He married Miss Gladys Enid Jones, who, with one daughter, predeceased him. He is survived by another daughter and two sons, both medical men: Dr. Llewelyn Rees of Cardiff and Dr. Edward J. Rees of Pontypridd, vice-president of the local B.M.A. Division.

Correction

The late Dr. F. J Allen was a scholar of St. John's College, Cambridge, not a Fellow as stated in the obituary notice in the *Journal* of Jan. 16 (p. 86).

The Services

The A.F.C. has been awarded to Flight Lieut. B. J. O. Winfield, R.A.F.V.R.

The following medical officers have been mentioned in dispatches: Air Commodore T. J. Kelly, M.C.; Group Capt. R. W. White; Wing Cmdrs. G. P. O'Connell, Ll. C. Palmer-Jones, H. Penman, A. A. Townsend, H. H. S. Brown, and E. W. R. Fairley, R.A.F.; Wing Cmdr. D. H. Brinton; Squadron Leaders R. G. E. Richmond, A. Wilson, E. O. Evans, J. H. P. Gauvain, G. R. Gunn, J. R. O'Dowd, C. G. Rob, T. E. Whitby, J. R. Caldwell, and T. M. Prossor; Flight Lieuts. P. J. Blaxland, P. M. Davies, H. F. M. Finzel, A. J. Nimmo, W. L. Price, A. A. Smith, C. E. Waterman, and Flying Officer O. T. Brown, R.A.F.V.R.; Squadron Leader J. B. Murphy, R.A.F.O.; and Squadron Leader H. J. Riley and Flight Lieut. J. E. La Frenais, A.A.F.

Temp. Surg. Lieut. R. D. Wilkins, R.N.V.R., has been mentioned in dispatches.

Prisoners of War.—Lieut.-Col. C. Armstrong, M.B.E., R.A.M.C., Capt. A. D. Aveling, R.A.M.C., Capt. A. E. Brewer, R.A.M.C., Major H. M. Marks, R.A.M.C., Lieut.-Col. C. V. D. Rose, I.M.S.

Medical Notes in Parliament

Private Practice of Alien Doctor

On Jan. 19 Sir ERNEST GRAHAM-LITTLE asked the Home Secretary under what regulation or other legal provision he was withholding from an alien medical practitioner possessing a registered British medical qualification permission to engage in private practice in a certain town, on the ground that this practitioner acted for some months as an assistant to a doctor there without entering on any agreement restricting him from subsequent independent practice; and whether he was making it a condition that duly qualified foreign doctors who wished to practise in this country must join the B.M.A. voluntary scheme for local protection of practices. Mr. H. MORRISON said that, as he informed Sir Ernest Graham-Little in October, he did not feel justified in agreeing that the Austrian doctor to whom he referred should be allowed to establish himself in private practice close to a practice in which he had recently been employed as an assistant, but he had now approved of the doctor setting up in practice in a town some distance away. The answer to the second part of the question was in the negative, and he was taking steps to correct a misapprehension on this point to which Sir Ernest had drawn his attention.

Mines Medical Service

On Jan. 19 Mr. J. GRIFFITHS asked the Minister of Fuel and Power what progress had been made with the establishment of a medical service in the regions. Major LLOYD GEORGE said that a selected number of candidates from the long list of applicants for regional posts in the Mines Medical Service were being interviewed this week, and appointments would be made as soon as possible. Meanwhile, the Miners' Welfare Commission, in consultation with the Ministry of Health and the district welfare committees, had been actively engaged in the search for suitable buildings for miners' rehabilitation centres. A centre in Scotland, to accommodate 200 miners, was opened on Jan. 11, and the rehabilitation centre at Berry Hill had been taken over by the Miners' Welfare Commission from the Mutual Indemnity Company. Negotiations were in progress for the acquisition of buildings elsewhere, and good progress was being made generally in the other work involved in setting up centres to cover all the chief coalfields.

Mr. RHYS DAVIES observed that the Minister could be congratulated on finding so many doctors for this purpose, when the Minister of Pensions declared that he was unable to find doctors for his pensions tribunals. Sir FRANCIS FREMANTLE: Will the Minister consider consulting the Central Medical War Committee as to the disposal of man-power in the Forces in making these appointments, so as not to choose people who ought to be called up for the Forces? Major LLOYD GEORGE replied that the Ministry was in constant touch with all these authorities. Dr. HADEN GUEST asked how many doctors were being appointed. Major LLOYD GEORGE said he believed 8 would be appointed in the regions and 1 at headquarters—9 altogether.

Jamaica Medical Service

On Jan. 19 Mr. D. ADAMS asked the Secretary of State for the Colonies whether he was aware of the discontent and numerous resignations of doctors from the public hospitals and services of Jamaica, petitions of nurses against mismanagement resulting in overwork and under-payment, and the alleged neglect of patients and inability of hospitals to give proper attention to serious cases; and if he would accede to the public demand for an impartial and comprehensive inquiry with a view to remedying the grievances and inefficiency in these services. Colonel STANLEY said he was aware that some dissatisfaction existed in the Jamaica Government Medical Service. He understood that the pay and conditions in that service had been investigated by the local public services committee, and he was awaiting its report with the Governor's recommendations.

Recruitment to Colonial Medical Service

Wing-Commander HULBERT on Jan. 19 asked the Secretary of State for the Colonies what steps were being taken to ensure that an adequate number of doctors were recruited for the Colonial Medical Service during the war. Colonel STANLEY replied that under arrangements made with the Central Medical War Committee, which was the official agency for the supply of doctors, a sufficient number of suitable candidates had hitherto been forthcoming to fill declared vacancies for medical officers in the Colonial Medical Service. A scheme for the building up of a reserve of medical officers was under active consideration.

Insured Persons and the Protection of Practices Scheme

On Jan. 19 Sir E. GRAHAM-LITTLE asked the Minister of Health if he would investigate the case, of which he had been told, in which the County of London Insurance Committee had informed insured persons that, in the absence of their own doctor and of any specified locumtenent, they could not obtain treatment from a National Health Insurance practitioner who was not a member of the Protection of Practices Scheme conducted by the B.M.A., and if he was aware that some insured persons had had to wait some months before getting treatment from the practitioner of their choice and had in the meantime had to pay private fees for medical attention near their homes. Mr. ERNEST BROWN replied: I am informed that insured persons on the lists of absentee practitioners who are participants in the London Protection of Practices Scheme are not directed to go to any particular doctor, but are informed that they can apply to other participating doctors the nearer of whom are named. Doctors who participate in the scheme and are on Service have agreed to accept other participating doctors as their deputies during absence, and the regulations provide that an insured person on the list of a practitioner who has appointed a deputy can transfer to another practitioner only at the end of a quarter and after a prescribed length of notice, except where the former practitioner agrees to an earlier transfer.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* the principal features of the returns of infectious diseases during the week reviewed were the rises in the number of cases of whooping-cough 115, acute pneumonia 155, and dysentery 24, and the falls in the notifications of measles 836, scarlet fever 351, and diphtheria 98. The seasonal rise in mortality from influenza began, and the 65 deaths recorded in the great towns, an increase of 21, constitute the largest total since last March.

A small fall in the incidence of diphtheria and scarlet fever was recorded in most areas of the country, notably in Staffordshire and Yorks West Riding with a drop of 98 and 63 respectively. No marked changes occurred in the local distribution of diphtheria.

The fluctuations in the trend of acute pneumonia were small in most counties, the only differences of note being rises in Warwickshire 43, Yorks West Riding 46, and Durham 31.

The largest rises in the notifications of whooping-cough were Wales 52, Lancashire 50, Cheshire 21, and Durham 20. Whooping-cough is more prevalent in the North than in the South. The cases reported from the combined areas of London, South-Eastern, South-Western, South Midland, and Eastern Counties formed only one-quarter of the total of the country.

There were relatively large variations in the incidence of measles in many counties. The largest drops were in Leicestershire 333, Yorks West Riding 188, Southampton 147, Essex 115, Nottinghamshire 105, and Lancashire 104; and the largest rises were in Derbyshire 187, Sussex 82, Durham 71, Berkshire 65, and Bedfordshire 36.

Three counties were responsible for the higher incidence of dysentery. An outbreak in Essex accounted for 22 cases (Colchester M.B. 16); the notifications in London rose from 14 to 23, involving eleven boroughs, and in Lancashire from 17 to 33 (Blackburn R.D. 25).

In *Scotland* there was a sharp rise in the incidence of infectious diseases, particularly for measles 307, scarlet fever 53, whooping-cough 54, acute primary pneumonia 37, and for diphtheria 19. Notifications of measles rose especially in the burghs of Dundee 107, Aberdeen 93, Greenock 46, and Kirkcaldy 34. Of the 32 cases of dysentery notified, 10 came from the county of Zetland and 11 from the city of Aberdeen. The trend of whooping-cough was mainly affected by the experience of Glasgow, where the notifications went up by 37, while the increase in the number of cases of scarlet fever and diphtheria was fairly general. An outbreak of gastro-enteritis due to food, involving over 100 persons with 2 deaths, occurred in St. Andrews.

In *Eire* the numbers of cases of poliomyelitis have fluctuated round a constant level during the past month. During the week reviewed there were 10 cases from nine areas.

Returns for the Week Ending January 16

The notifications of infectious diseases in England and Wales included: scarlet fever 1,957, whooping-cough 1,504, diphtheria 764, measles 12,323, acute pneumonia 1,194, cerebrospinal fever 96, dysentery 96, paratyphoid 5, typhoid 4. In the great towns there were 89 deaths from influenza.

No. 1

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Jan. 9.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London) (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	87	3	18	7	3	143	6	37	1	1
Deaths		1	—				1	4		
Diphtheria	841	46	238	89	29	1,028	46	282	33	40
Deaths	36	1	2	5	1	35	1	5	3	1
Dysentery	119	23	32	—	—	98	4	25		1
Deaths				—	—			—	—	—
Encephalitis lethargica, acute	1	—	—	—	—	3	—	—		—
Deaths		—	—	—	—		—	—		
Erysipelas		—	63	12	4		—	64	8	2
Deaths		—					—	—		
Infective enteritis or diarrhoea under 2 years				13						
Deaths	49	5	7	11	6	37	5	13	8	4
Measles	14,153	698	525	11	17	934	76	98	120	3
Deaths	23	2	1	1	—	—	—	—	2	—
Ophthalmia neonatorum	77	2	25	—	—	101	7	21		1
Deaths										
Paratyphoid fever	5	—	3	—	4	6	—	1	—	
Deaths	—	—	—	—		—	—	—	—	
Pneumonia, influenzal*	1,091	67	14	14	—	1,041	65	14	—	16
Deaths (from influenza)	65	4	3	1	—	61	9	3	1	3
Pneumonia, primary	—	—	216	26	2			366	18	
Deaths		—		27	5		68		17	21
Polio-encephalitis, acute	1	—				3	1			
Deaths		—					—			
Poliomyelitis, acute	2	1	2	10	1	8	—	—	5	—
Deaths		—					—	—		
Puerperal fever	—	1	27	2	1	—	—	17	1	—
Deaths		—					—			
Puerperal pyrexia	125	9	20		—	166	—	17		7
Deaths										
Relapsing fever	—	—				—	—			—
Deaths										
Scarlet fever	1,808	134	346	42	52	962	33	239	31	25
Deaths	1	—	—	—		—	—	—	—	—
Small-pox	—	—	—		—	—	—	—		—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever†	8	2	5	7	2	18	2	2	5	—
Deaths	—	—	—	—	—	1	1	—		—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths			—	—	—			—	—	—
Whooping-cough	1,302	86	76	45	6	1,680	201	71	42	34
Deaths	11	—	7	1	—	12	—	—	1	
Deaths (0–1 year)	407	39	81	48	33	343	47	94	30	37
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	5,184	774	724	300	141	5,095	765	709	231	163
Annual death rate (per 1,000 persons living)			16·3	19·7	‡			16·0	15·3	‡
Live births	6,403	761	978	359	298	5,331	515	787	272	202
Annual rate per 1,000 persons living			20·0	23·6	‡			16·3	18·1	‡
Stillbirths	266	25	38			197	17	42		
Rate per 1,000 total births (including stillborn)			37					51		

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes paratyphoid A and B for Northern Ireland.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Medical News

Dr. G. M. B. Dobson, F.R.S., will give a discourse on "The Air We Breathe in Town and Country" at the Royal Institution, 21, Albemarle Street, W., on Friday, Feb. 12, at 5 p.m.

The National Institute for the Blind report that 100 civilians in this country are now known to have lost their sight by enemy action. These are additional to blinded members of the fighting and civil defence services. News of the hundredth casualty reached the Institute only a week or two ago, a year after its occurrence. Owing to the delay the wounded person lost the advantage of early specialized training. Hospitals have been asked to report these casualties as soon as possible so that expert help can be given immediately. The patient can then be comforted through the period of shock and may even begin Braille. On discharge from hospital the men and women become guests at the Institute's homes of recovery. Very young victims are received as boarders at the Institute's Sunshine Homes.

Sir Edward Mellanby and Prof. W. W. C. Topley have been appointed to serve on the Colonial Products Research Council, the appointment of which, under the chairmanship of Lord Hankey, was announced on Jan. 18.

In response to inquiries about the new British Standard specification for haemoglobinometers, Haldane type (*Journal*, Jan. 2, p. 14), a circular has been prepared on the "Arrangements for Testing Haemoglobinometers (Haldane), Colour Tubes, Graduated Tubes, and 0.02 ml. One-mark Capillary Pipettes" by the National Physical Laboratory, Teddington, Middlesex, from whom a copy may be obtained on application.

In view of the shortage of doctors, medical officers of local authorities are not to be retired on reaching the age limit if they are fit and willing to continue in their work. The Minister of Health (Circular 2758) reminds local authorities of their powers under the Local Government Superannuation Act, 1937, to extend a doctor's services (with his consent) for one year or under and to repeat this extension if desired They can also re-employ doctors already retired on terms to be mutually agreed, subject to the Minister's approval in appropriate cases.

According to Prof. Gunnar Nystrom of Uppsala more than 500 Swedes die annually from appendicitis alone because they come under medical treatment too late. About 20,000 appendix operations are performed in Sweden every year, and 3,000 patients need a further twelve days' treatment because of delay in treatment.

In a statement published in the Danish press, Dr. Frandsen of the Medical Board is reported to have said that infectious diseases generally are on the increase there. For the period January to November, 1942, there were 56,291 cases of acute diarrhoea, as compared with 2,954 in the corresponding period of 1941. There was also an increase of cases of jaundice, of from 2,586 in 1941 to 9,040 in 1942.

A medical faculty has recently been established at Abo, Finland.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

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QUERIES AND ANSWERS

Income Tax

Income Remaining Abroad

M. is now permanently resident in this country but has investments in Australia. Is M. liable to British income tax on dividends which are not remitted to this country?

⁂ Yes. There is, of course, the statutory measure of relief in respect of the tax paid in Australia.

Marriage—Effect on Allowances

"S. P." has a resident appointment at £200 a year and was married last November. How is her liability affected?

⁂ In the current financial year, 1942–3, "S. P." will be entitled to exemption up to the date of marriage, and for the period from her marriage to April 5, 1943, any liability will be covered by the £80 allowance to married women earning income, and the ordinary 1/10th earned income allowance. Her husband will be entitled to the married man's allowance of £140. In the next financial year, 1943–4, "S. P." will be liable, subject to deduction of the £80 and the 1/10th earned income allowance.

LETTERS, NOTES, ETC.

Scabies

Dr. HAROLD E. WATKINS (Newton-le-Willows, Lancs) writes: An ointment, called here "ung. pro scabies," was brought to my notice in 1921, and I used it until I retired from general practice in 1936. It is the prescription of a Danish doctor, and was prepared according to the Danish Marcussen formula. With one exception, one application only was sufficient to effect a complete cure; in this one case a second application did cure completely. I have never known the ointment to cause any signs of skin complications. Reference is made to this preparation in the *Lancet*, 1920, **2**, 1251; *Wien. klin. Wschr.*, 1921, **34**, 94; *Medical Annual*, 1922, p. 376; *British Medical Journal*, 1930, **1**, 1080; and the formula was adopted by the *B.P.C.* in 1934 under the title "Ung. potass. polysulphid." The instructions for its application are: "The patient receives an ordinary cleansing bath, wipes himself thoroughly, and then rubs the whole body, except the head, with the ointment. After a quarter of an hour in the upright position he goes to bed, and 24 hours later has a second cleansing bath and puts on fresh and disinfected clothing." All body and bed clothing must be disinfected, as the eggs hatch there and start the process all over again. The eggs get into the clothes by the scratching. The formula of the ointment is—as stated in the *B.P.C.*: Potassium hydroxide 1/2 oz., sulphur sub. 1/2 oz., paraffin. molle 394 grains, wool fat 394 grains, zinc sulphate 49 grains, sodium hydroxide 14 grains, distilled water 302 minims, benzaldehyde 10 minims, liquid paraffin to 4 oz. I am indebted to Messrs. James Woolley Sons and Co. Ltd. of Victoria Bridge, Manchester, 3, for the above formula. I have always obtained the ointment from this firm, and have no doubt that they will be able to supply any doctor on application.

Treatment of Migraine

Dr. NEVIL LEYTON (London) writes: I have read Mr. G. F. Rowbotham's article (Dec. 12, p. 685) on the pain pathways in migraine with interest. And his suggestion for treatment of headaches of this type where there is no organic lesion is likely to bring relief to many. Having myself recorded the successful treatment of migraine and neurasthenia both in the female *and* in the male by the use of A.P.L. hormone (*Lancet*, 1942, **1**, 488) I think that it would be well worth trying this drug in cases of migrainous headache in post-concussional cases. The treatment is so simple and the relief, if relief there is to be, so noticeable early in the treatment, that it might save surgical intervention in many patients.

Sacro-iliac Strain

Dr. K. WILSON JAMES (Jamaica) writes: The sacro-iliac joint is of the diarthrodial variety, possessing a small synovial cavity. The joint is almost immovable, but owing to the heavy musculature surrounding the pelvis and the constant stress to which that structure is subject, sacro-iliac strain, when it occurs, can be very resistant to treatment. Attendant upon the strain, pain sets up muscular spasm and, associated with it, a certain amount of vasoconstriction. This leads to a diminished blood supply to the injured structures and delay in healing. Thus a vicious circle is established with a tendency for the condition to become chronic and incapacitating. This vicious circle can often be broken, particularly in the early stages, by injection of 1/2% novocain into the surrounding painful ligaments. These ligaments—the posterior and oblique sacro-iliac and the upper fibres of the sacro-sciatic—are easily accessible for infiltration with a local anaesthetic. Occasionally in severe cases a longer-acting, oily anaesthetic (proctocaine) can be used, and injections can be repeated. Results are often dramatic. Following the injection the patient, who should wear an elastic girdle, which is slightly restrictive and also gives some support, should be allowed up from the start except in very severe cases, and moderate exercise should be permitted. This procedure, although simple and not spectacular, and used either alone or as a supplement to the other recognized forms of treatment usually employed, has a definite place in the treatment of sacro-iliac strain.

BRITISH MEDICAL JOURNAL

LONDON SATURDAY FEBRUARY 6 1943

THE TREATMENT OF CEREBRAL CONTUSION*

BY

LAMBERT ROGERS, M.Sc., F.R.C.S.

Surgeon Captain, R.N.V.R.

Professor of Surgery, University of Wales; Surgical Consultant, R.N. and E.M.S.

Cases of cerebral contusion following so-called "closed" head injuries are usually admitted to beds in the general surgical wards of a hospital, and two tendencies may be noticed in regard to them: first, like fracture cases in the same wards, they are not infrequently regarded rather as necessary evils and relegated to the care of the house-surgeon; secondly, treatment is usually of a symptomatic character—e.g., for restlessness—without due consideration for the complex pathological processes which result from the injury to the brain and are involved in its recovery. It is not surprising, therefore, to find these cases either just left recumbent, or else subjected to various methods of treatment, which for the most part may be described as of an expectant character, consisting merely of rest in bed and efforts to palliate complications as they appear.

What, then, should we do for a patient rendered unconscious by a severe head injury and who may or may not present an obvious lesion such as a scalp wound, for which local treatment is required? Although such cases are of frequent occurrence it is true to say of them that, first because of the extreme variability in the severity of head injuries and of their effects, rarely, if ever, do any two have identical cerebral lesions; and, secondly, even after a prolonged period of unconsciousness some of them make remarkable recoveries, even if given little or no treatment at all—e.g., just left to lie on a bunk, as happened in sailing-ships in olden days. Obvious difficulties, therefore, are encountered in testing the efficacy of any particular form of treatment for such cases. The fact remains, however, that many patients who recover from the immediate effects of closed head injuries do present sequelae in the form of the so-called post-concussional state. We may accordingly ask whether it is not possible to lessen the incidence or altogether avoid this post-concussional state by adopting prophylactic measures in the form of early treatment. It is my belief that it *is* possible, and the object of this paper is to record experiences with a method of treatment which I contend is indicated on theoretical, experimental, and clinical grounds, and which appears to promote the recovery of these patients, with a singular freedom from complications or after-effects.

If, following a particular form of treatment, convalescence is smoother than it is otherwise known to be, and if there is a consistent absence of sequelae known to occur from time to time in cases not so treated, it is suggested that we have a strong argument in favour of that treatment—provided always, of course, that the treatment itself does not add to the mortality of the condition.

Testing the Value of Treatment

What methods have we for testing the value of a particular form of treatment? The answer is not as simple as it might seem to be at first sight. It would appear that all we had to do was carry out direct experiment—i.e., test the remedy; but it has already been pointed out that many patients recover whether a particular form of treatment is given or not, and they may do so even despite it. Next, since no two cases of head injury—which term implies a complex and variable pathology—are quite alike, it is difficult to obtain controls by which to effect anything like exact comparison. Lastly, while a certain amount of information is to be gained from animal experiments, there are obvious fallacies in transferring the results of such experiments to man or in attempting to draw conclusions from clinical observations made on animals. To test the evidence, therefore, the most scientific course will be to adopt a combination of methods such as the following:

(i) To examine the argument for the particular remedy by careful consideration of the premisses on which it is based and the conclusions to be derived therefrom.

(ii) To review the experimental evidence bearing on the argument.

(iii) To examine the results of a series of treated cases, followed over some years, particularly noting the incidence of complications known to occur from time to time with other methods of treatment.

(iv) To review a few cases in some detail while, so far as possible, making allowance for the qualifications already mentioned.

It is first necessary to indicate the type of treatment. Briefly, this consists of continued gentle dehydration, instituted with the object of withdrawing cerebrospinal fluid from the intra cranial cavity and so providing potential space into which brain-swelling can take place, thereby avoiding compression of its blood vessels.

I. The Argument

The argument in favour of this form of treatment is briefly the following: Bruised tissue, whether that comprising the brain or any other organ or structure, must be permitted to swell if it is to recover completely. If by confinement within a limited space swelling is prevented there must be a reduction in blood supply owing to the compression of the vessels supplying the damaged tissue, and this reduction is detrimental to complete recovery.

While to-day the Monroe-Kellie doctrine may not be wholly acceptable in the form in which it was originally propounded, it is probably true to say that with certain reservations the data on which it is founded are true and that in general it holds good. There is a relatively fixed total volume of the cranial contents, but with a capacity for change in any one of the three chief elements comprising it—viz., the brain itself, the circulating blood, and the cerebrospinal fluid. The most practical method of providing for swelling of the bruised brain is to reduce the amount of the cerebrospinal fluid within the skull. This may be conveniently done by dehydration.

If tissue-swelling is allowed to take place after injury the subsequent recovery of the tissue is striking; if, however, swelling is restricted or prevented altogether, a varying degree of permanent damage follows. This important principle of pathology is exemplified when an organ readily capable of expansion—like the kidney—is compared in its reaction to injury with an organ restricted by its capsule from expanding—like the testis. The renal capsule is thin and readily distensible; the testicular capsule (tunica albuginea) is tough, fibrous, and comparatively inelastic. The bruised kidney swells, recovers, and functions normally; the bruised testis cannot swell, and subsequently atrophies. The cerebral envelopes are even more rigid than the tunica albuginea, and the only way in which some variation can be given to their limits of constriction, other than by craniotomy (with its attendant risks and disadvantages), is by reducing the volume of the cerebrospinal fluid surrounding the brain, the fluid itself being incompressible. As Wilfred Trotter (1929) has pointed out, a simple bruise, of no ultimate importance to an organ with a yielding capsule, is a serious matter with the brain, which must be allowed to swell if its circulation is not to be materially interfered with. If this swelling, which is the normal reaction to injury, is restricted, the blood supply to the bruised region is diminished, and the ensuing ischaemia may well result in cortical atrophy with associated ventricular distension or become manifest by symptoms such as those which comprise the post-concussional state. This post-concussional state may conceivably represent incompletely resolved cerebral contusion or subsequent atrophy consequent upon failure to provide for brain-swelling following injury.

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* Based on a lecture delivered at the Royal Naval Hospital, Plymouth, Jan. 7, 1943.

Brain-swelling.—In the case of the brain, injury produces swelling very readily and to an extreme degree. Thus, Dandy (1941) writes: "Trauma that would cause no concern to other hardier tissue produces severe swelling of the brain." Some idea of the extent of this swelling and the rapidity with which it occurs can be gathered from cases of cerebral tumour which have undergone operative treatment. In this connexion the same author writes: "The large cavity created by the tumour's removal may be entirely obliterated in less than half an hour, and with no gross haemorrhage."

One of the arguments advanced against the routine use of dehydration to permit brain-swelling to occur in cases of closed head injuries is that from time to time the pressure of the cerebrospinal fluid in the lumbar pond of patients unconscious as a result of a severe head injury has been found to be low. This, however, does not invalidate the thesis or contraindicate dehydration—first, because experimentally (White *et al.*, 1942) no correlation has been found to exist between cerebrospinal fluid pressures and the degree of cerebral swelling (e.g., as produced during anoxia); and, secondly, because variations in the pressure of the fluid in the lumbar pond take place so frequently that an isolated observation that at one particular time it is low is probably of little significance. Finally, it is reasonable to assume that such pressure differences as occur during brain-swelling are chiefly of a local character and may require intracellular observations to detect them; or, as White (1942) has recently suggested, in head injuries there is often concomitant anoxia of the brain due to depression of the respiratory centre, and this anoxia may considerably reduce the secretory activity of the choroid plexus.

Still further evidence that the findings at lumbar puncture are not necessarily an indication of the intracranial fluid state has been found at operation; thus Bathe Rawling (1918) wrote in connexion with subtemporal decompression which he was at that time performing for cases of suspected cerebral oedema: "In one of my last cases four punctures carried out immediately previous to operation showed a great diminution in the amount of cerebrospinal fluid; and, in the operation performed immediately afterwards, the opening of the dura showed a most typical condition of cerebral oedema with very great excess of fluid."

II. Experimental Evidence

Experimentally it should be possible to ascertain whether brain-swelling takes place following head injury: White (1942) has found a very constant swelling of the brain of cats, even after the animals have had mild concussion—e.g., the brain, instead of being 10 to 11% smaller than the intracranial chamber, was found to be only 7 to 8% smaller. Surgeons (including myself) who have operated on cases of closed head injury within the first few hours have commented on the swollen condition of the brain. Furthermore, it is a widely held view, and probably true, that when a compound fracture with its immediate decompressive effect has occurred convalescence is easier and freer from complications than when a comparable type of injury has produced cerebral contusion alone.

Turning next to the other side of the problem, Weed and McKibben (1919) constantly found histological changes in the brains of animals given intravenous injections of hypertonic or hypotonic solutions if by keeping the skull closed the brain volume was not allowed to alter. On the contrary, however, when the brain volume was allowed to alter by opening the skull with a trephine these histological changes did not take place.

Provision for Brain-swelling.—If brain-swelling which is the normal reaction to injury is allowed to take place the blood supply remains relatively unimpaired and resolution and recovery are complete. If the swelling is restricted local blood supply is impeded and may be followed by changes which are evident clinically as the "post-concussional state." Theoretically, provision may be made for brain-swelling by performing craniotomy or by withdrawing the incompressible cerebrospinal fluid from the skull; for, as Dandy (1933) has pointed out, "space compensation is the principal function of the cerebrospinal fluid." This fluid-withdrawal may be either by lumbar punctures or by dehydration, or it may be effected by a combination of both methods. In practice it has been found that craniotomy is unnecessary and undesirable and that dehydration is the procedure of choice, probably because this is a continuous and gentle process, whereas repeated lumbar punctures result in a rapid to-and-fro swing of cerebrospinal fluid production and thus are only occasionally employed to augment dehydration or for diagnostic reasons.

Dehydration by Magnesium Sulphate.—The question arises whether it is possible by any simple measures to produce the continued gentle dehydration previously advocated, and the reply is that this can be effected by instillations of magnesium sulphate into the rectum at regular intervals. Cushing and Foley (1920) showed that 20 to 30 c.cm. of a saturated solution of sodium chloride introduced into the duodenum or the rectum of the cat produced a maximal fall of cerebrospinal fluid pressure precisely comparable to that which occurred when the solution was given intravenously. They pointed out, moreover, that when the salt is given by the alimentary route the intracranial changes which are produced are not only not attended by disturbances of pulse, respiration, or blood pressure, but that possibly, also, alteration of the cellular elements of the blood is avoided. Temple Fay (1924) found that magnesium sulphate instilled into the rectum had advantages over sodium chloride in causing less discomfort and being almost twice as efficient in its effects on the cerebrospinal fluid. Being non-dialysable and therefore not absorbed into the blood stream, magnesium sulphate does not produce a secondary wave of tissue oedema with an increase in intracranial pressure as does the sodium salt. Writing of the rectal use of magnesium sulphate in the University Hospital in Philadelphia, he states: "The beneficial use of this salt in cranial injuries has been well established in this clinic." This has also been our experience at Cardiff. Its use in the treatment of cerebral oedema has also been endorsed by Donald Munro (1938) and others.

The details of treatment are briefly as follows: (1) The patient is propped up in bed with the head raised to reduce intracranial venous congestion, and for the same reason it is necessary to make sure there is no constriction of the neck veins by tight pyjama collars or other garments. (2) Retention enemas of 6 oz. of 30% magnesium sulphate solution in water are given every six hours. These must be very gently and slowly administered so as to be retained. (3) Fluid intake by mouth is restricted and a certain degree of thirst is a criterion of effective dehydration.

III. Examination of Results

In 1929* this practice was begun in the surgical unit at the Cardiff Royal Infirmary, and has consistently been followed since in all cases of head injury severe enough to be admitted (Lambert Rogers, 1935, 1937, 1938a, 1938b). The majority of these patients were in a state of profound or prolonged unconsciousness. In the years between 1929 and 1940 550 cases were treated. Fractures of the skull were detected in 133 of these, but there is reason to believe that many others had basal fractures not revealed by *x*-ray examination. Of these patients 25 died, the majority soon after admission.

An absence of both immediate and late complications has been noticed. Traumatic delirium (cerebral irritation) was infrequent, and when it did occur was only of a mild character. The absence of the noisy, shouting, restless type of patient with head injury, previously so often seen, was a welcome change which has often been commented upon by those taking part in the dehydration treatment. Furthermore, if focal signs arose in the course of treatment these were considered to indicate craniotomy, and were found at operation to be caused by blood-clot and not oedema, which in some cases previous to the dehydration regime had been revealed when these cases were operated upon because of the onset of focal signs. Lastly, although a follow-up clinic is maintained in connexion with the surgical unit, not one of these 525 cases has required readmission because of the so-called post-concussional state or sequelae of any kind. It is tempting to doubt, therefore, whether there is such a condition as the post-concussional state if brain-swelling is permitted to take place at the time of injury, and whether in fact this state, as has already been suggested, does not represent incomplete resolution the result of failure to institute effective initial treatment. It is perhaps pertinent to remark that during the period under consideration cases of so-called post-concussional state were admitted from other clinics where dehydration had not been carried out.

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* The idea followed Wilfred Trotter's teaching of the pathology of brain injury, and I had thought we were the first to institute the practice, but have since read that this treatment was in operation in 1921 on the neurosurgical service of the late Dr. Charles H. Frazier (Temple Fay, 1935).

IV. Review of Some Cases

The following details of a few cases exemplify the result of this treatment.

Case 1 : Fracture of base of middle fossa extending into right parieto-occipital region of vault. Cerebral contusion and laceration. Spastic paraplegia, right brachial monoplegia, left facial palsy, cyanosis, coma three weeks, cerebral irritation, bilateral suppurative otitis. Dehydration 15 weeks. Recovery complete.—A physician aged 53 was admitted after a motor accident, a fast-travelling lorry having collided with the side of the taxi-cab in the back seat of which he was sitting. On admission he was cyanosed and in profound coma; respirations were deep and noisy; he was bleeding from both ears and nostrils. There was a superficial scalp wound on the forehead and a haematoma over the occiput. There was a slight right facial palsy; the right arm was spastic, the left flaccid; there was spasticity of both legs, and the plantar reflexes were extensor. Death appeared to be imminent. He was propped up and dehydration begun. Lumbar puncture two days after admission showed a pressure of only 100 mm. water and red opalescent fluid; 20 c.cm. were withdrawn, and this was repeated 2 days later. Systolic blood pressure, 164 mm. Hg. Radiographs showed a "vertical fissure in the right occipito-parietal region." At this time he was groaning unceasingly, and was rather restless and still profoundly unconscious; the right arm was paralysed, but he was moving his left arm and both legs. The facial palsy had increased slightly. Three weeks later he developed suppurative otitis media in both ears. He was irrational but recovering consciousness, though unable to recognize an old friend. Later still the plantar reflexes became flexor; he was less excitable and had no headache, but complained of tingling in his right arm. Blood pressure, 130 mm. Hg. Dehydration was continued for a period of 15 weeks. Recovery was complete, and he returned to active consulting practice. For the seven years which have since elapsed he has worked consistently, is apparently normal in all respects, and is at present working harder than ever.

Case 2 : Linear closed fracture. Cerebral contusion, coma, delirium, right monoplegia soon proceeding to hemiplegia, middle meningeal haemorrhage. Bone flap; removal of 83 g. of extradural blood-clot. Dehydration 1 week. Recovery complete.—A farmer aged 33 was involved in a brawl in a local inn and hit with a ploughshare on the left side of his head. He was a big muscular man, over 6 ft. tall, and on admission was unconscious and very restless. Pupils reacted very sluggishly to light and both plantar reflexes were extensor. Dehydration was begun on admission. He remained unconscious for three days, but gradually became more docile as he was dehydrated. He then developed a right monoplegia which soon progressed to a hemiplegia. The systolic blood pressure was 90 mm. Hg. A linear fracture traversed the left parietal and squamous temporal bones. A left parietal bone flap was turned down and 83 g. of extradural blood-clot removed. He made a complete recovery, power returning first in the leg and then in the arm.

Case 3 : Closed head injury—probable basal fracture—unconscious 48 hours. No dehydration; intense headache, bradycardia; semi-conscious and very restless when seen. Dehydration 14 days. Rapid improvement and recovery.—An Army officer aged 35 fell from a lorry, struck his head, and was admitted unconscious to a cottage hospital. He was kept lying in bed for five days, and when then seen was semi-conscious, restless, vomiting, and complaining of intense headache. The pulse rate was 56; the cerebrospinal fluid was intimately mixed with blood. He was propped up and dehydration begun. The change was rapid, his headache being relieved, the vomiting ceasing, and restlessness subsiding. The matron of the cottage hospital volunteered the remark that the magnesium sulphate instillations relieved his headache. He was dehydrated for a fortnight, and was discharged symptom-free.

Case 4: Closed fracture, right parietal, following fall of 20 ft. Unconscious 2 hours, subsequently drowsy. Dehydration 5 days. Recovery complete.—A dockyard labourer aged 22 had an epileptic fit and fell from some staging about 20 ft. He was admitted to hospital, remained unconscious two hours, and was subsequently drowsy. He remembered feeling he was going to have a fit and then later finding himself in hospital. He was dehydrated for five days. The medical officer reported that he became less drowsy after the dehydration and made a complete recovery.

Case 5 : Closed fissured fracture, left parietal, following fall from lorry. Unconscious for few minutes. Wound of pinna. Dehydration 3 days. Recovery complete.—A marine aged 35 fell out of the back of a lorry and was unconscious for a few minutes only. On admission to hospital he had headache, was drowsy, and desired only to sleep; his cerebration was slow. He was dehydrated for 3 days, and the medical officer noted: "Patient benefited from dehydration. It relieved headache and he became brighter."

Case 6 : ? Fracture in parieto-occipital region. Closed head injury. Fall off back of lorry; unconscious 15 hours. Intense headache. Dehydration 7 days. Recovery complete.—A pensioner yeoman of signals aged 42 fell off the back of a lorry and was admitted unconscious. He remained so for 15 hours, and, although when he regained consciousness he was mentally alert, he was depressed and had intense headache. Medical officer noted: "Patient obtained benefit from dehydration. Headaches were relieved."

Case 7: Closed injury. Patient found lying unconscious beside bicycle in road. Abrasions of face, hands, and leg. Dehydration 18 days. Recovery complete.—An A.T.S. officer aged 30 was admitted unconscious to hospital, having been found in the road beside her bicycle. She remained unconscious for 6 days and was then unresponsive and drowsy, and complained of intense headache. The optic disks showed slight papilloedema; and the pulse was consistently below 60. The electro-encephalogram showed no abnormality in any area, but she was not made to overbreathe. When she was first seen either brain-swelling or a subdural haematoma was suspected. Remarkable changes followed dehydration. Once this was effectively instituted she made an uninterrupted and rapid recovery, and was discharged symptom-free.

Case 8 : Closed injury following fall off lorry; semi-conscious, traumatic delirium, hemiplegia. Dehydration 3 weeks. Recovery.—A soldier aged 25, fell out of a lorry on to the road and was admitted to a local hospital in a semi-conscious condition. He became very restless and irritable, and was noticed to have a hemiplegia. When seen 48 hours afterwards he was still only semi-conscious, very restless, irrational, irritable, and hemiplegic. The right plantar reflex was extensor, the pulse between 50 and 60. Lumbar puncture showed blood intimately mixed with the cerebrospinal fluid. Following dehydration he made a rapid recovery, his symptoms disappearing from the time of its institution.

Not once, but many times recently, I have had the experience of finding a young Service patient with a head injury lying flat in bed, unconscious, irritable, and restless, and within a few hours of propping him up, doing a lumbar puncture, and beginning dehydration therapy, seen him become a conscious rational being once more. I attribute such changes to the recognition of the importance of brain-swelling and the provision thus made for it.

While there have been difficulties in getting this treatment accepted as a routine measure in this country and few British neurosurgeons, with the exception of Wylie McKissock (1942), have openly supported it, there have not been lacking elsewhere those who have upheld the claims made for it. In the United States Foster Kennedy and Wortis (1932) have advocated dehydration treatment, and Temple Fay (1937) claims not only a reduction in mortality of somewhere about 25% in head injury cases so treated but that there is a remarkable improvement from the standpoint of subsequent economical and social adjustments. He writes: "If its [the brain's] tissue can be maintained alive during the crisis, a prompt return of function will follow to a far greater degree than has formerly been recognized. . . . What surgeon would permit a patient with a bed-sore to continue pressure on the area and expect the devitalized anaemic tissue to recover its function? Yet many . . . permit a brain to become involved in a relentless hydraulic compression, squeezing the blood out of this vital and important tissue." On the Continent, Decker (1938) of Lausanne has upheld its value, claiming a lowering of mortality and improvement in results since its adoption, and there have been others who from time to time have spoken or written in favour of it.

But for the most part these have been "voices crying in the wilderness." Anything like routine appears to be abhorrent to some surgeons, yet the reaction to injury must at least be always in the same direction, and if bruised brain always reacts by swelling, treatment surely should always be directed to providing for the swelling to take place.

Conclusion

To sum up, then, we may inquire whether the Monroe-Kellie doctrine does hold in regard to the reaction of the bruised brain to injury. Is the encapsulation of the brain by cranium, meninges, and cerebrospinal fluid of a comparatively rigid and inelastic character like the tunica albuginea of the testis, as has already been suggested, or does it by some physiological mechanism readily accommodate to cerebral swelling as does the thin elastic renal capsule to swelling of the bruised kidney? If, as it seems to me, the encapsulation behaves in a comparatively rigid and relatively inelastic manner, there can be no questioning the desirability of directing our treatment of the bruised brain towards an attempt to render the cerebral encapsulation more accommodating and thus to maintain the blood supply to the contused area by permitting it to swell in response to the law of its reaction to injury. It is further contended that the best method of doing this is by continued gentle dehydration to facilitate brain-swelling and so prevent the reduction in the blood supply to the damaged areas of the contused brain.

There is some reason to think that our forefathers may have had some inkling of the benefits of dehydration. Ambroise Paré over 300 years ago advocated restriction of fluids, purgation, and sweating for cases of head injury (Turnbull, 1939); and the prescribing of calomel and salts and otherwise purging of patients with fracture of the base of the skull, which was common practice early in this century, was probably introduced quite empirically, but was nevertheless essentially sound.

Perhaps in addition to the striking clinical improvement which is so often observed as soon as this treatment is instituted, the absence of sequelae in a long series of cases is the best criterion on which to base its claims. It is simple—so simple that it tends to be neglected or perhaps rather scornfully regarded, as Naaman was inclined to treat the advice of Elisha (ii Kings v). The Syrian captain was angered and disappointed that the prophet had not come down and performed some miracle. In these cases of severe closed head injury with profound unconsciousness it would be so much more dramatic to perform wide decompressive craniotomy, but the simpler treatment is so effective that, like bathing in the Jordan, it suffices. To those who are still not convinced by the arguments here put forward, the figures presented, or the cases instanced, one may quote what was once graphically said of some numerical evidence: "An emaciated child suffering from hunger is a more impressive sight than any number of mortality statistics." A few cases treated by this method will prove more convincing than any theoretical considerations.

Summary

Prolonged unconsciousness following a severe head injury, particularly when blood is intimately mixed with the cerebrospinal fluid, would indicate that the brain has been bruised or torn. Evidence is presented that the brain reacts to such injury by attempting to increase its volume.

No two head injuries are exactly comparable, and it is well known that remarkable and complete recoveries are often made from extensive injuries to the skull and brain. It is difficult, therefore, to assess the value of any particular type of treatment. The absence of sequelae following the consistent application of any particular form of treatment, however, may be urged in its favour.

Dehydration is a method of permitting brain-swelling to take place after injury, and the evidence in favour of its application is here examined. It should be effected by rectal magnesium sulphate and not by intravenous methods, which probably produce undesirable reactions.

Smoothness of convalescence and an absence of sequelae—e.g., the so-called post-concussional state—have been noticed after treatment of a large series of cases by continued gentle dehydration.

It is suggested that the post-concussional state may, in many cases at least, be the result of failure to introduce effective treatment in the early stages and represent a condition of unresolved contusion, it being maintained that resolution takes place readily and completely if the requisite condition for reparation is provided. It is suggested that this is the provision of space so that brain-swelling can occur and is not restricted by the cerebrospinal envelopes, with consequent impairment of the cerebral blood supply. Provision for such swelling is made by sustained dehydration, which reduces the incompressible water-content of the skull.

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THE NATURE OF THE RHEUMATIC CHILD

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(Concluded from p. 125)

Aetiological Factors in the Rheumatic State

It should be generally conceded that statistical inquiry has a more limited value in such a disorder as the rheumatism of childhood than it has in many other diseases. Diagnosis is more than usually difficult, so that the outlook, the experience, and the bias of the individual clinician have to be assessed. The conclusions, too, are valid only for the time and place in which they are made. This may be true in some degree of all statistical investigations, but it is most true of diseases that are disorders of personality and environment. So it should surprise no one that careful investigations by experienced observers at different times and in different places arrive at contrary conclusions with regard to the aetiological factors of rheumatism. The influences of climate, of heredity, of poverty and its accompaniments, are still keenly debated. It may be said of climate that its influence is equivocal; the disease is certainly not limited to northern latitudes and temperate climates as was once taught (Swift, 1940; Fernando, 1939), and it seems probable that the higher incidence of rheumatism in cold than in hot climates depends on the increased liability to respiratory infections in these areas. In England the geographic distribution of the disease cannot be shown to depend on climatic factors (Morris and Titmuss, 1942).

It is generally admitted that the disease shows a well-marked familial incidence, but in Great Britain most observers agree that this depends more on exposure to similar environmental stresses than on an inherited quality. In America, observers are inclined to attach more importance to the influence of heredity, but there are many facts (some of which are dealt with below) which suggest that the heritable factor cannot be of dominant importance. There are, however, three factors—age, social grouping, and the haemolytic streptococcus—about which opinion may be more dogmatically stated. Of these factors it may be said that unless an individual is between the ages of 3 and 15 it is uncommon for him to develop the disorder for the first time; that if he belongs to the wealthier classes he will with great probability escape it altogether, and that, if he does develop it, then at some phase of the illness, but not always at the start, the presence of the haemolytic streptococcus can be demonstrated. These factors deserve more attention here.

Age

There is no other infection which, while conferring no immunity, limits itself so accurately to an age group. This fact alone should be sufficient to characterize it not as a disease caused by an invader but rather as a disease conditioned by the host. This age group is paramount. Why?

The peculiarity of this age group is growth, and yet children grow more quickly in the cradle and continue to grow after puberty, so that physical growth does not suggest a solution. The fact that chorea is limited to this same age group confirms those who believe that rheumatism is an infection in their belief that chorea too is caused by the rheumatic invader. On the other hand, those who believe that chorea is a profound nervous instability, proved to follow psychic stress, will be encouraged by this age-grouping to look for a comparable nervous instability in non-choreic rheumatism. Physical growth is a silent progress to predestined stature (always granted a guaranteed nutrition). The growth of personality is a pilgrimage attended with difficulty and beset by dangers. The rheumatic age embraces the years when the child steps down from its cot into the family, and then out into the world—the years of integration and adjustment. I take it to be no coincidence that these are the years of growing pains, of chorea, and of rheumatic carditis.

Social Grouping

There is general agreement on both sides of the Atlantic that child rheumatism is much more frequent in the poorer classes. There are no comparable groups of statistics for the children of the poor and the rich; but Still (1927) found it to be nearly 20 times more common among his hospital out-patients than among the children of the same age group in his consulting practice. Glover (1930) suggests that it is 30 times more common among the poor. This is not to suggest that it is an unknown disease among the well-to-do. American writers often emphasize this (Kaiser, 1934), and epidemics among relatively closed communities of wealthier children in this country have been described (Bradley, 1932).

Large-scale investigations in Great Britain made by the Medical Research Council (1927) have established the fact that the incidence of rheumatism is not in direct relation to the degree of poverty.

> "Indeed," writes Still, "if the hospital patients are divided into three classes according to the degree of poverty, the poorest of these three, the very poor and destitute, show a lower incidence of rheumatism than the other two. It would seem, therefore, that if poverty is a factor in the incidence of rheumatism it must be on account of some condition or conditions associated therewith which are not equally present in all degrees of poverty."

Although this conclusion has been contested by some, there should be no doubt that it was valid for the time and place at which the "investigations" quoted were made. Morris and Titmuss (1942) have questioned it on the grounds that the mortality rates show a steep rise in deaths from heart disease coincident with decline in social status right through to the lowest social group. This criticism carries an obvious fallacy, since it might be expected that once the extremely poor child had become rheumatic its chance of survival was less than that of its wealthier brethren; mortality rates from heart disease in social groups cannot be accepted as an adequate reflex of the incidence of rheumatic disease in those groups.

Findlay defines this social status more closely: "It would seem, however, that it is not the very poorest but rather, if one may so express it, the better-class poor families that have been better off and have fallen on evil days." The Medical Research Council report thus described these families, which it labels "Group B," Group A being the less poor and Group C the very poor: "They are normal households, for the most part with adequate furniture, but have no margin for anything beyond the bare necessities of life, and are liable to periods of deprivations should loss of work occur. They have few outside interests, and are mainly occupied with the struggle to make ends meet."

No observer has suggested that the mental and nervous stresses of poverty on children may be as important as the physical. It needs little imagination to see that the nervous stresses of poverty will be greater in Group B than in Group A or C, greater than in the less poor and in the more poor—that is, in the family which has known failure and is preoccupied with the fear of falling again, with its struggle to keep up appearances, with its avoidance of social life, with its emphasis on hard work as a prelude to success, and with the distortion of its emotional life by fear and insecurity: this is the domestic background to Group B families. Is it fantastic to see in this environment one of the breeding-grounds of child rheumatism? In which class should we expect to find that education imposes a greater nervous strain? Although this factor of nervous instability may explain the higher incidence of rheumatism at this particular economic level of poverty, the general association of rheumatism with poverty at all levels probably depends, as a host of observers have assumed, on the physical accompaniments of poverty, poor clothing, bad and damp housing, malnutrition, and overcrowding. While most of these factors operate by reducing the resistance to infection, others such as overcrowding presumably act by increasing the number and virulence of nasopharyngeal infections.

Strong evidence against the importance of a heritable factor was provided by the M.R.C. report. Evidence was collected from the Poor Law residential schools, and it was found that children living in these institutions much less frequently developed the rheumatic state than children of the same class living at home. At two of these schools, in 22 and 18 years respectively, there had been only five cases of chorea and five cases of acute rheumatism out of more than 6,000 children who had passed through them. It may be estimated that 200 of these children would during that time have developed rheumatism or chorea had they remained in their own homes. Rheumatism in childhood is a disorder based on environment, although a predisposition may be inherited.

The Haemolytic Streptococcus

There is in any rheumatic child a phase in the development of the rheumatic state which is intimately associated with infection, and this infection can usually be shown to be associated with the haemolytic streptococcus. Sometimes, when the rheumatic state develops three weeks after an acute tonsillitis, the "invader" seems to have sufficient power by its own strength and numbers to overwhelm the body defences; sometimes, as in the subacute rheumatic state and in chorea, there has been preliminary "fifth column activity" in the nervous system which has weakened the capacity for resistance to the invader. There is no means, except by clinical approach, of assessing the relative importance of these various factors in any individual or of estimating their aetiological importance in various peoples. It is certain that these factors will vary in importance with race, with country, with social grouping, and with sex.

The view that emotional disorder may lower the resistance to infections may be difficult for some minds to accept, but it is in fact a commonplace of paediatrics. Cameron (1929) writes of the nervous child:

> "Lowering of resistance to infection of all sorts is clearly incurred. The frequent illnesses of the delicate only child have a real existence. They are not to be explained as imaginary ills due to the too great anxiety of the mother. The timid excitable child, with his faulty physique and wrong posture, not only catches every infection possible but responds to each with a violence peculiarly his own."

This review of the aetiological factors in the rheumatic state suggests that the nearly absolute limitation of that condition to an age group and its common association with poverty do not refute the theory that nervous instability in the child is part of the rheumatic diathesis, nor does the recognized association with infection in some of its phases controvert such a theory.

What Manner of Child is This?

Less than 10% of the children entering the rheumatic state do so by way of subacute rheumatism, and in my own cases these children have more often shown evidence of continued nervous instability than of infection. More than 25% of the children entering the rheumatic state do so by way of chorea, and it is suggested that this condition also is evidence not of infection but of profound nervous instability. If these aetiological assumptions are accepted then a third of the children who develop rheumatic carditis show evidence of preceding nervous instability. If this nervous instability is a component of the rheumatic state can it be shown to be present in other children with active rheumatism who have not suffered either from subacute rheumatism or from chorea?

I attempted to find evidence of this nervous instability in 21 consecutive cases of active rheumatism, none of these patients having suffered from chorea or from anything resembling subacute rheumatism. I did not regard the history as displaying nervous instability unless the child showed some disorder of physical process such as insomnia, somnambulism, or night terror; anorexia, diarrhoea, or acquired enuresis; fatigue, fidgetiness, or habit-spasm; pains, whether of head, abdomen, or limbs—and in addition some evidence in the mother's story of emotional disorder or environmental difficulty.

The results of this inquiry were disappointing—only three of the 21 children showed evidence of nervous instability when judged by this exacting standard. The parents of two other children, however, told a story of environmental stress that seemed so closely related to the onset of the rheumatic infection as to provide an aetiological factor. Neither of these two children showed any previous psychological abnormality. One other point of importance emerged. The parents of 16 of these children described them as unusually excitable —such excitability, for the most part, going back to the "toddler" age. It was notable, too, that eight of these mothers used the expression "inwardly excitable." Of these 21 children 12 were described by their mothers as unusually timid or shy. It was as a rule easy to detect evidence of excitability or timidity in these children. This inquiry disappointed me until a year ago, when I read an article by Neustatter (1937), which began with a remark made by Prof. H. A. Harris of Cambridge, "The rheumatic child is highly strung but he isn't neurotic." I realized then that I had been "barking up the wrong tree" in looking for evidence of neurosis in these children. The important fact is their excitable temperament, demonstrated again by this small series of mine, but emphasized over many years by a number of clinicians. Cheadle wrote in 1889:

> "I would insist on the fact that there is nothing antagonistic between the agency of the nervous state or mental excitement and rheumatism. They are concerned together as factors in many cases of chorea." And again: "I should like to call attention to the relation of nervous excitability to rheumatism. The rheumatic children who develop chorea are intellectual, highly strung, excitable, nervous, often emotional. The question arises, Is the nervous instability due to the influence of the recent active rheumatic state and induced by it; or is the nervous instability part of the original constitution of the child, and chorea produced when this is acted upon by a second fact—viz., rheumatism? Or do the two tendencies run together in the original diathesis—the child with a tendency to rheumatism inheriting thereby a mobile nervous system?"

Still (1912) writes:

> "To my mind one of the most striking features in such children is the nervous temperament, to which Goodhart has specially drawn attention. The rheumatic child is *par excellence* the nervous child. In many cases this is seen in an undue excitability: such children will become almost uncontrollable in their excitement over games and amusements or, on the other hand, there may be excessive timidity; in some of the older children this is replaced by a sensitivity or shyness which is almost morbid."

This description of the rheumatic child's temperament has been elaborated by many authors, but the quotation from Still described it well enough—the excessive excitability disguised often by shyness but wildly expressed in moments of acute emotion. It has often been suggested that this nervous excitability is the result of rheumatic infection, but Neustatter's investigations do not support such a theory. He concludes that the "rheumatism may aggravate the nervousness but does not cause it." This has also been my experience. The mothers of these children related that the excitability was present for years before the development of the rheumatic state. Therefore studies of the child's personality during and after the development of the rheumatic state will have equal validity with studies made before; and they should be more informative, since the child's nature has been exposed to the most searching of all tests—a recognition that the heart, the organ whose beating signifies life and whose stillness means death, is diseased. Poynton (1936) said of this emotional disturbance, in the Harben Lectures:

> "We must understand the child with acute heart disease. It may be instinctively terrified to a high degree, just as an adult may be when he or she feels that the very pivot of life is in danger."

Winnicott (1938), who has studied these children for many years as a paediatrician and later by psycho-analytical technique, writes:

> "When we examine the child's heart we do not always realize that in the child's unconscious fantasy we are testing his ability to keep his ideals alive and unhurt. The child does not necessarily understand the life and death of his body as we understand it, but he understands something deeper which is the life or death of what he believes in and values most in himself. What we say, therefore, about the things inside to which we listen with a stethoscope and discuss with our colleagues over a bedside comes to the child as a matter of life and death in an acutely real sense. It is a matter of reality and of the right to live. In adult terms, it is to be or not to be, to continue to live or to seek death. These are the anxieties that belong to psychiatric depression."

It makes little difference whether we choose to talk of instinctive terror with Poynton or in terms of unconscious fantasy with Winnicott, the important fact for practising physicians to realize is that we are dealing with children who are suffering from fear—unexpressed, unrecognized, and undischarged.

Neustatter suggested that the symptoms—night terrors, restless sleep, worrying disposition, timidity, swings of mood, and emotional instability—which were commoner in his rheumatic groups have an aetiological distinction from the neuroses: "the former are possibly of primarily physiological origin and the latter due to psychological causes." This idea is an illuminating extension of Prof. Harris's remark quoted above, but its expression and the juxtaposition of "physiological" and "psychological" are not happy. It is preferable to regard the temperament of these children as showing a quantitative difference from normal—a speeding-up of both motor and emotional reactions—while the neurotic displays a qualitative deviation from normal. It is possible that the electroencephalogram may one day diagnose and measure for us this quantitative deviation.

No one can deny the emotional and kinetic lability of the child with chorea, but it is as legitimate to deny as it is to assert that this excitability exists also in many rheumatic children. Nor do I see how, in the present state of our knowledge, these matters can be put to scientific proof. There is no laboratory test for acute rheumatism, nor is there any objective measurement of excitability; investigation can only be by question and answer and by subjective observation. Any one physician caring for any one rheumatic child has to attempt the assessment of these factors for himself.

It is concluded that where the rheumatic child displays neurotic symptoms, as he or she infrequently does, these symptoms are superimposed on a nervous temperament and stand in no aetiological relation to the rheumatism. It is suggested that the personality of the rheumatic child shows a quantitative increase in emotion and kinesis—which has long been recognized by many clinical observers—and it is suggested that this nervous instability is an important factor in the development of the rheumatic state.

Treatment of the Nervous Rheumatic Child

There are two principles in the treatment of these children which are implicit in all that has been written here. The first is that the child, whether suffering from nervous disorder, growing pains, arthritis, or chorea, should not be regarded as suffering from the rheumatic state until the diagnosis of carditis is definitely established. The second is that evidence of nervous excitability or instability should be sought and, if found, treated in all such children before, during, and after the development of this rheumatic state. The first principle will prevent the formation of cardiac neurosis, and the second principle, I believe, gives the best hope of limiting the extent of the rheumatic disorder in childhood.

Nothing recondite is required in the way of psychiatric diagnosis and treatment for these children. They are nervous and timid, excitable and fearful, and the appropriate treatment is by way of reassurance, recognition, and solution, if possible, of environmental difficulty, and by sedatives.

Reassurance.—The need for reassurance should be remembered at every stage of treatment. Words spoken at the bedside should be definitely encouraging: no hint of diagnostic difficulty, of therapeutic failure, or of doubtful prognosis should be allowed to reach the child. Attempts should be made by parents, doctors, and teachers to overcome the child's timidity and fear. He should be encouraged, by every means to believe that his background is stable and his environment secure. The best means to this end is to surround him with a confident family circle. The already anxious mother will be quick to catch the physician's dominating fear, which is the fear of relapse, and the family atmosphere seldom brings reassurance to these children. Fortunately, most of these children are much less fearful of the effect of physical activity than are their mothers and doctors.

Winnicott (1938) has written: "It may be said that once we have diagnosed rheumatism implying that the child is liable to heart disease our job is to produce in the child an *induced hypochondria.* This is our first task, and the future depends on our success rather than on drugs." No doubt this holds a certain element of truth, but it also holds a greater element of danger. Hypochondria will not help to return the child to normal living; and this last must surely be the object of all therapy. It is important to recall constantly, when treating rheumatic heart disease in children, that a cardiac neurosis is frequently imposed on these children. Paul White (1937) reported that 4.7% of patients with organic heart disease had "neuro-circulatory asthenia"; and Paul Wood (1941) found that out of 100 recruits with early organic heart disease 13 showed the symptoms of Da Costa's syndrome. I believe that once the active rheumatic process has subsided (and of this we can to-day furnish good evidence with the sleeping pulse rate and the sedimentation rate) the child should be returned to normal living as quickly as possible, and its activity should then be limited, not by some imposed standard but only by the heart's capacity. I believe that nervous relapse (chorea and subacute rheumatism) is best prevented by the methods outlined here. The prevention of further pharyngeal infection presents a difficult problem. The removal of large numbers of these children to Florida has been shown not to prevent it. Schlesinger (1938) has shown that continuous aspirin therapy reduces the liability to streptococcal relapses; it is probable that continuous sulphonamide therapy will prove itself more effective (Thomas, 1942). I believe that no measures should be taken to prevent infection which interfere with the child's normal living.

Environmental Difficulties.—These may be related to the family or to school. In neither case is removal from the family or prolonged absence from school likely to offer a permanent solution. It is amazing how light-heartedly children are kept away from school. The child that cannot adapt itself to its family has failed at its first hurdle, the child that cannot adapt itself to the normal educational stresses has failed at its second, and such children are unlikely to succeed at the later stages of the race. An attempt should be made to iron out the grosser environmental stresses, but the aim should always be to alter the child's abnormal reactions to its environment.

The Value of Sedatives.—I believe that continuous sedation by phenobarbitone is first-class therapeutics for these children with growing pains and the subacute rheumatic state, with chorea, and with active rheumatism. It will no doubt be objected that there are dangers in this continuous treatment by sedatives. I can only say in reply that I have watched these children for several years and am convinced that their physical and mental performance is improved by such therapy.

Growing Pains.—The child is depressed, weeps easily, sleeps badly, and is worried by pains. In time its anxieties appear to be related entirely to its physical symptoms. "There, I'm flushing again: My heart's beating away: I can't eat my dinner: I've got that pain in my legs: Why can't I stop twitching?: I shall never get to sleep." These are the cries of the child, and phenobarbitone causes the symptoms to disappear.

Chorea.—I believe that every child who has had chorea should be treated with phenobarbitone daily until after puberty. I have had 12 unselected children who have suffered from chorea under continuous observation and such treatment for periods varying from three to six years. Only one of them has had a relapse of chorea and only two have had another rheumatic episode in the period of observation. This is much less than the expected relapse rate for such children. Other observers have found that it is possible to reduce the expected relapse rate in chorea by the attempt to remove environmental stress but without continuous sedation. Gerstley and his collaborators recorded a relapse in only 6 children out of 45 with chorea over a period of seven years, and "three of those had not been faithful attendants at the clinic." Their prophylactic treatment was "by keeping the youngsters under constant observation, obtaining co-operation from the school teacher, and avoiding the radio and thrilling movie."

The Rheumatic State.—All children with acute rheumatism should be given sedatives, since all are liable to chorea. Such therapy is more important for girls than for boys, and more important for children who have had previous attacks of chorea. As to the need for sedation in the other phases of the rheumatic state, the physician must assess the instability of the individual child. I have formulated for my own use the following rules for the administration of phenobarbitone to these children. It should be given to all rheumatic children who (1) show undue excitability, timidity, or motor instability, (2) show disorders of sleep, digestion, or appetite; (3) complain of fatigue or other "circulatory" symptoms unrelated to physical activity (i.e., the common complaint of tiredness in the morning). As an example of the results of this treatment the following case is related:

A girl aged 12 was admitted to the hospital for the first time in April, 1941. She had been known to have a "weak heart" since an examination by the school medical officer at the age of 5. She had not been allowed to play games, go to the gymnasium, swim, or cycle. She has always slept badly and had a poor appetite. Her weight was 4 st. 12 lb. before her present illness. Her mother said she was very excitable and, although usually happy, was liable to violent outbursts of temper. These outbursts were generally related to imposed restriction of her physical activities. She had an attack of rheumatism after measles at the age of 8, but had had no other rheumatic episode since. Examination of her heart showed pericarditis and fully developed mitral stenosis. Her sedimentation rate was normal in six weeks, and she was allowed out of bed in ten weeks. She returned home and has had 1/2 gr. of phenobarbitone night and morning since. She sleeps well, has a good appetite, and has gained 20 lb. in the last year. She is said to be happy, even-tempered, and much less excitable. She rides a bicycle, has learnt to swim, has spent a week under canvas at a girls' camp, and has had no time away from school.

It is suggested that the treatment of these children by simple psychotherapy and by sedation removes their growing pains, reduces relapse in chorea, and improves the mental and physical performance of the rheumatic child.

Summary of the Argument

The rheumatic state in childhood has two main components—nervous excitability and infection. These two factors are present in varying degree in any one rheumatic child, so that it may be impossible in one child to distinguish any nervous instability or in another to detect any certain evidence of infection. In one, the profound motor and emotional instability which is called chorea may possess the child and infection be either absent or a late invader; while in another, infection dominates the scene at the abrupt onset and throughout the subsequent course.

It is concluded that growing pains are usually the result of some difficulty attending the growth of personality, not of stature, and that it is more easy to find evidence of nervous instability than of infection in the subacute rheumatic state.

The nervous instability of the rheumatic child has no relation to neurosis; it is suggested that it is a quantitative increase in emotion and kinesis. The relationship between the nervous excitability and the infection is difficult to determine. It has been generally assumed that such nervous instability as is allowed to the rheumatic child is the direct result of the "rheumatic infection or toxaemia," and this view is supported by the fact that chorea may develop for the first time during an attack of acute rheumatism. There is more evidence to support the contrary view that this nervous excitability in the child commonly precedes the onset of infection and may even prepare the ground for the rheumatic invader.

The various aetiological factors in the rheumatic state are potent in so far as they predispose to these two components—nervous excitability and infection. Age, sex (as in chorea), and the nervous stresses of poverty are important since they contribute to the appropriate nervous excitability; climate, cold and damp, overcrowding, and the other physical accompaniments of poverty are important because they increase the liability to droplet infection. The heritable factor in the rheumatism of childhood cannot be of great importance, since there are many facts that declare it primarily an environmental disorder.

Glover (1930) has called rheumatism an obsolescent disease, and this no doubt depends on the slow removal of the appropriate environmental stresses amongst the poor. Such "gradualness may be inevitable," but it is suggested that the health of the rheumatic child is improved and stabilized by treatment of its nervous instability. This is done by the removal of the grosser environmental stresses, if possible, by the adjustment of the child's reaction to its environment, and, most important of all, by continuous sedation with phenobarbitone.

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MACROCYTIC ANAEMIA OF PREGNANCY AND THE PUERPERIUM

BY

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It is generally believed that the macrocytic anaemia, or so-called "pernicious anaemia," of pregnancy is due to a lack of the anti-pernicious-anaemia principle brought about by one or more of the following causes: (*a*) a temporary depression of secretion of the specific intrinsic factor of Castle (Strauss and Castle, 1933; *Brit. Ency. med. Pract.*, 1936); (*b*) a deficient intake of the extrinsic factor (Strauss and Castle, 1933; *Brit. Ency. med. Pract.*, 1936); and (*c*) a diversion to the foetus of the anti-anaemic principle itself (Vaughan, 1936). The usual conception of treatment is that it is similar to that of Addisonian pernicious anaemia except that in the macrocytic anaemia of pregnancy it may be discontinued after delivery, when the demands of the foetus no longer exist and a return of the secretion of intrinsic factor has been presumed to occur (Strauss and Castle, 1933; Vaughan, 1936). The three cases to be described are of interest because there was little or no improvement in the blood level after liver extracts given parenterally, but rapid regeneration occurred when this treatment was supplemented by the ingestion of whole liver.

Case I

Mrs. A., aged 39, was admitted to hospital in Nov., 1941, during the 36th week of pregnancy. For two weeks before admission she felt tired and breathless and vomited frequently. The pregnancy had until then been uneventful, and she had taken a diet which was notable in only one respect—namely, that she had never cared for and seldom ate any red meat. She had five children, all alive and well. The last child was born in Nov., 1937, and at that time she was noted to be severely anaemic and was given a blood transfusion after labour. Next day the haemoglobin was 30% and a film was described as showing the features of pernicious anaemia. In the next 13 days 40 c.cm. of campolon was injected. Reticulocyte counts apparently were not done, but it is of interest that 15 days after the first injection the haemoglobin had fallen slightly to 28%. Large doses of campolon were continued, and recovery was then rapid. She was discharged with a haemoglobin of 70%; no further treatment was given. There seems little doubt, therefore, that she had had "pernicious anaemia" of pregnancy in 1937.

When seen in Nov., 1941, she was obviously severely anaemic. Physical examination revealed no notable abnormality. The tongue and nails were normal. Free hydrochloric acid was secreted after the injection of histamine—maximum, 30 units at one hour. The haemoglobin was 20%, and the other findings were compatible with Addisonian pernicious anaemia except that anisocytosis was less than would be expected at this level. A Price-Jones curve gave a mean cell diameter of 8.5 μ.

In the first three days 10 c.cm. of campolon and 8 c.cm. of anahaemin were injected (see Fig. 1). Three days after the first injection there was a reticulocytosis of 9.7%. On this day delivery occurred and a blood transfusion of two pints was given. The blood loss after delivery was estimated at about one pint. The slight improvement produced by the transfusion was transient and the blood count had fallen almost to the initial level on the tenth day. From the eighth day onwards daily injections of anahaemin or neo-hepatex and small doses of campoferron orally were given. On the sixteenth day there was a reticulocyte crisis of 40%, but very little rise in the red cell count occurred. On the fourteenth day treatment with whole liver was begun. The reticulocytes were 29% on the thirtieth day, and the blood count then rose rapidly.

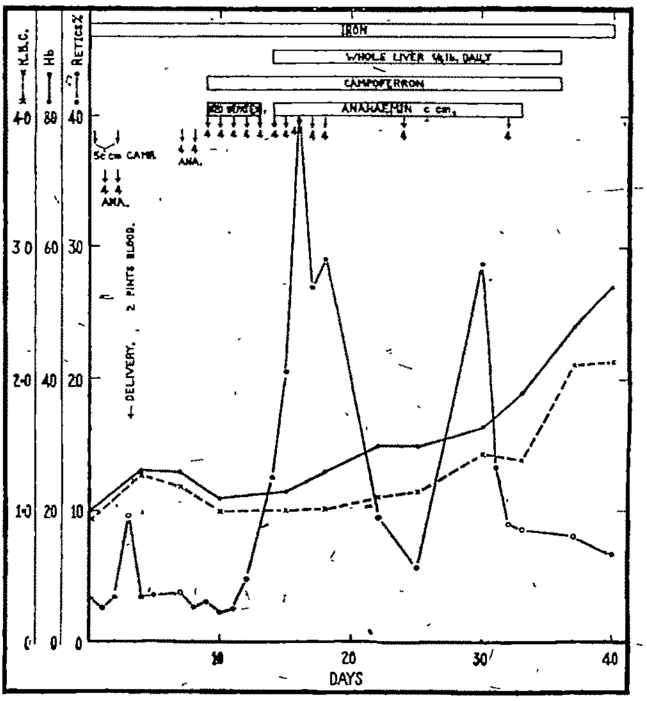

FIG. 1.—Chart of Case I

Case II

Mrs. B, aged 39, was admitted to hospital in June, 1941, five weeks after giving birth to her sixth child. She insisted that she had no untoward symptoms until three weeks after delivery, when she began to be breathless and tired; but she was inclined to belittle her symptoms, and it is quite possible that their onset was earlier than this. At the same time there developed a burning pain in the tongue, and her appetite, which previously had been excellent, began to fail, so that shortly before admission she had literally to force herself to eat. Her diet appeared to have been satisfactory, and was distinctly better than that taken by most women of the hospital class.

The tongue showed no papillary atrophy, but there was a superficial ulcer on each margin. The spleen was easily palpable four fingerbreadths below the costal margin. Free hydrochloric acid was secreted after the injection of histamine. The initial blood count was: Hb 27%, R.B.C. 1,400,000, C.I. 0.96, reticulocytes 3.7%, W.B.C. 3,100 (see Fig. 2). The appearances in a film were compatible with Addisonian pernicious anaemia. Sternal marrow showed 55% of erythroblasts, with 18% of megaloblasts. Following injection of 2 c.cm. of anahaemin there was a small reticulocyte response (maximum 7.6% on the fourth day), but in spite of this the blood count fell slightly. On the seventh day after beginning treatment with whole liver, campoferon, campolon, and anahaemin the reticulocytes reached a peak of 27%, and this was followed by extremely rapid blood regeneration, the haemoglobin rising by 60% and the red cells by 3 millions in the 18 days following the start of this treatment. The patient has been seen at intervals for six months, and has maintained a normal blood count without further treatment.

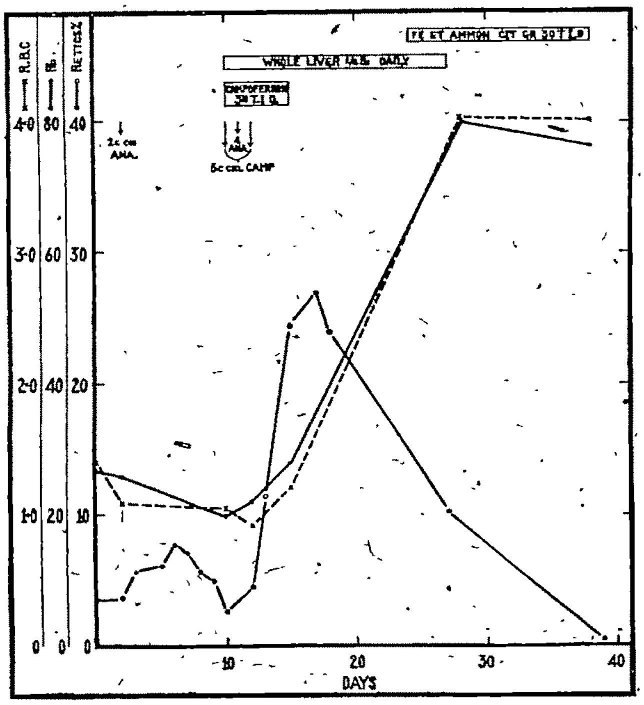

FIG. 2.—Chart of Case II.

Case III

Mrs. C., aged 36, was admitted to hospital in Sept., 1941, 6 weeks after giving birth to her ninth child. Immediately after labour she felt weak and tired, and these symptoms gradually became more marked. For about a week before admission there were diarrhoea and pain in the tongue. Her appetite was good until the last two months of pregnancy, and she had always taken a good mixed diet. In this case there was histamine-fast achlorhydria, and the tongue papillae were atrophic. The initial blood count was: Hb 18%, R.B.C. 650,000, C.I. 1.30, W.B.C. 3,600, reticulocytes 14% (see Fig. 3). The film was indistinguishable from that of Addisonian pernicious anaemia. A Price-Jones curve gave a mean cell diameter of 7.88 μ, and the mean cell volume was 92.6 cu.μ. The sternal marrow showed 28% erythroblasts, including 8% megaloblasts.

A reticulocyte response of 27.5% occurred 11 days after the injection of 4 c.cm. of anahaemin and 7 days after 10 c.cm. of campolon. The blood count, however, rose only slightly, and then gradually fell. Seven days after beginning treatment with whole liver and daily injections of neo-hepatex there was a reticulocytosis of 28.6%, and another peak of 20% occurred 6 days later. At the same time the blood count began to rise very rapidly.

Discussion

That the macrocytic anaemia of pregnancy and the puerperium may be refractory to treatment which is efficacious in Addisonian anaemia is not well recognized, and it is not clear whether this fact is due to its rarity or whether it has been largely overlooked. A study of the literature shows that cases of this type have occurred (Stevenson, 1937-8; Ungley, 1938), but little emphasis has been laid upon them, and in a recent review by Sodeman (1940) they receive no mention. In the discussion which followed a communication based on the cases reported here (meeting of the Association of Physicians of Great Britain and Ireland, April, 1942), L. S. P. Davidson described a series of 16 cases of macrocytic anaemia occurring in pregnancy and the puerperium of which 10 were temporarily refractory to treatment with massive doses of liver extract. Details of these cases have been published by Davidson, Davis, and Innes (1942). Now that attention has been drawn to cases of this type it is possible that they will be found to form a considerable proportion of the macrocytic anaemias associated with pregnancy.

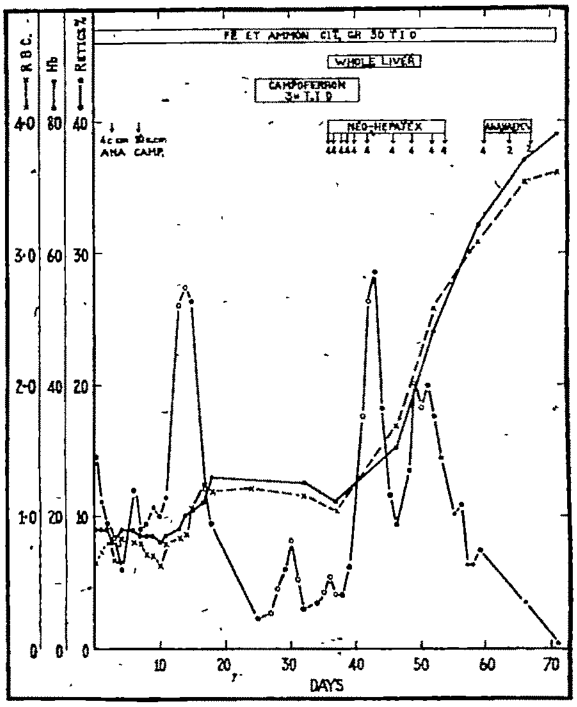

FIG. 3.—Chart of Case III.

It is unfortunate that in each of the cases reported above the degree of anaemia was so severe that the separate trial of different therapeutic agents was not justified. Accordingly, massive treatment with parenteral liver extracts, campoferron (oral liver extract with iron; Bayer Products Ltd.), and whole liver was instituted in each case after the effect of parenteral liver extract had been found to be slight or absent. This makes interpretation of the results more difficult than would have been the case if the different forms of therapy had been used separately, but analysis of the results appears to justify certain conclusions.

In Cases I and III large doses of campolon (Bayer Products Ltd.) and anahaemin (British Drug Houses Ltd.) produced reticulocyte responses but little or no rise in the blood count, while in Case II 2 c.cm. of anahaemin brought about a small reticulocyte response but no improvement in the anaemia. All the liver extracts used were potent; for example, the same dose of the same batch of anahaemin as was used in Case II produced an optimal reticulocyte response and rapid blood regeneration in a case of Addisonian pernicious anaemia. Moreover, there was no evidence of sepsis or other condition that might have had an inhibitory effect, and the rapid blood regeneration which followed massive therapy makes it clear that marrow hypoplasia was not present. It may be concluded, therefore, that a deficiency of factors other than the anti-pernicious-anaemia principle was concerned in the production of the anaemia. The evidence suggests that the ingestion of whole liver provided these factors. It might be argued that they were present in low concentration in the parenteral extracts used, and that these extracts in the very large doses given were responsible for the ultimately satisfactory blood regeneration. This possibility seems unlikely, since Cases I and III showed little or no rise in the blood count after quite large initial doses of campolon and anahaemin. Moreover, the concentration of such additional factors in liver extract is likely to be much greater in crude preparations like campolon than in the refined extracts anahaemin and neo-hepatex (Evans Sons Lescher and Webb), and it is seen from Figs. 1 and 3 that campolon was not given during the period of massive therapy which produced rapid blood regeneration. The effect of campoferron can probably be discounted, since the dose given was small, and when used alone for 11 days in Case III this preparation produced a small reticulocytosis but no rise in the blood count.

Attention is drawn to the double reticulocyte response which occurred during the period of massive therapy in Cases I and III. The phenomenon was not discernible in Case II, perhaps because of the infrequency of the observations during this period. The time relationships of these reticulocyte crises suggest that the first was due to parenteral therapy, and the second to the ingestion of whole liver. The occurrence of this second reticulocytosis, and the fact that it was accompanied and followed by rapid blood regeneration, are further evidence that whole liver provided essential factors which were not present in the parenteral extracts.

The characteristics of the responses shown by the cases under discussion suggest an analogy with the macrocytic anaemia of sprue and other steatorrhoeas, in which it has been noted that in some cases blood regeneration does not follow the reticulocytosis produced by parenteral liver extracts unless a high protein diet is also given. Davidson (1939) has described a case of this type and suggested that the high intake of protein might be necessary for the formation of red cell stroma. Of particular interest is the fact that one of the constituents of the diet used in his case was 1/2 lb. of liver daily. Moreover, I have recently studied 3 cases of macrocytic anaemia associated with steatorrhoea which were refractory to parenteral extracts but responded rapidly when whole liver was given without any other alteration in the diet. It is hoped to publish these cases at an early date. These observations suggest that in cases of macrocytic anaemia of pregnancy and the puerperium of the type here described there may exist a deficiency of factors present in whole liver similar to those which are lacking in some cases of macrocytic anaemia associated with steatorrhoea. The nature of these factors and the causes which produced deficiency in the cases described are quite obscure. Certainly the histories do not point to direct dietary deficiency, and although a temporary depression of absorption from the intestine brought about by the pregnancy would explain the findings, there is no direct evidence that such a condition existed.

Summary

Three cases of macrocytic anaemia of pregnancy and the puerperium are described. The results of treatment showed that deficiency of the anti-pernicious-anaemia principle was not the only factor concerned in the production of the anaemia. Reticulocytosis after injection of liver extract may not be followed by remission in the macrocytic anaemia of pregnancy. The administration of whole liver appeared to provide other factors necessary for blood regeneration. An analogy is drawn between these cases and the macrocytic anaemia associated with steatorrhoea.

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Taking advantage of the investigation by bronchoscopy of patients suffering from various pulmonary lesions, L. Tuft and N. M. Levin (*Amer. J. med. Sci.*, 1942, **203**, 717) took samples of bronchial secretion before and after the intravenous injection of sodium iodide. The iodide was detected in the bronchial secretion within 15 to 20 minutes after intravenous injection. The authors believe that the excretion of iodides into the bronchial tree accounts for their expectorant action.

ECONOMY IN FATS AND OILS IN TREATMENT OF SKIN DISEASES

BY

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In September, 1939, it was realized that the shortage of fats and oils which would inevitably occur might in time seriously affect the treatment of diseases of the skin. It was then recommended that wet dressings and varnishes should be used whenever possible in place of ointment and paste preparations. Such substitution is not, however, universally applicable. Just as some types of inflammatory skin diseases, particularly inflammatory processes of the eczematous type, are intolerant to greasy applications of all descriptions in certain phases of their course, so other inflammatory conditions, including most cases presenting the eczema type of inflammation, demand grease in some form if a response to treatment is to be achieved. These well-known facts can only be interpreted as showing that processes or reactions which occur at the point of contact between the epidermal surface on the one hand and the opposing surface of the vehicle containing the therapeutic agent on the other have a profound influence on the course of the disease, and this quite apart from any known pharmacological action of substances incorporated in the vehicle. Greasy bases are therefore essential and irreplaceable in dermatological therapy.

A substantial quantity of a greasy base must be used in the treatment of a case. For example, 2 lb. of a paste containing 15% zinc oxide in paraff. moll. is necessary for a single adequate dressing of an eczematous eruption involving the entire body, 6 oz. for an arm and hand only, and 3 oz. for a hand and fingers only. Less is required if zinc oxide or other inert powder employed to give the paste consistence is omitted; but it has been pointed out that the nature of the base may be all-important and determine success or failure with an incorporated drug, and it frequently happens that the paste consistence is essential. To remove a paste from the inflamed skin a preliminary softening and cleansing with a mineral or vegetable oil is necessary, followed by washing with soap and water. The oil and soap add to the total amount of fats and oils used in the treatment of the disease.

As there is no substitute for grease, economy in its use can only be achieved by some procedure or manipulation that eliminates the necessity for using oil and soap in conjunction with it, and this can be done.

Skin-cleansing Substances

The following substances can be added to a bath in small amounts or used in the same way as liquid soap; they will remove from the skin a paste containing 15% zinc oxide without a preliminary cleansing of the skin with oil:

Sodium salt of highly sulphonated oleic acid (M 1337)*
Polyethenoxy-ether of cetyl alcohol (M 1344)
The sodium salt of the sulphuric ester of sperm oil alcohol (M 1773)
Cetyltrimethyl ammonium bromide

These substances have been used as cleansing agents with no deleterious effect on acutely eczematous skin. They are not primary irritants and, except in the rarest instances, are not substances to which idiosyncrasy may be expected. The latter statement can of course be applied to any widely used skin application or skin contact substance, either therapeutic or cosmetic, or to wearing apparel.

The removal of a pomade with a soft paraffin base which has been thoroughly rubbed into the hair and scalp in the female is an extremely arduous and frequently disappointing procedure when soap preparations are used, but these substances can completely and easily cleanse such a scalp.

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* These substances are standardized mixtures to which it would be difficult to assign a precise chemical definition, and for this reason a number is appended to a general descriptive nomenclature.

Emulsifying Agents

Another method of economizing in oil is to incorporate an emulsifying agent in the ointment base. The following formulae have been tried:

		Parts
℞	Paraff. moll.	25
	Octadecyl alcohol	2–4
	Diethylene glycol distearate	2.5–5
	Sodium cetyl sulphate (15% paste)	1
	Water	22–26

This emulsion must be kept in a closed container to avoid evaporation.

℞	Tetraethenoxy-cetyl alcohol	10–20 g.
	Paraff. moll.	ad 100 g.

℞	Cetyl alcohol — 4 mols ethylene oxide ..	40	parts, of this 10–20 g.
	Cetyl alcohol	40	
	Sodium cetyl sulphate ..	20	
	Paraff. moll.		ad 100 g.

To these preparations may be added any of the ingredients commonly incorporated in the ointment bases—i.e., zinc oxide, ichthammol, mercury, sulphur, etc.

These three formulae have been used with the addition of 15% zinc oxide and an active ingredient such as ichthammol or ammoniated mercury in the treatment of a sufficient number of eczematous skin eruptions to give convincing evidence that they fulfil the same conditions as regards suitability as was found in the case of the cleansing agents. To remove these preparations from the skin no oil is required, and considerably less soap is used than is necessary when a cleansing oil has been applied before the soap and water in the removal of an ordinary paste base; sometimes it is possible to dispense with soap altogether.

Comment

In the case of the cleansing agents, oil and soap are dispensed with; in the case of the emulsifying bases, oil is not necessary and little or no soap is used. The extent of the economy which might result from the employment of these preparations or others of similar nature can be judged when the oil and soap consumption of a large department for the treatment of skin diseases is examined. The weekly requirement in one such department containing 60 beds and catering for the daily treatment of from 20 to 30 out-patients referred from the consultation-room is about 400 oz. of oil and 12 lb. of soap. In addition to economy in actual material there is a considerable reduction in the time required to carry out treatment. To prepare for a bath a case in which a paste has been applied to the entire body surface at least half an hour's work with oil is necessary, and at least part of this operation requires the services of a nurse.

Finally, the removal of ordinary pastes necessitates a considerable amount of friction, which has some temporary deleterious effect on the course of an eczematous eruption. The employment of either type of preparation described above obviates this drawback.

My thanks are due to Imperial Chemical Industries (Pharmaceuticals) Ltd., Manchester, for the preparations used in this investigation.

THE BREAD FACTOR IN A WARTIME HUMAN DIETARY

BY

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Contradictory statements have appeared in the literature as to the merits or demerits of national wheatmeal bread and of the proposals to fortify this bread with calcium in the form of creta praeparata or white bread with aneurin (vitamin B_1) and calcium in the same form. It was thought, therefore, to be of interest to record the results of some feeding experiments recently carried out with rats.

The experiments were designed to determine the effect on the growth of young rats of substituting national wheatmeal bread or fortified white bread for the ordinary white bread in the basal diet. This basal diet was drawn up from the results of a dietary survey carried out in a North of Scotland town in the spring of 1941, and represents the average diet of a number of families spending up to 7s. per head weekly on food. The rats' basal diet contained all the various foods in the proportion in which they were found in the human diet. The methods used in the preparation of the food, which was in all cases fed *ad lib.*, were similar to those described for an earlier dietary experiment at this institute (Orr, Thomson, and Garry, 1936). Since "fortified" white bread was not available in this part of the country, white bread supplemented with chalk and aneurin in the proportions officially proposed was employed for this purpose.

Experiment I

In the first experiment six groups of rats were used, and the diets and weight increases for each group over a period of eight weeks are shown in the accompanying table. The rats were given their respective diets at weaning, approximately half of them being taken from the stock colony, the others being the offspring of parents which had been reared on the corresponding experimental diets in a preliminary experiment. Each group contained 14 or 15 males and 15 females, the sexes being caged separately. The mineral–vitamin supplement used in Group 5 contained calcium, phosphorus, iron, and vitamins A, B_1, and C in amounts such as would, if fed in proportion to the quantity supplied to the rats, have brought the daily intake of the members of the families surveyed up to Ca, 1 g.; P, 1.3 g.; Fe, 15 mg.; vitamin A, 4,000 I.U.; vitamin C, 1,500 I.U.; and vitamin B_1 390 I.U. (i.e., ratio to calories 1:5).

Table showing Diets and Weight Increases for Experiments I and II

Group	Diet		Males			Females		
	Type of Bread	Supplement	Initial Weight	Weight After 8 Weeks	Average Weekly Gain	Initial Weight	Weight After 8 Weeks	Average Weekly Gain
			g.	g.	g.	g.	g.	g.
			Experiment I					
1	White	—	42·4	191 9	18·7	40 4	149·4	13 6
2	N.W.M.	—	44·6	208·4	20·5	40 2	151·1	13 9
3	White	Ca+aneurin	43·7	228·2	23·1	42 1	168·0	15 7
4	N.W.M.	Ca	42 6	231 3	23·6	41 1	165·5	15·6
5	White	Vitamins+ minerals	43·7	227·3	23·0	40 8	166 9	15 8
6	White	Ca	40·3	205 9	20 7	38·5	156·7	14·8
			Experiment II					
2	N.W.M.	—	40·5	208·2	21·0	39 5	157·9	14·8
3	N.W.M.	Ca+aneurin	40 3	242 7	25·3	39·5	186 4	18 4
4	N.W.M.	Ca	40 3	246 9	25·8	39 9	183 6	18 0
5	N.W.M.	Vitamins+ minerals	40 3	259·1	27·4	39·2	192·5	19 2

The figures show that for the male rats the average weekly gain of 18.7 g. in the control group has been increased to 20.5 g. by the substitution of national wheatmeal for white bread. A similar increase (20.7 g.) was found in the group which received white bread with a calcium supplement. A greater improvement was found in the groups which received both additional calcium and vitamin B_1, whether the B_1 was given as aneurin or as national wheatmeal bread. In these groups the average weekly gains were 23.1, 23.6, and 23.0 g. Similar results hold also for the groups of females, except that the substitution of wheatmeal bread for white had little effect on the rate of weight increase. The marked improvement caused by simultaneous addition of calcium and vitamin B_1 was again observed.

Experiment II

Experiment II was intended to be a second-generation repetition of Experiment I, all the young rats in this test being the offspring of animals used in the growth tests just recorded. Unfortunately white bread was no longer available, so some modification of the groups was necessary. It was decided to test the effect of increasing the ratio of I.U. of vitamin B_1 to calories by adding extra aneurin. In Groups 2 and 4, which correspond to the groups of the same numbers in Experiment I, this ratio was 1:4.33. The amount of aneurin used as supplement for Group 3 brought this ratio up to 1:3, and the ratio for Group 5, with a mineral+vitamin supplement as in Experiment I (but with the complete B complex instead of B_1 alone), was 1:4. In this experiment each group contained 17 or 18 males and a like number of females.

The figures for the weekly gain in weight again show the beneficial effect of the calcium supplement. Thus for the males the average gain of 21.0 g. on the unsupplemented ration was increased to 25.8 g. by the addition of calcium, while for the females the figures were 14.8 and 18.0 respectively. The increased amount of aneurin given to Group 3 had little or no effect on the growth of the rats. The best response was shown by the animals in Group 5, which received the complete vitamin-mineral supplement. Here the gains averaged 27.4 and 19.2 g. for males and females respectively; but the greater part of the extra increase was undoubtedly due to the added calcium, as is shown by comparison with the results for Group 4.

Comment

These results point quite definitely to the fact that the addition of calcium to this diet in the amount which it has been proposed to add to national wheatmeal flour does not produce any harmful results, but, on the contrary, tends definitely to enhance the value of the diet as measured by the live-weight increase of young rats. On these figures there is no evidence in support of further additions of vitamin B_1 in the form of aneurin when national wheatmeal bread is used. In so far as they go, the data just cited support the findings of Gaunt, Irving, and Thomson (1938) that a poor human dietary of the type used in this experiment can be materially improved by supplementing with calcium in inorganic form.

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Medical Memoranda

Anaesthesia for Laryngofissure

In view of the growing popularity of surgical treatment of carcinoma of the larynx it is important that an adequate anaesthetic technique should be evolved. In the past preliminary tracheotomy, with its attendant risk of chest complications, has usually been performed. The suggested method does away with the necessity for a tracheotomy and ensures post-operative haemostasis. In a recent series of 8 cases performed by Mr. Charles Keogh there were no post-operative chest complications.

Method.—Premedication: omnopon 1/3 gr. and scopolamine 1/150 gr. 1 hour before operation. Induction: anaesthesia is induced in the normal way with N_2O, O_2, and trilene, using a Boyle apparatus. When the patient is well into the third stage of anaesthesia a stiff gum-elastic intratracheal catheter, St. Bart's pattern, size 12–14, is passed through the larynx into the trachea under direct vision. Great care is taken to avoid the growth during this manœuvre. The proximal end of the catheter is now connected to the machine and anaesthesia is maintained with O_2 and trilene. Owing to the small bore of the tube it is usually necessary to supplement the volume of oxygen reaching the lungs by gentle intermittent pressure on the rebreathing bag with the expiratory valve fairly tightly screwed down.

Operation.—As soon as the incision has been made and the larynx opened the space between the catheter and the trachea is thoroughly packed off with narrow gauze, leaving one end emerging from the lower part of the wound. This ensures that no blood leaks down the trachea during the operation. The catheter is now found to lie in the posterior commissure of the larynx and usually interferes very little with the surgical procedure. If it proves to be in the way, then it may be retracted one way or the other. In only one case, where the growth was quite extensive, has this proved necessary. Anaesthesia is maintained as before with O_2 and trilene, aided by manual pressure on the rebreathing bag at each inspiration. Some of the gas percolates back through the packing in the trachea. As trilene is non-inflammable the diathermy may be used if necessary.

Haemostasis.—Following excision of the growth it is often very difficult to achieve perfect haemostasis. After removal of the tracheal packing and catheter the anaesthetist may play his part by passing a large-bore Magill tube, size 8–9, with inflatable cuff, through the nose and into the trachea under direct vision. When the cuff lies in the larynx it is inflated through the pilot tube until it occupies the lumen of the larynx and presses up against the field of operation. The laryngofissure is now sewn up, and the patient returns to the ward with a clear airway and a guarantee of haemostasis.

Post-operative Treatment.—The intratracheal tube is left in position for 8 hours. During this time the patient is given morphine, and a little 2% decicaine solution is sprayed down the tube from time to time. In only one case did the tube have to be withdrawn earlier than was desirable. In this case it had been passed through the mouth. Provided it is passed through the nose very little discomfort is experienced. Eight hours after the operation the laryngeal cuff is deflated. After waiting a few minutes the patient is asked to cough. If blood is coughed up through the tube, then the cuff is re-inflated and the same procedure repeated in 2 hours. If no blood appears, then the tube is gently but firmly withdrawn. Even this procedure causes remarkably little discomfort to the patient.

Conclusion.—The object of this technique is to provide safe anaesthesia for cases of laryngofissure without a tracheotomy and its accompanying disadvantages. Also it hinders the surgeon very little and assures him of post-operative haemostasis.

I am very grateful to Mr. Charles Keogh for his co-operation and valuable suggestions.

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A Combined Infection of the Throat with Diphtheria and Tuberculosis

I have failed to find in the literature any reference to such a combination, and am therefore of the opinion that the following case is worth recording.

The patient, a primipara about seven months pregnant, was admitted to Clayponds Isolation Hospital on Jan. 27, 1942, as suffering from diphtheria. The history given was that she developed a cold and cough on Dec. 27 and took to bed on Jan. 1. On Jan. 14 she had a sore throat, which she said was very swollen. On Jan. 26 vomiting began. Her doctor suspected diphtheria, and a throat swab taken that day was found positive for the diphtheria bacillus. On Jan 27 she was given 16,000 units of diphtheria antitoxin intramuscularly before admission to hospital and a further 40,000 units intramuscularly after admission.

When admitted a greyish membrane was seen to cover the left side of the pharynx, left tonsil and pillars of the fauces, and the adjacent portion of the soft palate and uvula. The condition bore a resemblance to the smooth greyish-white appearance sometimes seen after a diphtheria membrane has separated, but did not appear to me to be quite typical. The left cervical glands were moderately enlarged and tender. The general condition of the patient was poor. Her face had a greyish cyanotic hue and the pulse was weak and rapid. The throat affection continued to spread, and it became evident in the course of a few days that the condition was one of extensive shallow ulceration with a thin ragged edge and a granulating base. The patient also had a distressing cough and brought up a few ounces of purulent sputum daily. Tuberculosis was suspected, and examination of the sputum on Feb. 3 showed that tubercle bacilli were present. Throat swabs taken on Jan. 30 and Feb. 8 still showed the presence of diphtheria bacilli. The Wassermann and Kahn reactions were negative. Physical signs in the chest were slight; but there was some impaired resonance, and air entry in the right scapular area. From Feb. 3 onwards the temperature was irregular, there being an average evening pyrexia of 100° F. The patient's appetite was poor, vomiting was frequent, and her general condition had deteriorated. On Feb. 14 she passed a few ounces of dark blood per rectum and also vomited some digested blood, becoming very collapsed. Though she revived somewhat, her condition on the following day was very poor, and on the morning of the 16th she began to complain of lower abdominal pain. At 2.30 p.m. the membranes ruptured, and at 3.30 p.m. she was delivered of a healthy premature male infant weighing 4 lb. 10 oz. Labour appeared comparatively easy, and was followed shortly by delivery of the placenta and membranes complete. There was no undue haemorrhage. At 5.15 p.m. the patient suddenly complained of inability to breathe. She became very collapsed and dyspnoeic, and died in about 10 minutes.

A post-mortem examination showed the presence of a thin-walled tuberculous cavity about 1¼ in. in diameter at the right apex. There was acute tuberculous bronchopneumonia, with numerous small ragged cavities occupying the remainder of the right upper lobe. The tuberculous ulceration of the throat extended over the epiglottis, giving it an eroded appearance, and oedema and granulation of the vocal cords were present. The heart was dilated and the muscle pale and flabby; the liver was enlarged and pale from cloudy swelling. No other abnormality was discovered. The uterus was healthy and well contracted.

The condition of the baby was satisfactory. It gained weight rapidly, and was discharged from hospital in a thriving state. The Mantoux reaction was negative up to 1 in 100 dilution.

The extent and the rapid spread of tuberculous ulceration in the upper respiratory tract seen in this case were quite unusual, and it is interesting to speculate whether a diphtheritic infection acted in this instance as an aggravating or a predisposing cause. The natural resistance to tuberculosis was obviously so poor that recovery was not to be expected. It was not anticipated, however, that the patient would die so suddenly. The strain of labour on a heart affected with diphtheritic carditis would help to explain the sudden death. As I had not had the opportunity of seeing this case in the earlier stages of the throat infection I cannot altogether exclude the possibility of the diphtheria bacillus existing merely as a saprophyte in a tuberculous throat, but nevertheless consider that the case is of unusual interest.

My thanks are due to Dr. Thomas Orr, medical officer of health for Ealing, for his kind permission to publish this case.

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Reviews

NASAL SINUSES

Nasal Sinuses. An Anatomic and Clinical Consideration By O. E. Van Alyea, M.D. A William Wood Book. (Pp. 262; illustrated. 36s.) Baltimore: The Williams and Wilkins Company; London: Baillière, Tindall and Cox. 1942.

Dr. Van Alyea has written a book on the accessory sinuses, of which he has made a special anatomical study. He has combined with this clinical descriptions which consist largely of quotations from the published articles of numerous writers, showing evidence of wide if rather undiscriminating reading. The anatomical descriptions are good, but they reveal nothing in any way new or original, and the same applies to the excellent illustrations. It is to the anatomy of ethmoid bone that Dr. Van Alyea has chiefly devoted himself, and he has investigated the variations in its cellular structure in much detail. This is the most valuable part of the book and is its principal justification. The author says himself that no effort has been made in the limited space to cover all phases of sinus disease, but this hardly excuses the unequal treatment of the subject. Thus much space is devoted to lavage of the maxillary antrum, but the vaguest account only is given of the major operations on the accessory sinuses. The same applies to the description of osteomyelitis of the frontal bone: the reader is left with only a misty account of its pathology and how it should be treated. There is, nevertheless, a vast amount of information in the book, but it is scattered and incomplete.

The real purpose of the book is not clear, but it will be read with interest by specialists. The author, however, might have made it more interesting and informative if he had relied more upon himself, and refrained from the uncritical quotations of at least half of the authors to whom he has made himself indebted. In several places this degenerates into nothing more than a review of the literature, much of which is of an ephemeral character.

A FIFTY-YEAR-OLD TEXTBOOK

The Principles and Practice of Medicine. By Henry A. Christian, M.D., F.R.C.P. Originally written by Sir William Osler, Bart., M.D., F.R.C.P., F.R.S. Designed for the use of Practitioners and Students of Medicine. 14th (semicentennial: 1892-1942) edition. (Pp. 1,475. Cloth, 45s.) New York and London: D. Appleton-Century Company.

Fifty years ago the medical world was startled by the appearance of a textbook planned on really new lines. Although Osler was already physician-in-chief at Johns Hopkins he was little known in this country, except for his demonstration of platelets in the circulating blood. The book had an immediate success and conferred international fame on the author, whose personality was subsequently realized to be even greater than his book. The story of its origin and accomplishment is well told in Cushing's *Life of Sir William Osler*. It proved to be the last great medical textbook by a single writer, and in the subsequent editions produced by McCrae and later by Christian, two of his pupils, the Oslerian tradition has been so far as possible maintained and a continuity of thought secured.

One significant rearrangement has, however, been made. The book opens with a short introduction on psychosomatic medicine, which is justified on the ground that "in later years, with the enormous development of laboratory procedures and the increased utilization of complex techniques of examining the patient, the physician has found it increasingly easy to neglect the patient's personality and surroundings in his management of him, with the resultant feeling on the part of the patient that he is missing something that is traditional of the general practitioner who served his forebears." Psychosomatic medicine, often looked upon as new, is in reality "what the former generations of medical men practised without much use of names for it." Conformably with this outlook, the first section of this book is now devoted to functional diseases of the nervous system, to emphasize the fact that "every patient with organic disease presents a functional, emotional reaction which varies with the personality, the economic and social relationships, and the race and heredity of the individual."

It is a herculean task for one man to revise an account of the whole field of organic disease and bring it up to date. The editor rightly claims continuity of thought, but his claim to balance in description is perhaps not always so fully substantiated. Thus considerable space is given to rare and tropical parasitic diseases, while affections of the spleen are cursorily dealt with. However, so long as the encyclopaedic method prevails, the desire to include some reference to everything inevitably renders such balance precarious. For the rest we have nothing but praise, and we anticipate as much popularity for the book in its new form as it rightly had in the old.

HUMAN CONTROL OF CLIMATE

Climate and the Energy of Nations. By S. F. Markham, M.A., B.Litt., F.R.Met.S. (Pp. 144. 10s. 6d.) London: Oxford University Press. 1942

The argument of Mr. Markham's pleasantly written and interesting little book is this. Modern research has demonstrated that the optimum working conditions indoors are given by an air temperature having a range of a few degrees above and below 70° F., with humidities ranging from 40 to 70%. Hence, in a social organization where artificial heating or cooling is unknown, optimum conditions will only be found near the annual isotherm of 70° F. But when men of genius, in a civilization able to profit from their genius, discover efficient means of warming and, eventually, cooling the atmosphere, so that maximal energy can be developed in colder (or warmer) natural climates, then the foci of civilization will or may move.

Mr. Markham sketches the history of civilizations and finds no facts inconsistent with this hypothesis. Human control of climate is a necessary condition of civilization. Perhaps Mr. Markham comes a little too near to suggesting that it is a sufficient condition, and has not allowed enough weight to the argument that disease, especially malaria, played a great part in sapping ancient civilizations. His rebuttal on p. 13 is *ad captandum*. Epidemiologically speaking, neither tuberculosis nor cancer, however energy-destroying, can have the nation-wide or continent-wide effects of malaria or hookworm disease. The book is well worth reading.

Notes on Books

The very practical textbook *A Glasgow Manual of Obstetrics*, by S. J. Cameron, John Hewitt, and Ellen D. Hewitt, is now in its fourth edition, the last three having been published in the short space of 6 years. Its popularity is well merited. The new edition, which is larger than its predecessors, records most fresh developments in the field of obstetrics while emphasizing the need for sound conservative methods. Two surprising omissions are that in the treatment of eclampsia credit is not given to the Dublin school for seeing the light and abandoning their 40-year practice of colonic lavage, and no reference is made to the condition of erythroblastosis, with which the modern student should be familiar. This very sound book is published by Edward Arnold and Co. at 25s.

The fifteen years that have elapsed since the first edition of Mr H. M. Traquair's *Introduction to Clinical Perimetry* appeared have seen considerable additions to our knowledge both of the normal field of vision and of pathological changes in it. Perhaps the most noteworthy developments have been angioscotometry and the clearer recognition of opto-chiasmic arachnoiditis. Colour fields at one time attracted considerable and perhaps undue attention, and it is a measure of Traquair's knowledge, balanced judgment, and powers of exposition that the plan of his book has hardly changed throughout the four editions it has now reached. The present edition carries amplifications and additions derived from the more recent literature, and the book remains the indispensable guide for ophthalmologists and neurologists that it has been from the beginning. It is published by Henry Kimpton at 30s.

Of several books on sulphonamide chemotherapy Wesley W Spink's *Sulfanilamide and Related Compounds in General Practice* is, we believe, the first to appear in a second edition. It has been rearranged and considerably enlarged, the chief subjects more fully dealt with being the general principles of treatment and the mode of action of these drugs, their local application, and the treatment of intestinal infections. The book contains much information of great practical value, and is as nearly up to date as a publication on a rapidly progressing subject can be: the latest work on succinyl sulphathiazole and promin is naturally not included, although both compounds are mentioned. The tabular statements giving an order of preference for each of four drugs in a large number of different conditions (now 60) and of the frequency and import of various toxic manifestations, both of which we ventured to criticize as perhaps unduly dogmatic, are still included, and anthrax still figures mistakenly in the list of diseases for which sulphonamide compounds are of no value. The book is published in America by the Year Book Publishers, and in London by H. K. Lewis at 18s.

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THE NEW ERA IN INDUSTRIAL MEDICINE

The sound of shears, if not of axes, might be expected to be heard in the report of a Select Committee on National Expenditure, but such a report just issued, on health and welfare of women in war factories,[1] is by no means a bleak document. Those who compiled it have had obvious difficulty in keeping within their terms of reference—namely, the economic impact of problems of industrial health on war expenditure—and have touched on a number of social implications. So far from retrenchment, they make some bold and timely recommendations which will cost quite a lot of money. They urge, for example, the enlargement and strengthening of the medical branch of the factory inspectorate of the Ministry of Labour. The thirteen medical inspectors at present attached to the inspectorate are there to advise on occupational hazards and to carry out research and inquiries into specific problems. In the opinion of the Select Committee their number is not adequate to provide advice and instruction on a wide scale, nor have they the authority to secure the acceptance of their advice where it is most needed. Another recommendation is for the setting up of industrial health advisory committees, central and regional, to advise the Ministry of Labour, supply departments, regional boards, and employers on questions of industrial health, co-ordination of medical services, and the like. These would be channels in which information and advice would be conveyed down to the smallest factory. A central bureau is also proposed to keep factory doctors, nurses, and welfare staff abreast of recent knowledge and developments.

All this may well presage the opening of a new chapter in industry. Hitherto health services in industry, with all that they can effect in reducing the incidence of industrial disease, have depended principally upon arrangements made by firms who were progressive enough to realize their importance and large enough to justify the engagement of medical and nursing staff. No clear standards of industrial health have been worked out. Central direction has been lacking. The Ministry of Health does not include all health services in its brood, and this is one of the unincluded. The Ministry of Labour lacks the necessary organization to deal with these problems. At present there are only 150 whole-time and 582 part-time doctors employed in industry. In addition there are the examining factory surgeons, to the number of nearly 2,000, whose work is ordinarily that of examination of juveniles and inspection of processes. No doubt the work of these examining surgeons now includes some of the duties which fall to part-time works medical officers; but as there are over a quarter of a million factories in this country it will be realized that the amount of supervision which can be exercised by this small body of medical men can cover adequately only a fraction of the industrial population. Many defects are pointed out by the Select Committee, such as the lack of any close relationship between those who are working to maintain health inside the factories and those concerned with outside medical services—the works medical officers on the one hand and insurance practitioners, hospitals, and public health services on the other.

One important point is that the status, remuneration, and security of tenure are not such as to attract doctors into the field of industrial medicine. But the medical profession itself has recognized the need for a better industrial service. It was only in 1941 that the B.M.A. Committee's report on industrial health in factories was published, with its call for an extension of industrial medical service on both humanitarian and economic grounds, for more emphasis on the preventive aspects of industrial medical practice, and for closer association between the medical profession and industry. The Select Committee recommends that the Government should give the closest attention to the problem of securing a satisfactory industrial medical service, at least in all factories engaged on Government work, and in this connexion it considers that more use should be made of women doctors.

The circumstance which has led up to these proposals is the entrance on a large scale of women into industry. One and a half million women are now employed in industry who were not so employed in mid-1939. Large numbers of them have had no previous experience of factory life. A considerable proportion are married women, with their own special problems. Except in Royal Ordnance factories and certain private undertakings there has been no selective medical examination on entrance. Many women have been directed to work away from their homes. From various accounts these transfers have not always been carried out with much imagination. Women have been sent a considerable distance, and then it has been discovered that they are unfit, by reason of illness or mental disability, for the work to which they have been assigned —a thing which might sometimes have been obvious even to the lay official. Only the present scarcity of medical staff prevents the Select Committee from recommending that careful medical examination should be made in every case before a woman is transferred. The Select Committee makes a score of recommendations concerning hours of work, rest pauses, amenities, safety precautions—in 1941 the number of reportable accidents to women was 42,837, nearly three times as many as in 1940—and many other items in the management of personnel. It urges that plans be proceeded with for the early diagnosis of tuberculosis by mass radiography, that means of rehabilitation be provided for the injured worker, that visual standards be established for various factory processes, that attention be given to ventilation in factories, the more important in view of the black-out—often daytime black-out—conditions. It goes outside the factory and suggests that a pregnant woman should be eligible for unemployment benefit for two months before her confinement, as well as for a suitable period afterwards, to enable her to breast-feed her infant. Maternity benefit under National Health Insurance, whereby the mother receives £2, or a maximum of £4 if both she and her husband are insured, is insufficient, especially at such a time, when her earnings usually cease with her employment.

The entrance of women into industry has caused many misgivings. Women have special needs and are subject to special strains. Factory amenities that might be disregarded in the case of men assume a critical importance in the case of women, and the Committee even concerns itself with such questions as the colour of the walls in rest rooms—deprecating whitewash—and the provision of mirrors in wash rooms. What is more important—hours of work which are suitable for men may be too lengthy for women. We learn of one transport undertaking which began to employ conductresses under the same conditions as men, but within three months the women went on deputation to the management and said that they were unequal to the hours, and the schedules were revised and the pay readjusted accordingly. Another recommendation of the Committee is that women personnel managers and welfare officers should play an important part in selecting, interviewing, and allocating woman labour. "A man frequently does not appreciate the needs and difficulties peculiar to women." We hope that the new colour and pattern which the entrance of women into the factories is giving to industrial health and welfare organization will be permanently wrought into the industrial life of the future. The Select Committee says: "The State cannot afford to be other than a good employer." And if the State cannot afford it, neither can any private undertaking.

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[1] *Third Report from the Select Committee on National Expenditure, Session 1942-3* "Health and Welfare of Women in War Factories" H M S O. (4d net)

CIRRHOSIS OF THE LIVER

The term "cirrhosis" was introduced by Laennec for a condition which in many ways presents as enigmatic a problem as any other in medicine. There has consequently been no shortage of descriptive terms and attempts at classification: atrophic and hypertrophic cirrhosis, portal, biliary, and Hanot's cirrhosis, mono- and multi-lobular cirrhosis, and "hob-nail" or "gin-drinker's liver" have all had their vogue. Out of chaos an orderly system is now perhaps emerging which will mean something to the clinician. The tendency now is to recognize two main types—namely, portal and biliary (obstructive and infective). Hanot's cirrhosis is perhaps no longer a recognizable anatomical entity; healed yellow atrophy is being brought into line with cirrhosis. But we still seem to be far from a complete understanding of the aetiology and pathogenesis of cirrhosis. The cells of the liver are bathed in blood brought by the portal circulation and so are exposed to any noxious agent that travels along this well-worn route. According to the nature and extent of the injury a few may die; reaction may be severe or mild, or repeated, or slow and insidious; whatever the beginning, the end may be cirrhosis.

Moon,[1] in a comprehensive review, emphasizes the destruction of architectural pattern as a criterion of true portal cirrhosis, and states that of all the chemical agents used only a few have produced true portal cirrhosis—namely, carbon tetrachloride, phosphorus and alcohol together, manganese chloride and phenylhydrazine, and chloroform combined with infection. Chronic alcoholic poisoning is now almost off the list of cirrhogenic agents, and room on it is now being found for dietary factors, in either excess or deficiency. According to Earle and Victor[2] an excess of cystine in the diet produces fatty infiltration, portal haemorrhagic necrosis, a high mortality rate, and cirrhosis in all rats surviving more than two weeks. This cirrhosis is similar to that produced by selenium in rats and unlike that produced by some of the poisons mentioned above. These observations are in line with those of György and Goldblatt,[3] who found that in the hepatic injury of dietetic origin (necrosis and cirrhosis, with or without ascites) determining factors seem to be connected with the lipotrophic action of casein. Previous experiments[4] showed that focal or diffuse necrosis was observed in rats fed on a diet devoid of the vitamin-B complex, supplemented with aneurin, riboflavin, and pyridoxine. They believe that the lipotrophic action of casein is in direct proportion to its content of methionine and to the presence of choline in the diet, and that it is reversely influenced by *l*-cystine and supplements of fat. Relating this to human cirrhosis, they point out that a low intake of protein with insufficient supply of the vitamin-B complex (including choline) is a prominent feature of the diet of persons addicted to alcohol: it is as unnecessary to postulate an injurious effect of alcohol in cirrhosis as it is in the pellagra or beriberi of alcoholics. Some corroboration of the reported beneficial effect on cirrhosis in man of a highly nutritious diet supplemented with the vitamin-B complex comes from Patek and Post,[5] and from Lowry *et al.*[6] of the beneficial effect of choline, high-casein diet, or choline with a high-casein diet in rats with hepatic cirrhosis produced by low-choline and low-casein diet with added cystine. In Patek and Post's clinical trials after the onset of ascites, 72% of a treated as compared with 50% of an untreated series survived six months, and at the end of two years the percentages were respectively 45 and 21. There were also signs of bodily improvement and presumptive evidence of arrest of the disease. They suggest that there is an aetiological relationship—either direct or indirect—between nutritional deficiency and cirrhosis of the liver. Lack of essential factors might lead directly to the development of the disease, while the malnourished liver becomes more vulnerable to toxins. Spellberg *et al.*[7] produced cirrhosis of the liver in rabbits and fatty liver in guinea-pigs by feeding the animals on apparently adequate diets containing 20% of fat—chiefly butter fat—although some factor other than diet might have been responsible. It was recognized that the rabbit is not altogether satisfactory as an experimental animal because of the common occurrence of coccidial infection. In view of these results, those of Rao,[8] suggesting that the infantile cirrhosis of Hindu children (a variety of portal cirrhosis) is caused by a diet of cows' milk combined with *B. coli* infection, must be seriously considered. There is scope for further work along these lines. The study of spontaneous cirrhosis in animals in this field should not, however, be excluded, and reference might be made to the interlobular fibrosis in the liver of the normal adult pig, the more common occurrence of cirrhosis in the pig than in any other animal, and the fact that cirrhosis in the pig produced experimentally by carbon tetrachloride closely resembles the naturally occurring lesions.[9]

THE PATHOGENESIS OF PEPTIC ULCER

A recent paper by Ask-Upmark[10] attempts to throw new light on the pathogenesis of peptic ulcer. Impressed by the frequency of peptic ulceration after all types of experimental damage to the liver, he contends that liver dysfunction is an essential factor in the aetiology. His experimental evidence consists of a study of post-mortem material and a series of tests of hepatic function in 26 cases of peptic ulcer. In 22 necropsies of hepatic cirrhosis he found 9 instances of chronic peptic ulcer. For his liver tests he used two varieties of the galactose-tolerance test, the Sjöström citric acid test, the Takata-Ara reaction, and the lipase determination of Rona. If all the tests are taken into consideration, 19 of the 26 cases of ulcer showed some abnormality of hepatic function.

The author considers that there is no evidence that the liver disturbance is secondary to abnormalities in the stomach, and he discusses at some length the mechanism whereby the liver might influence the stomach and duodenum. He favours the view that liver damage causes hypoglycaemia, which exerts an influence on gastric secretion. There is considerable evidence that hypoglycaemia does occur in peptic ulcer. The similarity of hunger pains and night pains to the symptoms of hypoglycaemia is quite striking, and the favourable effect of the administration of carbohydrates on the pain of peptic ulcer is also well recognized. The behaviour of the blood sugar in peptic ulcer has been studied by Christlieb,[11] who finds definite abnormalities in the glucose-tolerance test, the blood sugar rising too high in the hyperglycaemia phase and falling below normal limits in the hypoglycaemia phase. Ihre[12] has shown that insulin in the presence of hypoglycaemia is a powerful stimulant of gastric secretion, causing a rise in the pepsin concentration as well as hypersecretion. This is a vagal mechanism and can be abolished by cutting the vagi or by the use of atropine. Ask-Upmark shows that there is a relation between the liver and the central nervous system, citing as an example Wilson's disease (hepato-lenticular degeneration). He gives interesting case histories, where in one patient head injury, and in another encephalitis, were followed by gastric ulcer and evidence of liver damage. He concludes that the development of ulcer is mutually influenced by the liver and the central nervous system, but that probably the nervous influence is the more important. He visualizes the following chain of events: the hypothalamus, acting on a liver with impaired function, produces hypoglycaemia, which through a vagal reflex causes hypersecretion, this in turn leading to ulceration.

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[1] *Arch. Pathol.*, 1934, **18**, 381.
[2] *J. exp. Med.*, 1941, **73**, 161.
[3] Ibid., 1942, **75**, 355.
[4] Ibid., 1939, **70**, 185.
[5] *J. clin. Invest.*, 1941, **20**, 481.
[6] *Publ. Hlth. Rep.*, Wash., 1941, **56**, 2216.
[7] *Arch. Pathol.*, 1942, **33**, 204.
[8] *Proc. Ind. Acad. Sc.*, 1941, **14**, 310.
[9] White, E. C., *J. Path. Bact.*, 1939, **49**, 95.
[10] *Acta med. scand.*, 1940, **103**, 280.

Most of us will find this chain about as difficult to visualize as the Indian rope trick. A more plausible explanation of the connexion between the liver and peptic ulcer has been provided by Cheney.[13] Superficial erosions develop in the gizzards of chicks fed on a diet which is deficient in a fat-soluble factor, occurring in association with, but definitely separate from, vitamin K. The same kind of lesion can also be produced by administering cinchophen to chicks, and the erosions become ulcers which closely resemble peptic ulcers in man. These cinchophen ulcers are more pronounced the more deficient the diet, and Cheney suggests that the ulcer-producing properties of cinchophen are due not to direct action on the lining of the stomach but to indirect effect on the liver. Damage to the liver may then interfere with the elaboration and storage of the anti-ulcer factor and its delivery to the stomach wall. The distribution of the "anti-gizzard erosion factor" is wide, and a direct deficiency in human diet is unlikely, even under conditions of war; but the possibility of a deficiency conditioned by a disturbance of the liver is well worth bearing in mind at the present time, when gastritis and peptic ulcer present such a formidable problem, and when potential liver poisons are widely used in industry and in the manufacture of munitions.

STARVATION IN SOUTHERN FRANCE

A moving plea that the blockade be lifted to allow 3,000 tons of food to be sent to Marseilles to preserve for another year the lives of 100,000 children in Southern France was made at a recent conference in London by Mr. Howard E. Kershner, director of relief of the American Friends Service Committee. Mr. Kershner spoke from personal experience in France of feeding French children since the Franco-German armistice. An acute food shortage was produced in Southern France in 1940 by the flood of refugees which in some towns multiplied the normal population by ten, and there had been no recovery. Failure of local production was due to absence of farm labour, enforced slaughter of farm animals, and shortage of fertilizers and seed. In this part of France, Mr. Kershner declared, three-fourths of the children were losing weight. Children who should have gained 4 to 5 cm. in height had gained only 1 to 2 cm.; often a gain in height was accompanied by loss of weight. Athletics had been given up in the schools, where the children sat about too weak to play. Newborn babies were usually about two-thirds of the normal weight; weights of infants had fallen to little more than one-half, and infant mortality had climbed up to three times the normal. He had seen grown men who weighed no more than 75 lb.

For two years his Service Committee had supplemented for 100,000 children the meagre French ration, on which it was scarcely possible to keep alive. This supplementary food had not come through the blockade: it had been accumulated previously from various sources in Central Europe, Africa, and Asia, even as far away as Indo-China; but these doors were now closed. A milk distribution scheme was organized, and it was remarkable to see how the weights of infants, which had been steadily decreasing, flattened out as soon as the milk distribution was made, and presently began to ascend; but the United States Government had refused permission for payment to be made for additional supplies of powdered milk which it had been arranged to buy in Switzerland.

Mr. Kershner, meeting an obvious objection, said that in his experience not a mouthful of food had been lost to the Germans, who had not interfered with the relief operations. Germany to-day was not taking as much food from France as she was entitled to take under the terms of the armistice, for the reason that the food did not exist in sufficient quantities to make it economically possible to take it away. If the British and American Governments would allow this extra food to enter the country it could be sent over in neutral ships (Swedish or Portuguese), the International Red Cross was willing to accept the responsibility, and 140 non-American workers in Southern France would feed the children. The food was available in abundance in America. In the interests of shortening the war and making reconstruction less difficult, he urged that the necessary facilities to save the life of the children of starving Europe should be granted.

TREATMENT OF DIABETIC COMA

Joslin and his co-workers[1] have recently reviewed their results in the treatment of diabetic coma since 1923. Since that time 525 patients have been treated, with a total mortality of 11%, and, since 1940, 62 consecutive cases without a single death. These striking results deserve close study. The American workers find that the commonest cause of coma is laxity in treatment either through dietary indiscretions or through failure to take the proper amount of insulin; the next is infection; in a third group coma is the first recognized sign of diabetes. Death cannot be correlated with any single symptom or sign, and the prognosis can be assessed only by the consideration of many factors, particularly age, degree of shock, blood pressure, depth of acidosis, blood sugar, plasma carbon dioxide, and blood non-protein nitrogen. Of these the single most important consideration is the depth and duration of unconsciousness before the institution of treatment.

The treatment of diabetic coma is essentially a hospital procedure, and preparations must be based on the realization that it is an acute medical emergency for which early, prompt, and vigorous treatment is absolutely essential. The medical, nursing, and laboratory staff should be organized to this end. As coma is due primarily to insulin insufficiency, adequate insulin dosage is the first consideration, and the first 50 units should often be given at home or on the way to hospital. On arrival the first dose should be between 20 and 100 units subcutaneously, and if the patient is unconscious and shocked a similar dose may be given intravenously. Further doses are then given half-hourly or hourly, the average patient needing at least 200 units in the first two or three hours. Subsequent dosage depends on the initial blood sugar response. If this is slight, larger doses of insulin should be administered more frequently, and it may be necessary to give 100 or more units at half-hourly or hourly intervals. The level of the blood sugar, the urinary sugar, and the clinical conditions—especially the mental state and the type of breathing—are the most valuable guides.

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[11] *Dtsch. Arch. klin. Med.*, 1938, **181**, 394.

[12] *Acta med. scand.*, 1938, Suppl., 95.

[13] *Arch. intern. Med.*, 1942, **70**, 532.

[1] *J. Amer. med. Ass.*, 1942, **119**, 1160.

Next in importance in treatment is the administration of fluids and salt, and isotonic sodium chloride solution, either intravenously or subcutaneously, should be begun at once, four to five litres in the first 24 hours being an average amount. Relatively more should be given by the mouth as recovery takes place. Other important measures include gastric lavage (which should be performed carefully on admission in almost every case), enemas, and small feeds such as broth, gruel, or tea with sugar by the mouth after about the first six hours. Dextrose is contra-indicated during the first few hours of treatment because there is already excess in the body fluids, and to give more masks the response to insulin. Alkalis are also considered unnecessary. Patients with prolonged unconsciousness and peripheral circulatory failure with very low blood pressure respond best to large doses of insulin and continuous saline infusions, with additional transfusion of plasma or whole blood in selected cases.

In summing up, Joslin and his colleagues emphasize that coma should be prevented, and that the occurrence both of coma and of death due to it shows that someone has blundered. The key to success lies in the education of the diabetic patient and of his doctor. These conclusions and their application are of profound importance. However good the actual technique of treatment in hospital or clinic, the incidence and mortality of diabetic coma will not be appreciably reduced until every diabetic patient is taught how to look after himself and when to seek further medical advice, and until every doctor knows how to manage diabetes in the home. In this country, especially in rural districts, delay in making the diagnosis and getting the patient to hospital is sometimes so considerable that the best treatment comes too late. Diabetic coma is as grave and as dangerous an emergency as an acute abdomen, and must always be treated as such.

HELP FOR THE SHIPWRECKED

To be cast adrift in a small boat on the open sea with scanty provisions and only a hope of being picked up is a situation the obvious drama of which has always made a powerful appeal to the imagination. To be so closely confined within such a vast space, to be exposed to every extremity of climate night and day, to sail upon water in an agony of thirst, to watch the effect of all this upon one's companions, and to endure, must call in the highest degree imaginable upon those mental and moral resources which constitute the heroic spirit of man. In an island country this is an eternal theme, and any measure or effort that will help to maintain the lives of those that "go down to the sea in ships" will, in time of war especially, command the heartfelt support of all men and women. Although chance plays its haphazard part in survival from shipwreck, it can be helped or hindered, or even destroyed, by the conduct of those who escape immediate death by drowning, and especially by the behaviour of the man in charge of a lifeboat's company. This conduct must be based on principles of psychology and physiology. A hundred and fifty years ago a seaman's guide was published which on the basis of experience offered advice to the shipwrecked. "Hope, perseverance, and subordination should form the seaman's great Creed and Duty, as they tend to banish despair, encourage confidence, and secure preservation." This and other excerpts from the guide are given in another manual just published and entitled "A Guide to the Preservation of Life at Sea after Shipwreck."[1] It has been prepared by a special committee of the Medical Research Council and is yet one more practical witness to the imagination and flexibility of this institution, to which the medical profession is so profoundly indebted for its many and sterling services to this country in time of war. A full abstract of this valuable document is printed elsewhere in this issue.

B.C.G. VACCINATION

Little is heard to-day about B.C.G. vaccination; reports of its use in other countries reach us with difficulty or not at all. Yet methods of controlling tuberculosis are not so numerous or effective as to justify completely disregarding it, particularly when the incidence of the disease is rising. B.C.G. vaccination is extensively used in Russia: it is used to an increasing extent in certain parts of the United States; and in Sweden it is compulsory in nurses who are tuberculin-negative. Wallgren has recently reviewed[2] his experience in Göteborg, Sweden, a town with a population of 250,000, where some 1,069 persons, chiefly children, in contact with tuberculosis were vaccinated by the intradermal method from 1927 to 1937. Great care was taken to vaccinate only non-infected people by separating them from contact for at least six weeks and testing with tuberculin. Most children were also kept away from contact for two months after vaccination. There was a follow-up of the vaccinated children in 1938, and it was found that of 397 vaccinated soon after birth who subsequently remained in contact with tuberculosis none died of the disease, and in only three were mild tuberculous lesions detected later. The parents of only ten children refused vaccination, but of these ten who were not vaccinated five died of tuberculosis, and at least one other developed tuberculous disease. Wallgren rightly emphasizes other favourable factors associated with the vaccination—for instance, the period of separation from contact and the special care that may be given by relatives to these children afterwards. Discussing immunity against tuberculosis, he points out that, as in syphilis, specific immunity may protect against fresh tuberculous infection but not necessarily against the virus already present in the body. Similarly, the relative immunity acquired as the result of B.C.G. vaccination might lessen the severity of the primary lesions, but would not necessarily prevent chronic dissemination or progressive pulmonary tuberculosis later. If, however, it is true that mild primary tuberculosis in adolescence is less likely than extensive primary lesions to be followed by progressive pulmonary tuberculosis, B.C.G. vaccination might also be expected to lessen the risk of post-primary tuberculosis in young adults. In this connexion Wallgren recalls, as was also pointed out by Kayne[3] and Pagel[4] recently in this country, that progressive pulmonary tuberculosis in adolescence and young adult life may be a fairly recent sequel to primary infection. From this he concludes that there are good grounds for recommending B.C.G. vaccination of young people before leaving school and before they go out into the world; this is already the practice in a few Swedish towns. Finally Wallgren produces evidence in support of his thesis that the protection obtained from B.C.G. vaccination remains much longer than is commonly believed—often ten years and even more.

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[1] M.R.C. War Memorandum No. 8. H.M.S.O., 1943. (4d. net.)

[2] *Arch. Kinderheilk.*, 1941, 129, 65.

[3] *Proc. roy. Soc. Med.*, 1942, **35**, 483.

[4] Ibid., p. 489.

HELP FOR THE SHIPWRECKED: A PRACTICAL GUIDE

As announced on another page, the Medical Research Council has just issued "A Guide to the Preservation of Life at Sea after Shipwreck." The information given in this guide summarizes the pooled knowledge of sailors and scientists, and it is hoped that the pamphlet will be studied by officers of the Royal Navy and the Merchant Navy and by medical men. The members of the committee drawing up the guide were Surg. Vice-Admiral Sir Sheldon Dudley, Surg. Rear-Admiral G. Gordon-Taylor, Surg. Capt. M. Critchley, Prof. A. N. Drury, Surg. Cmdr. R. A. Graff, Sir Thomas Lewis, Dr. R. A. McCance, Air Commodore T. McClurkin, Squad. Leader T. F. Macrae, D.Sc., Dr. Spencer Nairne, Capt. R. Oliver-Bellasis, R.N., and Dr. B. S. Platt. The committee was appointed in October, 1941, at the request of the Medical Department of the Navy, with the following terms of reference: "To examine the conditions to which Naval and R.A.F. personnel may be exposed after loss of ships or aircraft, when they may be adrift in boats or rafts or isolated in the desert; to examine the physiological aspects of those conditions, with special reference to water requirements, exposure to extremes of heat and cold, food requirements and stimulants, and to frame practical recommendations." In the preparation of the pamphlet the committee makes special acknowledgment to Cmdr. N. D. Holbrook, V.C., R.N., and Cmdr. J. Quayle, R.D., R.N.R.

Almost everything, the introduction states, depends on the bearing and conduct of the officer in charge; experience has shown that comfort and chance of survival depend upon the frame of mind of the boat's company. The store of vital energy possessed by each member of the lifeboat's company should not be wasted by useless exertion or the development of a "bad frame of mind." The contents of the pamphlet are then set forth under the following main headings: "Routine Preparations and Precautions in the Ship"; "Action in Emergency"; "Abandoning Ship"; "Procedure in Lifeboat"; "The Treatment of Sick and Wounded"; "Lifeboat Ailments"; "Steps towards Rescue"; "Treatment after Rescue." The points of likely interest to medical men are summarized below.

Some Anticipations

First-aid outfits, if not hermetically sealed, should be inspected frequently; damp articles must be dried or replaced.

If bomb hits are expected and duties permit, the effect of blast or of fragments and the risk of being thrown may be minimized by lying flat on the deck with head and body hard against a ledge-side or deck. Some protection is afforded if one stands with the head against something solid. If there is risk of flash-burns from explosions the skin should if possible be covered, even though the clothing be only thin.

The shipwrecked have often suffered unnecessarily from lack of clothing. Therefore, in abandoning ship, waterproof and any extra warm clothing—such as blankets or Duffel coats—should be gathered up. Too much clothing is better than too little; it will protect against the sun as well as against the cold. A pair of dry socks should be carried in the pocket or in a waterproof package. Modern lifebelts, it is pointed out, will support a person in the water fully dressed and wearing sea boots. Every effort should be made to take extra water: "*Water is more important than food.*" Containers must be improvised. Water bottles or similar containers should be filled. "Masters who have appreciated the paramount importance of an adequate water supply have succeeded in improvising stowage for as much as 120 gallons per boat." It is not likely that more food will be needed than is stored in the lifeboat.

Going Over the Side

If a man has to go over the side of the ship, he is advised to go over the lower side if the ship has listed. Going over the upper side carries with it the risk of being hurt by barnacles and marine growths and of fracturing the ankles against the bilge keel. If the lower side of the listed vessel is the weather side, a man should jump into the water from the bow or the stern, whichever is the lower, so as to avoid being washed back on board. He should jump into the water feet first, and not dive. If the sea is covered with fuel oil he should hold his nose when jumping, and when swimming through a patch of oil should keep head and eyes high and mouth closed. The effects of contact with oil discharged into the sea are not, however, serious. Swallowed oil may make a man sick, and if it gets into the eyes cause temporary blindness. If a man has to jump from a ship into burning oil, he may, if a good swimmer, avoid being burnt. He should jump feet first into the flames, swim as long as possible under water, then spring above the flames to breathe, taking a breast stroke to push them away; then back under the water again. Men have been able to traverse 200 yards of burning oil in this way. It is evident that the lifebelt and other cumbersome clothing should be removed to make it possible to do this.

Many men, it has been pointed out, have been drowned through panic action and thrashing about in the water. A man should look for a lifeboat, raft, or other floating object, and swim slowly towards it; he should not exhaust his strength by swimming about uselessly. Swimming or floating on the back lessens the danger of injury from under-water explosion.

Adrift

Energy must be conserved in the lifeboat. Singing and shouting, for example, use up strength, and cause loss of valuable water in the breath. Each man, unless badly wounded or exhausted, should have a job to do, however small. All wet clothing should be squeezed as dry as possible, but clothes should not be taken off for this purpose unless the weather is warm and dry and the wind moderate. Special attention must be paid to the feet. Wet socks and boots should be taken off and dry socks put on—and the boots too, when dry enough. If there is risk of "immersion foot," then boots are better removed from the start if the feet can be well covered with socks, wrapping, and waterproof clothing; boots should be left on if the feet cannot be kept dry, but must be removed once swelling of the feet is noticed.

Protection must be afforded against cold winds, rain, and spray, and against sun and heat, by means of canvas or wooden screens or an awning. In the heat too much clothing should not be taken off, as it protects the skin against sunburn. Legs and feet should be kept covered or in the shade. The wearing of a shirt or vest and headgear kept wet by occasional soaking in sea-water will afford some protection against tropical sun. Fuel oil, and greasy preparations such as ointment, tend to "fry" the skin and should not be used against sunburn. The glare of sun on the water may be minimized by tying a cloth or bandage over the nose. Bathing once or twice a day is allowed provided that no sharks or other biting fish are about, nor any stinging jellyfish nor Portuguese men-of-war. Sharks apparently are not as dangerous as reputed, and when they rub themselves against the lifeboat are more often than not trying to rid themselves of sea-lice.

Water and Food

The officer in charge must plan the rationing of water from the start. The size of the ration depends upon the likelihood of being picked up. If this is not likely to happen for a week, then no water need be given during the first 24 hours unless the men have been sweating from hot weather or exhaustion. The ration recommended is 18 oz. per man daily, which should be continued until there is one pint per man in hand; the ration must then be reduced to 2 oz. a day. It is pointed out that it is foolish and even dangerous to ration water on, say, a 60-day basis when there is a good chance of being picked up in 10 days. The experience of survivors suggests that moistening the lips and rinsing the mouth out with sea water are helpful, and also that small quantities may be used for soaking biscuits. "There is, however, no doubt that large draughts of sea-water cause death, and even small amounts may prejudice a man's chances of survival on a long voyage. Permission to *drink* sea-water, therefore, should never be given." Rectal administration of sea-water does not relieve thirst and is harmful. It is recommended that every drop of rain-water should be collected, and that no tin or vessel which can hold water should be thrown away. Pools of water formed of melted ice on ice-floes, provided they are not brackish from salt-water spray, may be drunk. The drinking of urine is harmful and should be forbidden.

If water rations are low, the food rations should consist mainly of fats, starches, and sugars, and should contain only small amounts of protein. The quantity of salt included in the food should also be small. Fats, besides providing concentrated energy, allay hunger better than other foods, and for this reason a biscuit with a high fat content is recommended. Pure butter-fat is the best kind of fat, and keeps well in airtight containers even in tropical climates. Foods rich in protein increase the body's requirements of water and should be avoided. Spirits have no thirst-quenching value and may be dangerous. If available they can be given to severely wounded men to secure sleep and ease pain. It is pointed out that owing to the small amount of food eaten the bowels will probably not act, and that the quantities of urine passed will diminish, but that this need not cause alarm.

Keeping Awake

Between watches it is important to get regular sleep. When fatigue increases, the man at the tiller or on watch may find it difficult to keep awake. He should then use the "energy tablets" provided—methedrine or amphetamine (benzedrine). If it appears that the whole party may be overtaken with severe exhaustion, it is considered better that all should keep awake, and that "energy tablets" should be issued. They are said to "(1) lessen feelings of fatigue and exhaustion, promote alertness, raise the spirits, and prolong the will to 'hang on' and live; (2) prevent sleep." Methedrine or amphetamine should be given when men are beginning to be worn down by hardship. If the shipwrecked are in Carley floats, rafts, or dinghies, and conditions are severe from the outset, tablets should be given at once—two at sunrise, at midday, and at sunset. If the conditions improve the tablets should be stopped. It may be dangerous to drop off to sleep in a Carley float, as the risk of drowning is increased. As a lifeboat party must be prepared to hold out for long periods, the tablets should not be used in the first few days. Single doses of two tablets may be given for special purposes—for example, to the man at the tiller, or when a special effort is necessary. If the whole party is overcome by exhaustion each man is given two tablets at sunrise and sundown. They should not be given to the wounded, to the excitable or hysterical, or to those whose minds are wandering.

A list is given of the first-aid equipment, and details of the Schäfer method of artificial respiration. There are also practical instructions on the emergency treatment of wounds, broken bones, burns and scalds, and shock. Among the short practical hints for the treatment of lifeboat ailments, dangling the hands in the sea is recommended as an aid to urination when this is felt to be difficult.

Frostbite

Two conditions are treated at greater length—namely, frostbite and "immersion foot." Frostbite at sea is rare unless the sea water is freezing. The skin, and sometimes deeper tissues, become actually frozen, the damage being caused by minute crystals of ice forming within the skin, which turns pale and yellowish-white, looks opaque, and feels of "wooden hardness." The actual freezing occurs suddenly and may pass unnoticed, as will the spread of the frozen patch. On thawing, the skin becomes inflamed and blistered. After severe freezing the part frozen dies and comes away after "blackening." Frostbite of the face may be detected by wrinkling it up to detect areas of stiffness. Small frozen areas may be thawed rapidly by covering them with a warm hand. Larger areas severely frostbitten, such as a whole foot, should be thawed gently by placing it inside a companion's clothes. Frost-bitten skin should not be rubbed with snow or otherwise. In the treatment of frostbite in a rescued person the thawed part should be put in cold, not warm, water, the rest of the patient being warmly wrapped up. On thawing, if the pain is severe, the part may be cooled for a short time with cold water, ice, or snow; and after thawing warming up must be gradual. The limb must not be warmed in front of a fire or by the application of hot water or bottles. The affected part should be cleaned and dried gently, dusted with sulphanilamide powder, wrapped in clean material, and kept at absolute rest.

Immersion Foot

"Immersion foot" is different from frostbite. The term is applied to damage of tissues immersed many hours in cold water or mud. The limb immersed is painful, red, numb, and weak. Numbness and weakness increase, and the limb swells. If immersion ends and the limb is warmed, early signs of damage quickly disappear. If the immersion lasts for days, damage will be more serious and blisters or dark patches appear, and the skin become broken. The damage, it is pointed out, comes from cold, and the chief source of cold in boats is cold water, out of which the feet should be kept if possible; also, if possible, boots should be emptied and socks dried. Feet and toes should be moved frequently. If the feet are swollen, numb, or tender, rubbing the skin will do more harm than good. In the treatment of immersion foot in a rescued man the affected limb should be kept cool, the rest of the body being heated. The limb should be warmed only gradually, and heating or rubbing it in any way is harmful. The temperature of the skin should be reduced to about 80° F., but not much below 70° F.; it can be taken by placing a bath thermometer against the skin under a covering of cotton-wool.

Correspondence

Surgery of Oesophageal Cancer

SIR,—In your annotation (Jan. 9, p. 48) you very kindly refer to my case of successful removal of the thoracic oesophagus by the "pull-through" method. But it would be unfortunate if this plan was regarded as purely a feat of prestidigitation, for it was deliberately planned after most careful consideration and prolonged study of the anatomical and pathological features involved, so that in no sense could it be described as "a trick." Although at the present time I regard the transthoracic operation as the best for dealing with growths of the mid-part of the gullet, I am not prepared to say that the "pull-through" method will eventually be entirely superseded. In all operations I like to work under the direct guidance of the eye, but none the less it must be admitted that sometimes blind procedures, like suprapubic enucleation of the prostate, are singularly successful. It is significant that the "pull-through" method has proved successful in the hands of other surgeons, and I would refer you to a well-illustrated account of the method together with the record of a successful case by Prof. A. W. Fischer from the University Clinic at Gieszen (*Arch. klin. Chir. Sonderabdruck*, 1937, ans. 189). In a personal communication I was also informed that a second successful operation had been carried out by one of Prof. Fischer's assistants. Unfortunately patients suffering from this disease still reach the surgeon when the condition has advanced beyond the wall of the oesophagus, which has consequently become fixed by infiltration to some of the surrounding structures; or there is involvement of the lymph nodes. The most important thing for the profession to realize is the necessity for thorough investigation of all cases of dysphagia at the outset. In this way a delay of many weeks could be avoided, and it might even be possible for a fair proportion of such cases to reach the hands of the surgeon while the disease is still limited to the walls of the gullet.

The surgery of malignant disease of the oesophagus is still in the experimental stage and there are many unsolved problems in connexion with its development, but whatever method of approach is to be employed the earlier it can be undertaken the better the chance of success.—I am, etc.,

G. GREY TURNER.

Filaria Worm in Eye

SIR,—I was very interested in Squadron Leader M. C. Reilly's note (Jan. 23, p. 103) on the removal of a filaria from the eye. Since 1937 I have seen two cases in the ocular adnexa, both patients having returned from abroad a few years previously. One was found in the upper lid and seized with forceps. Some novocain was then injected and the worm removed through a small incision. Apparently injection of novocain as a preliminary sends the worm post-haste in the opposite direction. The other was removed through the subconjunctival tissues in a similar manner to that described by Squadron Leader Reilly. Both were *Filaria loa*.

Duke-Elder has an excellent chapter in Volume III of his *Textbook of Ophthalmology* and quotes various cases dating from 1771 in which filaria have been found in almost every tissue of the eye—anterior chamber, iris, lens, vitreous, and retina—most of which, however, appear to relate to *Filaria bancrofti*, with successful removal in many cases. When the worm is seen in the anterior chamber, a keratome incision is made without loss of aqueous, and as the worm approaches the incision the lower lid is depressed and the worm floats out in the escaping aqueous. When inside the eye, the filaria may be tolerated for some time, but eventually considerable inflammatory reaction takes place, the majority of cases resulting in severe irido-cyclitis associated with keratitis. Duke-Elder makes the very interesting observation that intra-ocular filarial parasites are more common in animals than in man, and they have been found in horses, oxen, dogs, and even in frogs and fish.—I am, etc.,

Edinburgh C. R. DUNCAN LEEDS.

Orbicularis Oris in Facial Paralysis

SIR,—The subject of this letter may at first sight appear to be, but in reality is not, trivial. In a certain proportion of lower motor neurone facial paralyses there is almost complete recovery with the exception of a disfiguring retraction at the angle of the mouth on the affected side. For years one attributed this to contracture in certain muscles which had previously been the subject of flaccid paralysis, a phenomenon for which one was unable to find any analogy elsewhere. (The shortening of the muscles on the back of the forearm which sometimes follows a "drop" wrist would not be analogous.) It is now a good many years since I came to the conclusion—as no doubt other observers also have—that this facial deformity is due to non-recovery of the orbicularis oris, and consequent lack of opposition to the tone at rest, and activity in action, of the muscles which retract the angle of the mouth and whose motor nerve fibres have recovered. This constitutes a real disfigurement, and, in some, considerable psychological disturbance, and my object in writing is to suggest that it would seem to justify in itself the operation of decompression, which is hardly a major one, in the hope that the fibres destined for the orbicularis oris, possibly peculiarly exposed to pressure in the canal, may thereby be released.—I am, etc.,

London, W.1. ROBERT STANTON WOODS.

Phosphorus Poisoning from German Bullets

SIR,—Apart from drawing the attention of the profession to the possibility of fatal poisoning from the new types of German bullet, my main object in publishing my case (Dec. 5, p. 664) was in the hope of eliciting suggestions for treatment. The chief obstacle in eliminating the phosphorus or in rendering it innocuous before it gets absorbed into the circulation is the difficulty of reaching it, because the effect of the explosive charge scatters and spreads the phosphorus forcibly and deeply into the surrounding tissues. This deep infiltration would not occur, of course, in the case of the non-explosive type of phosphorus bullet described by Dr. J. R. F. Popplewell (Jan. 23, p. 111).

I have had communications from various sources, including such a high authority on toxicology as Dr. Roche Lynch, and I gather that there are only three commonly recognized chemical antidotes—i.e., copper sulphate, potassium permanganate, and hydrogen peroxide. A disadvantage of copper sulphate is that it is a poison itself, and is also locally deleterious to the tissue; further it would probably only act on the phosphorus lying in the superficial layer of the wound. Potassium permanganate 2% or hydrogen peroxide (half-strength) should cause no appreciable damage to the tissues, would be likely to penetrate more deeply (especially the hydrogen peroxide on account of its physical action), and could be applied continuously without detriment. The increasing difficulty in obtaining supplies of potassium permanganate and the expense in using large quantities point to hydrogen peroxide as the antidote of choice.

In treating a case of bullet wound the track of which is found to emit a phosphorus-smelling vapour, I recommend: (1) thorough opening up of the track, with extensive excision of all tissue practicable which shows any sign of damage; (2) irrigation of the wound with hydrogen peroxide—a weak solution at first for fear of a too violent reaction; (3) leaving the wound widely open and lightly packed with gauze, with Carrel's tubes placed in its depth; (4) continuous drip irrigation (or half-hourly irrigation) through these tubes with hydrogen peroxide half-strength; (5) administration of glucose, preferably by continuous intravenous drip, in order to assist the liver cells before they become irretrievably damaged.

In reply to Dr. R. E. Rewell's criticism (Jan. 9, p. 56) as to the incompatibility of having a high blood urea in the presence of liver necrosis, I would emphasize that the presence of these two conditions at the same time was an undoubted fact in my case. Facts may be stranger than fiction, and theoretical considerations must give way or be modified if they do not fit in with them. A scanty urine is known to be a phenomenon in acute phosphorus poisoning. Although the kidney damage does not appear to be great compared with that in the liver, the renal function may be impaired prior to the hepatic, and, if so, this might be an explanation of the high blood urea.—I am, etc.,

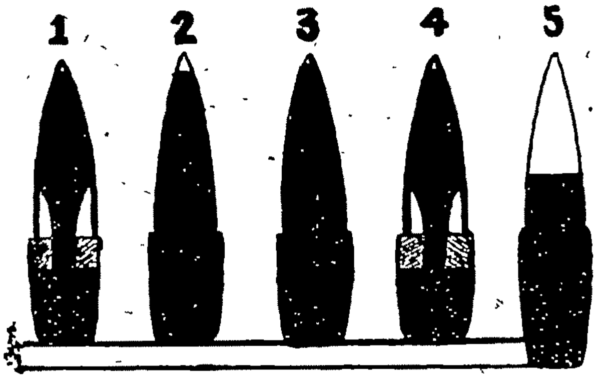
Norwich A. J. BLAXLAND.

German Explosive Bullets

SIR,—Dr. J. R. F. Popplewell in his letter (Jan. 23, p. 111) is to be congratulated for bringing some details of German explosive bullets to the notice of the medical profession, and for having had this ammunition examined, which procedure is not entirely devoid of personal risk. That the enemy was making use of a variety of types of ammunition in his aircraft has, of course, been known to the authorities of all three Services since the early stages of the present hostilities, although, as Dr. Popplewell correctly observes, "the medical profession as a whole were kept in the dark" on this matter. I do not know why.

The following additional details on this subject may be of interest to the medical profession generally, and assist them in their treatment of victims from enemy machine-gun fire. Early in 1940 I obtained a sample of ammunition taken from the machine-gun belt of a captured Messerschmitt, and on this I carried out an *x*-ray examination. It was found that the enemy was using five different types of ammunition arranged consecutively in the following order: (1) ball ammunition; (2) armour-piercing; (3) armour-piercing with tracer; (4) armour-piercing with incendiary; (5) explosive bullet.

The internal structure of all five types of these bullets was shown on the radiograph, but there appeared to be little difference in the internal structure of the ball (No. 1) and armour-piercing incendiary (No. 4), and also a similarity between armour-piercing (No. 2) and armour-piercing tracer (No. 3). The explosive bullet, however, is distinctive in having a semi-opaque distal half of the bullet, while the basal portion exceeds the length of any of the other four types by 0.3 cm. All five types of ammunition were, of course, sectioned and examined by an expert armourer, and the different types corroborated. The illustration above is a diagrammatic representation of the radiograph.



If an explosive bullet became lodged somewhere in the body and had failed to go off, a potential danger would exist to both the patient and the medical attendant. It might therefore be a wise precaution, in the interests of all, to have these casualties resulting from enemy machine-gun fire *x*-rayed before they are operated on, but, of course, excepting first-aid treatment.

It is just possible, in view of the above investigations, that the appearance of an explosive bullet would be determined by *x*-ray examination if the bullet was not too deeply seated in the tissues so that the appearance of the semi-opaque distal half became masked. I think the widest publicity of facts such as these should be made in the interests of the profession, apart from the help that this might render in the treatment of the patient.

In view of these observations, I should be interested to know if any medical practitioners in the country have been able to determine from an x-ray examination the nature of a bullet lodged in the body of a patient whom they have been treating.—I am, etc.,

London, W.1. NORMAN P. HENDERSON.

SIR,—In his letter under the heading "German Explosive Bullets" (Jan. 23, p. 111) Dr. J. R. F. Popplewell describes and depicts two types of the .312 Mauser bullets as used by the enemy in aircraft automatic guns. Type 1 is admittedly an explosive (and expansive) bullet in view of the soft nose and the detonating charge in its base; but Type 2 would appear to be incorrectly described as an explosive bullet. Is it not rather of the "tracer," "incendiary," and "anti-petrol-tank" variety?

If, as your correspondent intimates, many members of the public have come into possession of these projectiles they will do well to hand them over to the military authorities. Fulminate detonators are apt to explode to a slight shock, such as a fall off the mantelpiece, and the yellow or white phosphorus, apart from its toxic nature, is highly inflammable and liable to ignite should the oxygen of the air gain access to it.—I am, etc.,

CHARLES M. BEADNELL,
Towyn, N. Wales. Surgeon Rear-Admiral.

Pasteurization of Milk

SIR,—During my work over many years I have been greatly impressed with the diseases and, in some cases, fatalities due to the drinking of raw milk. These diseases have included not only tuberculosis but also a considerable number of *Brucella abortus* infections which have frequently been unrecognized. My experience is that undulant fever in its various forms is much more prevalent than is commonly supposed. I have, therefore, been strongly in favour of pasteurization to safeguard the health of the community. In my own household the rule has been that milk should be boiled, but it is impossible to arrange that members of one's family should not drink raw milk outside their home. One of these developed a severe form of undulant fever lasting well over a year.

It is very easy to talk about the production of clean milk, but a very different thing to get it to the market and to the public in a clean and safe condition. Being much interested in this problem, I decided in 1939 to try to produce clean milk myself, and learn at first hand the difficulties. With this object in view I built a model cow-shed, which has every facility for complete cleanliness, and which is cleaned throughout twice a day and washed out with disinfectant weekly. I then imported from Guernsey, where there is no tuberculosis among the cattle, cows which had passed the tuberculin tests, and also the agglutination tests for *Brucella abortus*.

Every conceivable care with regard to clean milking has been scrupulously carried out, including regular washing of udders and teats with disinfectants, clipping of udders, tying of tails, washing and disinfecting milkers' hands between each cow, etc. The milk is cooled immediately each cow is milked, and all utensils washed, scrubbed, and sterilized twice daily. In spite of every precaution *Brucella abortus* infection broke out among my cattle. How this can be avoided I do not know. This disease is extremely prevalent among cows, and I feel it is quite probable that the infection may be brought to the pastures by birds. I do not believe that this disease can be easily prevented. The cows have been tested with tuberculin at regular intervals and there are no reactions. The milk, after it has left my dairy, has to be taken to a roadside spot, where it stands until it is collected by an open lorry, which travels round the neighbourhood and then takes it to a collecting depot, whence it is sent to London. During this transit, especially in the summer when the sun is shining on the churns, the milk must be warmed up again. It is collected about 10.30 a.m.

I have had bacteriological examinations of freshly drawn milk made by Dr. Fraser at the Bristol Royal Infirmary which are satisfactory, and of which the following is an example: "Plate culture at 37° C. 170 colonies in 1 c.cm.; plate culture at 20° C. no colonies in 1 c.cm.. No *B. coli* in 10 c.cm. The deposit shows a very rare leucocyte; no organisms seen. The bacteria present are scanty and chiefly *Staphylococcus albus*." But in spite of this and every precaution the mixed night and morning samples have not been satisfactory, the methylene-blue test has not been satisfied, and *B. coli* have been present in various analyses.

It is impossible in any cow-shed to prevent a certain amount of dust, carrying bacteria and floating in the air, which may easily contaminate the milk with *B. coli*, while flies in summer may be dangerous. It must be remembered that cows are by nature particularly unclean animals with their splashing excreta. The chief sanitary inspector of the county describes my quarters as excellent, and the dairy experts find no fault with technique. As the result of this experiment I am more than ever convinced that there is only one way to safeguard the community, which is to pasteurize the whole of the country's milk.—I am, etc.,

Churchill, Somerset. J. R. CHARLES.

Diphtheria during Immunization

SIR,—Dr. G. A. Garrett (Jan. 23, p. 102) described a case of a type which has great significance in any evaluation of diphtheria immunization. By referring to it as one of diphtheria, Dr. Garrett has assumed that a positive swab and a sore throat are synonymous with diphtheria. From his very concise account of the clinical evidence and the rapid response to anti-streptococcal chemotherapy it is quite clear that he was dealing with a case of follicular tonsillitis, and the positive K.L.B. swab was a coincidence of no pathological significance. Since immunization has been more extensively practised such a set of circumstances is not uncommon, as medical officers of health and isolation hospital superintendents well know.

Immunization protects against the disease and not against a positive swab, and, just as a typhoid carrier can contract enteritis from some other cause, there is no reason why a carrier of K.L.B. should not suffer from a streptococcal or other form of throat infection. If we are to gain anything like an accurate estimate of the effect of immunization on the *disease* diphtheria it is imperative that medical officers of health should carefully investigate every case, whether immunized or not, which is notified as diphtheria, particularly when the decision to notify rests on a positive swab. Since for all practical purposes all such cases are removed to isolation hospital this should not offer any undue difficulty.

The general practitioner, even if he doubts the diagnosis, quite rightly cannot ignore a positive swab, but that does not justify medical officers of health, who have the duty of making the returns to the Registrar-General, in systematically allowing all notifications to remain in their returns without question, and without subsequent deletion where further investigation would show that a positive swab report, probably on one occasion only, was completely at variance with all the clinical evidence. In the absence of such necessary precautions the Registrar-General's returns will continue more and more to give an erroneous impression of the influence, or lack of it, of immunization on diphtheria the disease.—I am, etc.,

F. LAWRENCE SMITH,
Carshalton. Medical Officer of Health

SIR,—Dr. G. A. Garrett (Jan. 23, p. 102) discusses the possibility of diphtheria arising during immunization as the result of a negative phase occurring after an injection of A.P.T. For the sake of brevity, I should like to draw his attention to the following points.

1. A negative phase following the injection of any antigen would certainly not last for nearly three weeks, in all probability not more than a few days. It is likely that the importance of the "negative phase" has been overstressed in the past.

2. There is no proof whatever that the case quoted was indeed diphtheria. A positive swab in the absence of definite clinical signs is not a safe criterion of diphtheria, especially as the organism was not typed or other tests for virulence carried out. Moreover, the state of the child's original immunity was unknown. Presumably Dr. Garrett was surprised at the result, as I can only assume the sentence "A negative swab was not anticipated" is an error.

3. Even were the case one of genuine diphtheria of a mild variety this would not be surprising, as the child would be

in exactly the same position to contract the disease as any other non-immunized susceptible child.

4. The statement that the knee-jerks are often absent in early diphtheria is a myth. Even in cases of hypertoxic diphtheria it is rare for the knee-jerks to be lost during the first week. Nor can any reliance be placed on such signs as the height of the temperature, presence or absence of albuminuria, etc., none of which is particularly diagnostic of diphtheria. The decision must be made on the appearance of the throat, and in doubtful cases on a knowledge of the patient's immunity as shown by the Schick test and the results of typing and virulence tests in the laboratory.

5. With regard to Dr. Garrett's comment, first of all there is no ground whatever for assuming that under any circumstances a non-virulent organism can become virulent.

6. If swabbing were resorted to before immunization the presence of virulent bacilli would show that immunization was in fact unnecessary as the patient would surely be Schick-negative, otherwise clinical diphtheria would have developed. In any case the administration of diphtheria antitoxin would not have the slightest effect on the carrier state.

7. Finally, the only advantage which might accrue from giving antitoxin with the immunizing agent would be to procure an immediate and remote immunity by Ramon's method, instead of waiting for active immunity to appear several weeks after the final injection.—I am, etc.,

Plymouth D. F. Johnstone.

Treatment of Ischaemic Contracture

Sir,—Your annotation (Jan. 23, p. 108) is fully warranted, but it is doubtful whether arteriectomy is primarily necessary. The application of contralateral heat, according to Learmonth's suggestion, is frequently sufficient to release the collateral circulation (*Surgery of Modern Warfare*, first edition, chap. 36, p. 317). I have used this method in three cases of threatened ischaemia, in cases of supracondylar fracture of the humerus in children, and in each of these it has been successful in averting the onset of contracture. (A fourth case where it was unsuccessful was found to have an incomplete lesion of the brachial artery.) The child was put into a bath with the injured limb suspended above water level, and the return of function was almost dramatic. I would earnestly recommend that this measure be tried before operative proceedings are undertaken. —I am, etc.,

Sunderland. W. Grant Waugh.

Mitral Systolic Murmurs

Sir,—I read Dr. William Evans's very useful article on mitral systolic murmurs (Jan. 2, p. 8) with great interest and profit. After discussing it with several colleagues, however, I got the impression that it perhaps lends itself to a little confusion. In using the word "irrelevant" one naturally feels that it should mean irrelevant to something or other, and in the terms of the article that something or other is not quite clear. It looks as if Dr. Evans is calling a murmur irrelevant at the mitral valve when it is heard better at some other valve, and not merely when the disease it signifies is in some other valve. The mitral murmur associated with pulmonary stenosis, for instance, is called irrelevant, while that which may be associated with aortic stenosis is not. Would it not be clearer to say outright that "irrelevant" means "irrelevant to disease at the mitral valve." The classification of mitral murmurs would then run as follows: (1) organic—(*a*) relevant, (*b*) irrelevant; (2) non-organic—i.e., innocent.

Accepting Dr. Evans's well-grounded view that mitral incompetence is not established as a pathological entity, the class of relevant mitral murmurs would then be reserved for those signifying mitral stenosis (of which the systolic would, in certain circumstances, be one). In the irrelevant class would fall all those murmurs signifying pathology elsewhere. According to this, the murmurs of pulmonary and aortic stenosis would be classed together, and in the innocent class would fall all those murmurs which could not rightly be identified with pathology anywhere. It would be possible, of course, to divide the irrelevant murmurs into those signifying pathology in the heart (but not in the mitral valve) and those signifying pathology outside the heart. But perhaps this would unnecessarily complicate the classification.

Dr. Evans's main point is that the mind of the clinician should be always correlating what he hears with some definite conception of pathology, or the absence of pathology, and for that reason it would seem desirable that the terms of his classification should relate directly to the site of pathology, if any. This would help to keep his mind on the point, and prevent him from admitting into his nomenclature hazy theories of disease which have never been concretely demonstrated.

Incidentally, Dr. Evans's insistence on the value of the clinical interpretation of heart murmurs will come as a welcome encouragement to those of us who have no gadgets at our command, and will inspire us to recapture some of the clinical acumen which is fast becoming a departed glory.—I am, etc.,

Liverpool C. H. Ross Carmichael.

Mass Miniature Radiography Units

Sir,—The letters of Dr. Norman P. Henderson (Jan. 16, p. 81) and Dr. James F. Brailsford (p. 83) raise several important points. While the battle for mass miniature radiography in the Services has been won, the battle for its use in the civil population is only in the preliminary skirmishing phase.

The situation appears to be that about a dozen units have been allotted to cities and another dozen are being distributed among certain counties. To those of us who have worked hard in preparing ourselves for service in this new method and in stimulating interest in local medical and lay circles, the fact that our district is not on the short list for a unit is discouraging. This feeling would quickly be dispelled by a little more information from the Ministry of Health in regard to its policy, with special reference to the expected dates of delivery of the units to the various centres. I believe it to be a fact that local authorities have recently received a memorandum from the Ministry on their proposed scheme for mass radiography, but the radiologists who will (or should) have much to do with the practical work are still much in the dark. Surely it would be helpful if each district could know soon approximately when it might expect to take its part in the national scheme, so that it could set about planning in earnest. No doubt all plans will have to be approved by the Ministry, and this takes time. It is to be hoped that the staffing of units will be delegated to regional authorities who are in the position to pick the best teams. In regions containing two or more large towns, each town, so far as is possible, should be represented by a team member.

Dr. Henderson makes the point that the real province of the "chest physician" is the clinical side of the examination, and suggests that it is a waste of time for him to examine large numbers of normal films. There is much truth in this, and yet the combination of radiologist and physician is better than either alone. That a number of physicians do not act on this principle is a matter for regret. There is a tendency for tuberculosis officers to request hospitals to supply chest films without reports, implying that they are quite competent to interpret them without assistance, and no doubt they are in the majority of cases. But do we not all frequently see films in which there is some point of difficulty or doubt? Do we not then welcome a discussion with a colleague? If, as so often happens, a discussion is impossible, surely the next best thing is to read our colleague's thoughts on paper. Many of the reports will be superfluous, but there will always be a few which contribute some piece of information that would otherwise be missed. I feel strongly that this argument justifies a radiologist's report in every chest case.

One last point in regard to staffing. Uniformity throughout the country in technique and in the classification of reports is essential for success. Cannot this best be achieved by setting up a central school which will train radiographers and organizers of units in a standard method and coach members of viewing teams in approved methods of viewing and classification? To those appalled by such a mechanical concept I would suggest that miniature mass radiography is a mechanical sieve and is not a medium for the art of diagnosis. Uniformity at this stage will not atrophy individual diagnostic skill, which is called for at a later stage. Dr. Brailsford thinks that "it is a defective sieve which will miss the early case." Surely it would be truer to say that it will miss some early cases, but it will find more than it misses. It will not be the fault of miniature mass radiography if suspicious lesions, unassociated with clinical signs, are allowed to spoil the life of a patient. The assessment of the importance of such a lesion rests with the clinician. The viewer who sees it first in a miniature film is not responsible for its interpretation.

I cannot agree with Dr. Brailsford that the revelation by mass radiography of extensive progressive tuberculous disease is to be regarded as a slur on the medical examination which missed it, for the adequate reason that many such cases have never had a medical examination.—I am, etc.,

Reading. PAUL CAVE.

Ligature of the Innominate Artery

SIR,—In reporting the end-result of a case of ligature of the innominate artery (May, 1932) for subclavian aneurysm in the *Journal* of Oct. 10, 1942 (p. 422), I mentioned 62 recorded cases and said that I was unable to obtain figures for recent years. Subsequently, my attention was called to three additional cases, all of them successful and noteworthy.

The first, a woman aged 65, was operated on by Mr. H. S. Meade of Dublin in November, 1936. The case was published under the title "Compression of an Aneurysm of the Innominate Artery with Fascial Straps" (*Irish J. med. Sci.*). This case was seen in 1942, completely cured. Mr. Charles MacAulay of Dublin operated on a second case—also a woman—in March, 1933. The artery was ligatured. She was shown at the Royal Academy of Medicine in Ireland in 1937, and in 1942 appeared to have made a complete recovery. The third case was reported by Mr. Granville Chapman of Grimsby (*Journal*, July 13, 1939). Mr. Chapman writes that the man is well and alive 14 years after operation.

I am anxious, if you can spare the space, to correct the omission in my original communication by calling attention to these three cases.—I am, etc.,

W. I. DE C. WHEELER.

Artificial Respiration

SIR,—Eve's method has a mechanical but no theoretical superiority over Schäfer's method. In Schäfer's method the operator acts against the force of gravity in the first movement. When he withdraws this force gravity causes the viscera to resume their former position. Only if the body were on a head-downwards incline could the viscera stay put and not resume their former position. The more placid and toneless they are the more vigorous will be the resumption caused by gravity.—I am, etc.,

Birmingham. W. J. BURNS SELKIRK.

Teaching First Aid

SIR,—Should not the teaching of first aid be divided into two distinct categories: (*a*) for the casualty services, founded on the St. John and B.R.C.S. manuals; (*b*) for part-time wardens, rescue parties, Home Guard, W.V.S.—in short, everybody—founded on half a dozen essentials? The reason for this division is that first aid is based on anatomy, physiology, and chemistry, recondite subjects on which the public has little knowledge.

The rules for treatment are, for those under instruction, a matter of memorizing rather than reasoning. This memorizing can only be achieved by constant repetition—a method employed by the casualty services with their weekly or fortnightly drills. This constant repetition is out of the question with wardens, Home Guard, etc., with their many other duties; therefore the rules of treatment have to be reduced to a minimum if they are to be remembered. Six things should be taught: (1) control of haemorrhage by direct pressure; (2) treatment of shock; (3) treatment of broken limbs when no splints are available; (4) how to lift a casualty; and two "don'ts"—(5) don't wash wounds; (6) don't use oil on burns.

A booklet on these lines (10 pp.) was issued by our A.R.P. department eighteen months ago. It improved the first aid of part-time personnel greatly. Should any reader be interested in the views expressed above a copy will be sent if application is made to the A.R.P. Office, Princes Street, Huntingdon.—I am, etc.,

ARTHUR S. G. BELL,
Surg. Commander, R.N. (ret.).

Huntingdon.

Obituary

SIR STCLAIR THOMSON, M.D., F.R.C.P., F.R.C.S.

Formerly Professor of Laryngology and Physician for Diseases of the Throat and Nose, King's College Hospital

Sir StClair Thomson, whose death occurred on Jan. 29, at the age of 83, achieved fame in every direction in which he bent his energies—as a specialist in diseases of the larynx, as the author of the "Laryngologists' Bible," as a fluent interpreter at international congresses, as a good host, and as a most accomplished speaker. He was the Nestor of British laryngology, almost the sole survivor of the school which had established this specialty on a firm scientific basis.

Although StClair Thomson was born at Londonderry in 1859, his father was an Argyllshire man from the village of Ardrishaig on Loch Gilp. The "StClair" in his son's name was from his maternal grandfather, John Sinclair of the Sound of Mull. When he was 19 StClair Thomson entered as a junior scholar in the medical division of King's College, London. He took the M.R.C.S. and L.S.A. in 1881, and at the M.B. London examination in 1883 he obtained honours in medicine. He then became house-surgeon at King's College Hospital, where his chief was Joseph Lister, who had entered that hospital as a surgeon on the same day that Thomson had entered it as a student. StClair Thomson was never tired of recalling his great master. Fifty-six years after the event, in the rooms of the Medical Society of London in Chandos Street, Cavendish Square, he described the scene in those very rooms in 1883, when he had the honour of bringing together and exhibiting with Lister the first six cases in which a fractured patella had been wired.

StClair Thomson completed his training in Vienna, Paris, and Lausanne, making acquaintance with foreign surgeons and their methods and establishing his knowledge of laryngology. At King's College Hospital at the time he was a student the teaching in this subject was wholly inadequate. He once said that when he gained his degree in medicine he had never seen the vocal cords—or the drum of the ear—in the living person. He also recalled how, when it was necessary to operate for adenoids in the out-patient department in the 'eighties, the struggling child was held by the porter, while the surgeon, whose only instrument was his finger-nail, inserted his finger up behind the palate and scratched out as much of the adenoids as the yelling child would permit.

In Vienna one of his great teachers was Hajek, afterwards professor of laryngology and rhinology at the University there, but then a privat-docent. One of StClair Thomson's possessions which he exhibited proudly half a century later was his postgraduate notes on Hajek's lectures on the anatomy of the nose and throat. It was Hajek who taught him the importance not only of looking at specimens but of handling them and making his own sections. Thomson also worked in Vienna with von Schrötter, Stoerk, and Politzer. In his old age Hajek fell a victim to Nazi persecution and became an exile in this country, and it was the pleasure of StClair Thomson to repay as far as he could the old debt to his teacher by welcoming and acclaiming him in laryngological circles in London.

During his wanderings abroad in his early manhood, which included some experience of practice in Italy and Switzerland, StClair Thomson not only laid the foundation of his knowledge and skill as a laryngologist but also acquired that polished cosmopolitanism which became him so well to the very end of his life. He loved to talk of his time in Vienna, in particular of the long summer of 1893 when the Redehöf (not now to be discovered in the Austrian capital, but commemorated in the operetta *Lilac Time*) was crowded with students and the life of the University was especially rich and inspiring.

Laryngology in London

In that same year (1893) he returned to London and took the F.R.C.S. He had already taken the London M.D. in 1888, and also the M.D. of Lausanne in 1891. He became physician to the Throat Hospital, Golden Square, and surgeon to the Royal Ear Hospital. In 1901 he was appointed assistant physician for diseases of the throat and nose at his old hospital, King's College, where his department had two beds in the male and two in the female surgical wards, but no special theatre, a room being fitted up for operations. In 1903 he was elected F.R.C.P. In 1905 he became physician in charge of the department, and in 1908 professor of laryngology at King's College. A few years later, in 1913, the hospital migrated from the byways of the Strand to the more open spaces of Denmark Hill. He continued to hold the two appointments until his retirement in 1924 at the age of 65, when he was made consulting surgeon and emeritus professor. His connexion with King's College, so long and distinguished, was further marked by his election to the Fellowship of the College in 1927, and by the unanimous choice of him for the chair of the past and present students' centenary celebrations in 1930.

An adequate estimate of the contributions of StClair Thomson to laryngology cannot even be attempted in the brief space of a memoir. One subject to which he devoted himself in particular was intrinsic cancer of the larynx. In the course of his experience he had seen that condition pass from being regarded as a most dire disease to one of the most amenable from a surgical standpoint, and he himself helped in a marked degree to bring about that change. Laryngofissure, from being an operation with a high mortality, was made safe by improvements in early diagnosis and technique, and this advance was due in large measure to his work. His technique in the operation for malignant disease of the larynx was followed in the schools of laryngology all over the world, as were his methods of after-care, in particular the use of the sitting position for the patient as soon as possible after the operation. In 1927 he exhibited at the Royal Society of Medicine four patients—all medical men—upon whom he had performed the operation of laryngofissure, respectively two and a quarter, three, four and a half, and five and a half years previously, for intrinsic epithelioma, and they were all, at the time he showed them, engaged actively in their practices. He held that if laryngofissure was carried out according to the correct technique it should be free from danger to life and should be followed by an adequate voice and lasting cure. In 1930, with Mr. Lionel Colledge as co-author, he published a book on this subject.

Tuberculosis of the larynx was also one of his great interests, and in a work from his pen in 1924 he described about 2,500 cases which he had seen during thirteen years while holding the appointment of visiting physician for diseases of the throat to the King Edward VII Sanatorium, Midhurst. In 1936 he was presented by the Royal College of Physicians with the Weber-Parkes prize for his work on tuberculosis carried out over a long period. His work as a surgeon was distinguished by the utmost care in examination, courage in undertaking surgical procedures, well-thought-out methods of after-care, and punctilious recording and description. It was he who published the first recorded case in this country, in 1910, of the removal with the aid of endoscopy of a foreign body—a shawl pin—which had been impacted in the secondary bronchus.

His famous textbook, *Diseases of the Nose and Throat*, first appeared in 1911, a second edition in 1916, a third in 1926, and a fourth, in which he was assisted by Mr. V. E. Negus, in 1937. He contributed innumerable papers to the medical journals and societies, and was the European editor of the *Laryngoscope*. His first publication was in 1895—a translation of Ónodi's *Anatomy of the Nasal Cavity*. Among appointments other than those already mentioned which he held at various times were those of surgeon to the throat and ear department of the Dreadnought Hospital, Greenwich, professor of laryngology and otology at the Royal Army Medical College, consulting throat physician to the Actors' and Music Hall Artistes' Associations, and physician to the Royal Italian Opera.

In 1913, when the International Medical Congress was held in London, Sir StClair Thomson—he had received his knighthood in the previous year—was president of the Section of Laryngology, and his command of languages enabled him to welcome each national group of delegates in its own. In 1918 he was president of the Medical Society of London, and in 1924-6 president of the Royal Society of Medicine. It was through his generosity that that society, shortly after he had relinquished the presidency, was granted an Achievement of Arms, and he also presented it with a presidential badge and chain of office, the badge consisting of the shield of the coat of arms encircled by the motto of the society—*Non est vivere sed valere vita.*

StClair Thomson was a corresponding honorary member of most of the laryngological societies of Europe and of the American Laryngological Association. In 1936 the Académie de Médecine of Paris unanimously promoted him, already a Foreign Correspondent, to be a Foreign Associate. Among other noteworthy decorations which he was entitled to wear were the swords of a Commander of the Order of Leopold, the ribbon of an Officer of the Legion of Honour, and the medal of the Reconnaissance Française. On the occasion of the visit of the British Medical Association to Canada in 1930, when he was president of the Section of Laryngology, he received at the Convocation of the University of Manitoba the honorary degree of LL.D. He was president of the same Section at Belfast in 1909 and at the Centenary Meeting in London in 1932. A recognition which perhaps pleased him most of all was the gift from 175 of his fellow laryngologists of a loving cup, which was presented to him in 1926. On that occasion he said that he had had two ambitions—one to till to the best of his ability the small corner of the field of medicine in which he worked; the other to accomplish it in such a way as to keep the esteem and regard, and if possible the affection, of his fellow workers.

Sir StClair Thomson was a widower, his wife, whom he had married in 1900, having died in 1905.

Mr. LIONEL COLLEDGE writes:

The tragic and violent death of Sir StClair Thomson will fill a vast number of friends, pupils, and patients with dismay. It is curious that during the last few years he had made no attempt to conceal from his intimate friends a slightly morbid preoccupation with the end which he felt was approaching; though he might, indeed, have lived for many years, for his health was not bad for a man past 80 and his family is remarkable for its longevity. Yet he could not have had the slightest suspicion of the manner in which his life would be cut short, and it recalls the disaster to the Blue Train in which he was travelling to the Riviera some years ago. Prof. Bérard hastened to the scene of the accident near Lyons and offered accommodation in his clinic. This Sir StClair declined, but soon afterwards found that he was more seriously injured than he had at first supposed. By that time the clinic was full and he had to be content with a place in the *salle des blessés* in the *Hôtel-Dieu*. He gave a vivid description of his sojourn there, which accorded ill with a cat-like love of comfort and elegant living.

The art of living was for him a special study of which he was complete master, and was reflected in the appointments and conduct of his home in Wimpole Street, where he loved to entertain his friends and especially his professional brethren. A recent and sad picture of him, though happily not the last, was sitting in the inner hall of his dismantled house, disposing of the treasures in the home he loved so well and was to occupy no more through the misfortunes of war. His love of hospitality and the social graces did not prevent him from being a worker of more than ordinary industry, and he covered the whole field of his special work in his writings; but he was interested particularly in laryngeal tuberculosis. He had in this a personal interest as one who had in early middle life made a remarkable recovery, which he attributed to the skill and care of his friend Dr. Patrick Watson-Williams, and he always referred to this with gratitude. On this account, too, the Tuberculosis Society always retained his interest and sympathy. His Mitchell lecture on tuberculosis of the larynx and his writing on the same subject for the Medical Research Council based on his work at King Edward VII Sanatorium at Midhurst show how careful a clinician he was and how thoroughly his cases were studied and followed. In this as in other things he preferred quality to quantity. The particular interest in the larynx naturally led to an intensive study of laryngeal cancer, where the same minute attention to every detail was invoked, and he became the acknowledged clinical authority on the subject. In the operations that he undertook the same qualities—which he had acquired from Lister, who exercised a direct and lifelong influence over him—were displayed, but he never undertook anything which he felt was beyond his powers, and was willing to hand over his cases without the least jealousy or rancour to those upon whom he believed that he could rely. His writings upon these subjects gained him an international reputation, but his enormous influence was exercised far more by his personality, which gained him the friendship of all the leading Continental and American laryngologists, and by his command of the spoken word, and that, too, in several languages. Whether it was after dinner, at a professional meeting, or at a Christmas party at his house, he always spoke with the same felicity and held the attention of his audience with a speech generally pointed with a quotation from his favourite Shakespeare. This combination of professional, oratorical, literary, and social ability would have led him to distinction in any line of life, and had he followed some other path he would have held first place at Canterbury, Westminster, or the Mansion House, and it is easy to picture him as an Ambassador.

That he had countless friends followed naturally, but he used to say that those friendships were the deepest and most enduring which came to him in the course of his work, and so by those who worked with him and reaped the benefit of his courteous instruction, his kindness, and his knowledge he will be remembered as the friend of laryngologists.

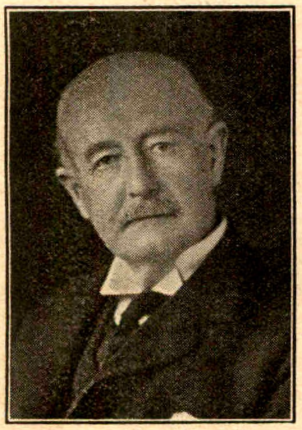
Mr. McADAM ECCLES writes:

Sir StClair Thomson from the very first took the greatest interest in the University of London Medical Graduates Society, for it was in his house in Wimpole Street it was born on Oct. 31, 1927. He became its first president, and presided at the inaugural dinner on Feb. 13, 1928, at the Langham Hotel. The society has gone on from strength to strength because of his wise guidance and sound judgment, and has now a membership of over 600. His genial presence, graceful oratory, and loyal friendship will be greatly missed by all.

SIR ROBERT ARMSTRONG-JONES, C.B.E., M.D., F.R.C.P., F.R.C.S.

We regret to announce the death on Jan. 31 at the age of 85 of Sir Robert Armstrong-Jones, consulting physician in psychological medicine to St. Bartholomew's Hospital.

Robert Armstrong-Jones was born in 1859 at Ynyscynhaiarn, Caernarvonshire, the son of the Rev. Thomas Jones, a Congregationalist minister who had formerly belonged to the Church of England. Robert Armstrong-Jones was one of a family of ten, and he used to recall how as a young boy he walked three and a half miles daily to and from Portmadoc Grammar School, where he received a prize for being the most regular and constant attendant during a severe winter quarter in 1871. When he was 14 he moved to the University College of Wales at Aberystwyth, and from there to Grove Park School, Wrexham. He took the London Matriculation in 1875, and after having served six months' apprenticeship to a Dr. Robert Roberts at Portmadoc he entered St. Bartholomew's Hospital. At Bart's he was prosector in anatomy and gained the Wix Essay and Hichens Prize. He qualified L.S.A. in 1880, took the London M.B. in the same year, and proceeded to the M.D. in 1883. He took the F.R.C.S. in 1885, and in 1900 the M.R.C.P., being elected Fellow in 1907. In 1920 he was given the Honorary D.Sc. of Wales University.


[Press Portrait Bureau

Leaving Bart's in 1880, Armstrong-Jones was for two years junior medical officer to the Royal Earlswood Institution, and then for six years at the Colney Hatch Asylum. In 1888 he returned to Earlswood as medical superintendent. After six years' service in this capacity he was appointed in 1893 the first medical superintendent to the first new asylum of the London County Council at Claybury; at the same time Dr. (later Sir) Frederick Mott was appointed pathologist. Jones's energy, enthusiasm, tact, and administrative ability made the renown of Claybury as an institution spread far beyond the area controlled by the L.C.C. It was the first asylum under municipal control to receive private paying patients, and it is interesting to recall these words from the first annual report: "It is hoped that the success of this experiment may encourage the Council to provide further for a class of patients above the pauper class but who can ill afford to bear the cost of private asylum, and who may find comparative quiet and comfort—perhaps even a touch of 'home'—in such an institution as the Claybury mansion-house." Armstrong-Jones organized the teaching of mental nurses and instituted a special training course for them, and his work on behalf of mental nursing was recognized by the conferment upon him of Knight of Grace by the Order of St. John of Jerusalem. Whilst Armstrong-Jones was superintendent, Frederick Mott was at the same time working in the pathological laboratory and making his fundamental and well-known contributions to the pathology of insanity. Armstrong-Jones was for several years honorary general secretary to the Medico-Psychological Association, and later became its president. With F. E. Batten he was joint secretary of the Psychological Section of the International Congress on School Hygiene which met in London in 1907.

After nearly twenty-five years of arduous service at Claybury, he felt compelled by the stress and strain of administrative and medical work to resign his appointment in 1916; in the following year he received the honour of knighthood. After a short time of rest Armstrong-Jones offered his services to the War Office and was appointed first consulting physician in mental diseases to the London Command. He was also consulting physician to the American Red Cross Hospital at Alford House. His war services were recognized by the honour of C.B.E. (Military). After the war he was appointed to be one of the three Lord Chancellor's Visitors in Lunacy, an office he held for ten years. Later he was nominated Justice of the Peace and Deputy Lieutenant for the Counties of London and Caernarvon, and in 1929 he was High Sheriff of Caernarvonshire. Armstrong-Jones lectured in mental diseases both at St. Bartholomew's Hospital and at the Westminster Hospital, published a *Textbook of Mental and Sick Nursing*, and contributed articles on insanity to *Quain's Dictionary of Medicine* and to *Allbutt's System of Medicine*. He contributed articles to the general medical press and often vigorously expounded his views in the correspondence columns of the *Times*. In 1910 he was witness for the British Medical Association before the Royal Commission for Divorce and Matrimonial Causes, and served on a special Committee to Consider Spiritual Healing appointed by the Archbishop of Canterbury in 1920. In 1929 he delivered the Henderson Trust Lecture in the University of Edinburgh, the title of his lecture being "The Growth of the Mind." From 1917 to 1927 he was Gresham Professor of Physic.

Sir Robert Armstrong-Jones was actively interested in the affairs of the B.M.A.: he was secretary of the Section of Psychology at the Meeting at Newcastle-upon-Tyne in 1893, and president at the Swansea Meeting in 1903; in 1920 and in 1921 he was a member of the executive committee of the Kensington Division.

He married in 1893 Margaret Elizabeth, the elder daughter of Sir Owen Roberts, D.C.L.; they had one son and two daughters.

We regret to announce the death of Dr. ROBERT CRAIK of Ealing at the age of 77. Dr. Craik received his medical education at Glasgow University, qualifying M.B., C.M. there in 1886, and obtaining his M.D. in 1893. For many years he was medical superintendent of Conisborough Fever Hospital, Yorks, before going to Ealing in 1912. From time to time he contributed to the correspondence columns of the *Journal* on subjects in which he took a special interest, including the blood in lead poisoning and the blood picture 35 years after splenectomy. Dr. Craik's modest and retiring disposition kept him too much in the background, but his real worth was appreciated by all who came in contact with him. He had been a member of the B.M.A. for 20 years.

The Services

CASUALTIES IN THE MEDICAL SERVICES

We have recently received from Australia the annual report for 1942 of the Victorian Branch of the B.M.A. The following medical officers are included in the Roll of Honour printed in the report:

Died on Service.—Major E. Bailhache, Major J. F. Chambers, Lieut.-Col. E. L. Cooper, Capt. J. C. R. Joyce, Capt. G. L. Lindon, Major Z. Schwartz, Capt. D. J. Shale, and Capt. S. I. Weir, all A.A.M.C., and Fl. Lieut. S. Thomson, R.A.A.F. A brief obituary notice of Capt. Weir was published in the *Journal* of Sept. 6, 1941 (p. 361).

Major **Eric Bailhache** was educated at the University of Melbourne, where he graduated M.B., B.S. in 1924. He also took the M.R.C.O.G. in 1937. He died of wounds on Feb. 26, 1941. He had been a member of the B.M.A. since 1924.

Major **John Ferguson Chambers** graduated M.B., B.S. of the University of Melbourne in 1917, proceeding M.D. in 1925. He also took the M.R.C.P. in 1922. He was honorary physician with charge of in-patients at the Alfred Hospital, Melbourne, and honorary consulting physician to the Austin Hospital, Melbourne. He was killed in action in April, 1941. He had been a member of the B.M.A. since 1918.

Lieut.-Col. **Eric Leonard Cooper** graduated M.B., B.S. of the University of Melbourne in 1925, proceeding M.D. two years later. He was tutor in medicine at the Ormond College of the University of Melbourne and honorary physician to in-patients at St. Vincent's Hospital, Melbourne. He contributed articles to the *Medical Journal of Australia* on Hodgkin's disease (1934) and on athletics and the heart (1937). He joined the B.M.A. in 1925.

Capt. **John Colin Ramsay Joyce** took the M.B., B.S. of the University of Melbourne in 1926 and joined the B.M.A. in the same year.

Capt. **George Leonard Lindon** graduated M.B., B.S. of the University of Melbourne in 1940 and joined the B.M.A. in the following year.

Major **Zelman Schwartz** graduated M.B., B.S. of the University of Melbourne in 1920 and took the F.R.C.S.Ed. in 1924. He joined the B.M.A. in 1920.

Capt. **Donald James Shale** took the M.B., B.S. of the University of Melbourne in 1938.

Fl. Lieut. **Stuart Thomson** graduated M.B., B.S. of the University of Melbourne in 1937. He entered the R.A.A.F. soon after the outbreak of war and was killed in a flying accident. He joined the B.M.A. in 1940.

Believed to be Prisoners of War.—Major J. F. Akeroyd, Capt. B. H. Anderson, Major H. L. Andrews, Capt. V. Brand, Capt. V. G. Bristow, Major K. B. Burnside, Capt. J. F. J. Cade, Capt. F. J. Cahill, Major I. T. Cameron, Capt. J. P. Catchlove, Lieut.-Col. A. E. Coates, Major T. P. Crankshaw, Col. A. P. Derham, Major E. E. Dunlop, Lieut.-Col. N. M. Eadie, Major H. H. Eddey, Capt. J. L. Frew, Major R. B. Maynard, Capt. P. N. O'Donnell, Major R. G. Orr, Lieut.-Col. C. H. Osborn, Major H. A. Phillips, Col. D. C. Pigdon, Major J. J. Searby, Capt. H. N. Silverman, Lieut.-Col. H. F. Summons, Capt. H. F. Tucker, Capt. F. R. Vincent, Major H. A. W. Watson, Col. E. R. White, Lieut.-Col. J. G. G. White, Capt. M. F. A. Woodruff, all A.A.M.C.

Missing.—Capt. C. S. Donald, A.A.M.C., Surg. Cmdr. J. R. Hasker, R.A.N., Surg. Lieut.-Cmdr. F. H. Genge, R.A.N., Surg. Lieut. W. J. McLaren-Robinson, R.A.N., Capt. J. F. Park, A.A.M.C., Surg. Lieut.-Cmdr. E. M. Tymms, R.A.N.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

At a Congregation held on Jan. 22, 1943, the following medical degrees were conferred by proxy:

M.D.—H. H. Bayley, C. W. C. Karran.

M.B., B.Chir.—A. E. Howarth, A. D. Barlow, J. F. B. Carter, D. S. G. Genge, R. N. Jones, T. G. E. Loosemore, R. D. Slack, H. C. Still, J. K. F. Mason, W. N. Coombes, R. K. Reid, J. H. Simpson, R. N. Ticehurst, W. H. Trethowan, O. B. Appleyard, N. A. Campbell, J. A. H. Collyns, R. V. Peters, W. Rogers, M. C. Connell, P. H. N. Matthews, J. F. Neil, D. W. H. Griffiths, M. C. Mundle, B. P. Webber, J. H. C. Phillips, A. P. H. Randle, W. A. dos Santos, A. G. Harrold, A. G. Richards, P. F. Early, F. W. Blackley, E. F. Carr, W. K. Douglas, H. L. Pierce, H. R. Jolly, M. G. P. Stoker, B. C. Welshman. *In person:* H. W. A. Baron, J. V. T. Gostling.

The dissertation by M. J. Clow, M.B., B.Chir., has been approved for the degree of M.D. in absence.

UNIVERSITY OF LONDON

A course of lectures and clinical instruction on mental deficiency and allied conditions, arranged by the University Extension and Tutorial Classes Council in co-operation with the Central Association for Mental Welfare, will be given from Monday, May 10, to Friday, May 21, at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C. It is intended for medical practitioners, more especially those who are engaged as school medical officers, certifying officers to local authorities under the Mental Deficiency Acts, or as medical officers of institutions. Detailed time-tables will be sent not later than May 3 to each person proposing to attend the course, and applications should be sent in by March 20 as the course can be held only if sufficient entries are received. The University will grant certificates of attendance to those students who attend regularly taking both theoretical and practical work. The registration fee, to be paid at the time of application, is 10s. 6d., and the fee for the course is £5 15s. 6d. All communications should be addressed to Miss Evelyn Fox, C.B.E., c/o University Extension Department, University of London, 24, Buckingham Palace Road, London, S.W.1.

UNIVERSITY OF EDINBURGH

At a graduation ceremonial on Jan. 21 the following medical degrees and diplomas were conferred:

M.D.—*J. W. Buchanan, Surg. Lieut., R.N.V.R., *R. F. Dawson, Squad. Ldr., R.A.F.V.R., *O. S. Gibbs, *N. S. Gordon, Flying Officer, R.A.F.V.R., *W. Limont, Surg. Lieut., R.N.V.R., J. A. F. Roberts (highly commended for thesis).

M.B., Ch.B.—P. H. L. Barker, G. T. Bedford, G. V. R. Born, M. A. Caldwell-Nichols, E. M. Callander, K. M. Chalmers, T. B. Chetty, D. H. Clark, *W. A. L. Collier, D. J. C. Cunningham, Helen W. Currie, K. J. R. Cuthbert, D. A. Dixon, W. Edgar, G. M. Falconer, E. C. Fear, Margaret M. Fleming, J. P. W. Grant, D. R. Gunn, K. Gunstensen, W. J. Howrie, D. W. Huish, W. H. Hunter, R. B. Huston, B. C. Jeffrey, D. R. Kerr, W. A. E. Kerr, A. D. M. King, R. P. T. King, W. T. Lesslie, D. W. Livingstone, D. G. M'Connell, A. C. Macdonald, Evelyn E. M'Guinness, Annie H. Mackay, L. M'Lachlan, A. S. M'Lean, C. W. Magill, R. M. Marquis, A. R. Milson, N. R. K. Mitchell, I. Payne-James, G. Reid, P. M. Roemmele, E. B. Ross, W. T. Scott, C. W. Shearer, I. B. Sim, I. Singh, A. S. Smith, H. T. G. Strawbridge (with honours), C. R. Strother-Stewart, R. S. Sunderland, A. R. Sutherland, J. A. Tulloch, G. A. S. Wallace, J. L. Watson, A. W. Williams, Lena W. Williams, H. D. Wilson, A. F. Young.

Diploma in Public Health.—*Winefride M. Hamilton, *Doreen G. Warnock.

Diploma in Medical Radiology.—E. Tiscenco.

* *In absentia.*

Polish School of Medicine in Edinburgh

M.B., Ch.B.—H. Drobinski, T. W. Drozdowski, F. J. Kuciel, W. S. Kulesza, T. Markiewicz, K. J. Parkita, S. J. Rydlewski, H. Sulinska.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

Surg. Rear-Admiral Cecil P. G. Wakeley will deliver a lecture, under the auspices of the Dr. John Burns Fund, on "The Surgical Aspects of Blast" in the hall of the Faculty (242, St. Vincent Street, Glasgow) on Wednesday, Feb. 10, at 4 p.m.

Medical Notes in Parliament

The National Loaf

Mr. Mabane stated on Jan. 20 that, apart from yeast, salt, and the various improvers which are the recognized adjuncts of bread baking, the permitted ingredients of national flour for making the present national loaf are wheat flour of 85% extraction, imported white flour, oats products, barley, rye, milk powder, and calcium, in the proportions authorized. In addition the baker may use a proportion of white flour as permitted in Article 20 of the Flour Order, 1943, and potatoes and potato flour as permitted in the Bread (Control and Maximum Prices) Order, 1943. The composition of national flour and consequently of national bread is not, and will not, be standardized over the whole country. The proportion of diluents does not at present in general exceed 5%. There was no present intention of rationing bread.

Milk Pasteurization

Mr. David Adams asked on Jan. 20 whether, with a view to destroying pathogenic organisms in non-pasteurized milk, it was now intended that all milk for human consumption should be scientifically pasteurized. Mr. Mabane replied that the appropriate and practical steps which could be taken to secure the elimination of active tubercle organisms from liquid milk were at present under consideration with the Agricultural and Health Departments and other interests.

Medical Certificates

Mr. Ernest Brown said on Jan. 21 that he was aware of the complaints of doctors that they were overwhelmed with the signing of certificates. In many cases the granting of some exemption or privilege must depend on the physical condition of the applicant. The only suitable evidence of this was a medical certificate. He was grateful to the medical profession for the assistance they had given. He had been consulted both by the other Government Departments concerned and by the medical profession. He was always ready to discuss proposals for restricting, and if possible reducing, the number of purposes for which medical certificates were required.

Treatment of Syphilis under Regulation 33B

On Jan. 26 Dr. MORGAN asked the Attorney-General whether, in view of the risks inherent in the modern treatment of syphilis by drugs containing arsenic, he had considered the probability of action for damages or legal suits against the special practitioners in connexion with their work under the compulsory treatment powers of Regulation 33B, and the position if a breadwinner died or could prove permanent disability as the result of enforced treatment. Mr. ERNEST BROWN, who replied, said the construction of the Regulation was a matter for the courts and not for him to determine, but he did not think that a patient who was treated under the Regulation was in a different position as regards claims against the practitioner than a patient treated by a practitioner who had been consulted in the usual way.

Prisoners of War in Hong Kong

On Jan. 26 Mr. A. HENDERSON informed Sir William Davison that it was believed that the majority of the prisoners of war had been transferred from Hong Kong, but it was probable that some 2,000 British and Canadian as well as some Indian prisoners remained there. The International Red Cross Committee delegate reported favourably on the Hong Kong camps in Oct., 1942, but later information indicated a deterioration in the rations and considerable outbreaks of disease during last summer. It was understood that prisoners of war admitted to hospital received adequate nursing, but that medical treatment was hampered by a serious shortage of drugs and other medical requisites.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* there were during the week further falls in the incidence of measles 1,830, and diphtheria 77; the notifications of whooping-cough and acute pneumonia continued on the upgrade—by 202 and 103 respectively. An increase of 149 cases of scarlet fever was recorded; the notifications of dysentery were down by 23.

Scarlet fever tended to be more prevalent in most counties, especially in Middlesex 28, Yorks West Riding 27, London 24, and Glamorganshire 33 cases more. Lancashire, with 31 fewer notifications than in the preceding week, provided the only exception of note to the general trend.

The returns from the counties for diphtheria showed only slight changes from the totals of the previous week. The only substantial variations were a rise of 21 in Lancashire and a fall of 46 in Yorks West Riding.

The total notifications of whooping-cough were higher than in the previous week. The largest increases were in Lancashire 45, Staffordshire 28, London 26, and Somersetshire 20.

Although measles was down by 13% for the whole country, notifications rose in several counties, especially in Hampshire 70, Yorks North Riding 61, and Kent 51. The greatest decreases were those of Yorks West Riding 433, Durham 296, Lancashire 222, Lincolnshire 166, Derbyshire 142, and Staffordshire 106.

Half the total notifications of dysentery were from three counties: London 18, Essex 15, Lancashire 14. The epidemic of dysentery in Middlesbrough C.B. is apparently subsiding, only 4 cases being reported during the week; there are only 14 persons under hospital treatment.

In *Scotland* measles was down by 148 cases; notifications of acute primary pneumonia were up by 60 and of whooping-cough by 48. A suspected case of small-pox in a 3-year-old girl has been reported from Bridge of Allan. She has been removed to an Edinburgh institution after a period of observation in a Stirling hospital.

Typhus in Germany

A League of Nations report states that a large increase of typhus has occurred among the civilian population in Germany during the war. In 1939 no civilian case occurred, in 1940 there were 6, and in 1941 the total rose to 395. During the first five months of 1942 there were 3,674 cases. Germany ceased to issue returns in September.

Returns for the Week Ending January 23

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 2,203, whooping-cough 1,841, diphtheria 998, measles 11,827, acute pneumonia 1,404, cerebrospinal fever 92, dysentery 113, paratyphoid fever 1, typhoid 7. In the large towns 100 deaths were ascribed to influenza.

No. 2

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Jan. 16

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	96	8	24	4	3	177	13	33	4	7
Deaths		2	1				1	1		
Diphtheria	764	45	231	97	31	1,013	38	249	29	37
Deaths	27	—	2	6	1	33	1	8	2	1
Dysentery	96	18	31	—	—	128	7	32	—	—
Deaths			—	—	—			—	—	—
Encephalitis lethargica, acute	2	—	—	—	—	—	—	—	1	1
Deaths		—	—				—	—		
Erysipelas		—	55	11	3		—	55	5	2
Deaths		—	—				—	—		
Infective enteritis or diarrhoea under 2 years				23						
Deaths	41	3	11	17	4	33	2	9	7	—
Measles	12,323	630	377	18	34	896	77	81	65	5
Deaths	16	—	3	—	1	1	—	—	—	—
Ophthalmia neonatorum	87	2	18		—	61	1	20		—
Deaths										
Paratyphoid fever ..	5	—	—	—		8	—	1	—	
Deaths	1	—	—	—	1	—	—	—	—	—
Pneumonia, influenzal*	1,194	73	12	9	3	1,028	72	19	3	11
Deaths (from influenza)	89	4	2	1	—	62	15	6	—	3
Pneumonia, primary ..			276	13				363	13	
Deaths		—		12	8		54		16	14
Polio-encephalitis, acute	—	—				—	—			
Deaths										
Poliomyelitis, acute ..	8	1	—	8	3	6	—	1	—	—
Deaths			—					—		
Puerperal fever ..	—	5	15	—	—	3	3	4	1	—
Deaths		—					—			
Puerperal pyrexia ..	159	10	15		3	159	11	16		2
Deaths										
Relapsing fever ..	—	—			—	—	—			—
Deaths										
Scarlet fever	1,957	158	339	57	52	1,047	32	223	38	35
Deaths	—	—	1	—	—	2	—	—	—	—
Small-pox	—	—	—		—	—	—	—		—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever† ..	4	—	1	3	—	24	—	1	6	—
Deaths	—	—	—	—	—	1	—			—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths			—	—	—			—	—	—
Whooping-cough ..	1,504	112	124	45	8	1,601	177	69	22	3
Deaths	10	—	2	3	1	16	6	3	1	—
Deaths (0–1 year) ..	454	43	74	50	19	398	48	78	28	22
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths) ..	6,003	857	696	261	150	5,557	820	721	245	157
Annual death rate (per 1,000 persons living)			15·7	17·2	‡			16·2	16·3	‡
Live births	6,519	804	910	393	286	4,942	494	826	295	206
Annual rate per 1,000 persons living ..			18·6	25·8	‡			17·1	19·0	‡
Stillbirths	238	28	43			229	12	44		
Rate per 1,000 total births (including stillborn)			45					51		

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes paratyphoid A and B for Northern Ireland.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Medical News

A paper on "Measures for the Control of Malaria in India" will be read by Sir S. Rickard Christophers, F.R.S., at the Royal Society of Arts, John Adam Street, Adelphi, W.C., to-day (Friday, Feb. 5) at 1.45 p.m.

A week-end course for medical practitioners on factory medical services and industrial diseases will be held at the London School of Hygiene on Feb. 27 and 28. The proceedings will be opened by Sir Wilfred Garrett, H.M. Chief Inspector of Factories, at 2 p.m. on Feb. 27; at 2.15 p.m. Dr. A. J. Amor will speak on "Industrial Diseases of the Lungs"; and at 4.15 p.m. Dr. W. D. Jenkins will give an address on "Skin Lesions arising from Coal Distillation." The programme for Feb. 28 is as follows: 10 15 a.m., Dr. M. W. Goldblatt, "The Investigation of Toxic Hazards"; 11.45 a.m., Dr. H. B. Trumper, "A Method of Assessment of Physical Requirements for Processes, with Reference to Routine Medical Examinations"; 2 15 p.m., Dr. A. H. Bennett, "Industrial Fracture"; 3.45 p.m., Dr. A. R. Martin, "Recent Work on Antiseptics." The fee for the course is £1 1s. (plus 2s. 6d. if lunch is required), and applications should reach the secretary of the school (Keppel Street, London, W.C.1) by Feb. 22.

The morning session of a meeting of the Royal Sanitary Institute, to be held at Leicester on Feb. 20, will be devoted to two papers, one on tuberculosis in wartime by Dr. J. C H. Mackenzie, and the other on the milk supply of the future by Mr. W. W. Baum and Mr. F. G. McHugh, respectively chief sanitary inspectors of the county and the city of Leicester. Visits arranged for the afternoon include an inspection of a high-temperature–short-time pasteurization plant. Further information may be obtained from the hon. local secretary, Dr. E K Macdonald, M O.H., Grey Friars, Leicester.

The British Film Institute is arranging a week-end conference from April 2 to 5 on the film in national life. The conference will be held at the University College of the South-West, Exeter, and will be concerned especially with the influence of the film on society, with particular reference to children and adolescents. It is hoped to show examples of apparatus used in connexion with the employment of optical aids for instructional purposes. It is understood that the fees for the week-end should not exceed 3½ guineas. Further inquiries should be addressed to the British Film Institute, 4, Great Russell Street, London, W.C.1.

Dr. Henry Warner Collins (Inner Temple) and Dr. John Walter Hulme (Middle Temple) were called to the Bar on Jan. 26.

A Swiss Paracelsus Society has recently been founded under the presidency of Prof. Linus Birchler. Its organ will be entitled *Nova Acta Paracelsica.*

According to an account in a Berlin newspaper last December, a man in Frankfurt was fined 50 marks for summoning a doctor to a patient without sufficient reason

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to The EDITOR, British Medical Journal, B.M A. House, Tavistock Square, London, W C.1.

ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

Authors desiring REPRINTS should communicate with the Secretary of the Journal Board, B.M.A. House, Tavistock Square, W C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad.

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B M.A. Scottish Office: 7, Drumsheugh Gardens, Edinburgh.

QUERIES AND ANSWERS

Income Tax

Inquiries by Inspector

"Nosey" exercised "the very strictest economy as to living expenses" in the first year of the war and lent all the money possible for the war effort. The inspector of taxes, noticing that the professional account showed smaller drawings than usual for living expenses, asked for particulars of the private expenditure on food, clothing, holidays, etc. This information was given, but had the inspector a right to ask for it?

*** The legal rights of an inspector of taxes are very limited, and such inquiries are made not by virtue of any authority *he* has, but because the assessing commissioners may wish to know, and such particulars can normally be required on appeal. In the circumstances referred to above the inspector's action seems to suggest too much zeal on his part.

Retired Practitioner—New Appointment—Residential Expenses

"X" is a retired practitioner living at B. He contemplates accepting a whole-time appointment at C. He would (for personal reasons) have to maintain his establishment at B. What can he claim for the expense of maintaining himself at C ?

*** The income tax Acts do not provide for any such allowance, and "X" would be liable to account for tax on his full salary. A possible remedy would be for the appointment to be on a "living-in" basis, the result being to reduce the monetary emoluments and consequently the income tax liability.

LETTERS, NOTES, ETC.

Nasal Defence

Dr Octavia Lewin (London) writes: The nose is almost universally described as the organ of smell and classified among the special senses. Should not rhinology rather be dealt with as a special branch of physiology and recognized as the first in importance of Nature's many defence measures? The Ministry of Health has published alarming statistics telling of the ravages of the common cold and the losses that the war machine is suffering in consequence. The grave increase in the incidence of tuberculosis may well be ascribed to failure of the germicidal powers of the nasal apparatus. The nasal toilet, which alone can keep the nose fighting fit, is handicapped through lack of attention during the school years, and difficulties have been increased since coupons are called for when hankies are needed, as they form an essential part of our personal equipment in a civilized community

"British Pharmacopoeia" Amendments

The General Medical Council has amended the *British Pharmacopoeia, 1932,* as follows:

Extractum Cascarae Sagradae Siccum.—When this is prescribed or demanded an extract prepared according to the following formula may be dispensed or supplied: Mix 900 grammes of cascara sagrada, in coarse powder, with 4,000 millilitres of boiling water, and macerate the mixture during three hours. Then transfer it to a percolator, allow it to drain, and exhaust it by percolation, using boiling water as the menstruum and collecting about 5,000 millilitres of percolate. Evaporate the percolate to dryness, reduce the extract to a fine powder, and add sufficient starch, dried at 100° C., to make the product weigh 300 grammes. Mix the powders thoroughly and pass the extract through a fine sieve.

Ferri Sulphas Exsiccatus—The content of $FeSO_4$ is changed from "not less than 80%" to "not less than 77%."

Paraffinum Molle Album.—When white soft paraffin is prescribed, yellow soft paraffin may be dispensed, and may be used in place of white soft paraffin in making the preparations of the *B.P.*

The Chemist's Shop in Denmark

Dr. K. E. Barlow (Coventry) writes: It is too little known that there are countries which have dealt radically and adequately with the questions of self-medication. Having been fined by the Coventry panel committee for excessive prescribing, I inquired into the arrangements in Copenhagen when I was there in 1939 Danish chemists are forbidden to sell medicine without a prescription from a doctor. Manufacturing chemists have not only to disclose their formulas but also their costs. A medical board only allows the manufacture of proprietary remedies when the sale price bears a relation to cost which is thought to be just. It is noteworthy that the manufacture of amidopyrine has been prohibited in Denmark—that in consequence the incidence of agranulocytosis is negligible. The appearance of the chemist's shop is characteristic of the arrangements which govern its business. It contains a full pharmacopoeial range in neat bottles and little else. The chemist must live on the premises and must get up at night when required to dispense urgent medicines Finally, excessive prescribing is checked by calling upon the patient to pay a small proportion of the cost of drugs—a cost which the Government ensures is reasonable. In Denmark doctors are never fined for using the therapeutic resources which are available to them.

BRITISH MEDICAL JOURNAL

LONDON SATURDAY FEBRUARY 13 1943

LUNG TUMOURS IN MICE AND MAN

BY

J. ARGYLL CAMPBELL, M.D., D.Sc.

From the National Institute for Medical Research, London

(WITH SPECIAL PLATE)

As the result of more than ten years' experiments (Campbell, 1934-1942b) in which mice were exposed once an hour for six hours on five days of each week for a year to a moderate cloud of dust from various substances, enough data have now been obtained for some general statistical examination. It is possible to compare, with some confidence the results elucidated from statistics of human lung cancer (Kennaway and Kennaway, 1936; Turner and Grace, 1938; and others) with results obtained from the above prolonged dusting experiments with mice. Herein some comparison is made between mice and man: (1) as regards agents which increase the incidence of lung tumours; (2) as regards the morphology of the tumours; (3) as regards the time factor or influence of age; and (4) as regards the factors of susceptibility and heredity. Reference is also made to the influence of irritation, both chemical and mechanical.

Full details of the methods of investigation and of the sources and compositions of the various dusts have been given in the previous publications, and will not be repeated here. Also, full references to literature appeared in these earlier papers, and only key references will now be included. Since lung tumours are very rare in mice younger than 10 months, only older mice are considered. Usually about 80% of the control mice and about 75% of the experimental mice survive for 10 months or longer: as a rule all the mice were allowed to fulfil their allotted span of life. Further, only those experiments in which a visible deposit of dust was apparent in the lungs are at present under review. The experiments with gases and smokes are excluded.

Agents increasing the Incidence of Lung Tumours

The evidence of statistics for human lung cancer indicates that an abnormal liability to this disease has been observed among workers exposed to coal-gas and tar, those engaged in the preparation and sale of tobacco, metal grinders, engineers, foundry workers, silica workers, chromate workers, some workers with a nickel dust mixture, and Czechoslovak pitchblende miners, while a somewhat high incidence has been observed in those whose occupation exposes them especially to road dust; these latter include paviours, road sweepers, and drivers of horse-drawn and motor vehicles. The inorganic substances, therefore, which appear to be dangerous are radium, arsenic, a "nickel" dust mixture, chromates, iron, and silica. As regards the new carcinogenic agents, the benzpyrene of tar and tarred road dust is more than under suspicion, while this substance is also suspected of causing lung cancer in heavy smokers, being present in small quantity apparently in the tarry matter as the result of combustion of tobacco at high temperatures; some positive results have been obtained in experiments with animals with this tarry matter.

Many of the above substances have been tested on mice, and the significance of the results for various dusts is given in Table I, by means of the statistical ratio of the difference between the percentage incidences of lung tumours in the dusted mice and the control mice to the standard error of the difference (Table I, column 5); the meaning of this ratio is given briefly in column 6 of the same table. It will be observed that the statistical evidence in favour of the particular dust increasing the incidence of lung tumours is highly significant for a sample of tarred road dust (No. 1), for a sample of a similar dust with carbon monoxide present, and also for a dust mixture containing equal parts of silica, iron oxide, alumina, and calcium carbonate. The increase in incidence of lung tumours in the experimental mice is definitely significant also with a sample of iron oxide, a sample of Czechoslovak pitchblende dust (No. 2) containing a small quantity of radium and arsenic, a sample of tarred road dust from which the tar had been removed by benzene, and a second sample of tarred road dust (No. 2). Experiments in which the increase in incidence is on the borderline of significance include a diluted "nickel" dust mixture, a bituminous coal dust from the South Wales Coal Survey, and another sample of Czechoslovak pitchblende dust (No. 1) containing no arsenic and practically no radium. Experiments in which the increase in incidence might have been due to chance include those with an exhaust soot, those with

TABLE I.—*Significance of Increase in Incidence of Lung Tumours in Dusted Mice*

Ratio (R) Numerical Order	Experiment	Percentage Lung Tumour Incidence		Ratio of Difference between E and C to Standard Error of Difference (R)	Significance of Increase due to Dust
		Dusted Mice (E)	Control Mice (C)		
1	Tarred road dust (1)	74·0	8·0	7·2	Highly significant
2	CO+tarred road dust	47·3	7·5	4·1	
3	$Al_2O_3+SiO_2+Fe_2O_3+CaCO_3$	19·4	0·0	3·6	
4	Fe_2O_3	32·7	9·6	2·9	Definitely significant
5	Czechoslovak dust (2)	20·3	2·1	2·8	
6	Tar-free road dust	44·8	20·0	2·7	
7	Tarred road dust (2)	13·1	1·4	2·6	
8a	Diluted "nickel" dust	29·8	12·5	2·2	Some significance, but near borderline
8b	Czechoslovak dust (1)	11·5	1·7	2·2	
10	Bituminous coal	12·1	1·9	2·1	
11	SiO_2+"nickel" dust	17·4	5·0	1·8	An increase, but might easily be due to chance
12a	$SiO_2+Fe_2O_3$	19·4	9·6	1·5	
12b	Carbon, exhaust soot	33·3	20·0	1·5	
14	$Al_2O_3+SiO_2+Fe_2O_3$	15·8	9·2	1·1	
15	Steel grindings	13·6	7·7	1·0	
16	Anthracite coal	9·1	7·0	0·4	No increase of any significance
17	Coal soot	20·0	20·0	0·0	

steel grindings, and various experiments with silica and iron. Finally, no material difference in incidence was observed in experiments with an anthracite coal dust from the South Wales Coal Survey and a coal soot from a chimney.

When the value of the ratio in column 5 of Table I is 2 it means that such a difference in tumour incidence would arise by chance only once in 20 trials; if the ratio is 2.5 the difference would arise by chance only once in 80 trials, and if 3, only once in 370 trials. For higher values, of course, the risk is very much smaller still. In all the experiments there were about 50 to 60 mice in both the dusted and control groups—that is, 100 to 120 in all. If the same percentage differences between dusted and control mice were to occur with higher numbers of mice they would be of much greater significance. It is thus possible to obtain further evidence that silica and iron increase the incidence of lung tumours by adding all the results together for any of the experiments in which silica and iron were employed. This has been done in Table II, from which it will be seen that of 346 control mice 7.8% possessed lung tumour, while the incidence among 475 mice exposed to various dusts containing either silica or iron, or both, was 20.1%. The value of the above statistical ratio from these percentages is 5.2, which indicates that the difference due to the dusting is highly significant. It is likely also that the cause of the increase in incidence of lung tumours in the mice exposed to the road dust with the tar removed (Table I) is also concerned with the iron and silica it contained, as is the increase in the case of the sample of Czechoslovak pitchblende dust (No. 1) which did not contain arsenic or radium.

TABLE II.—*Lung Tumours in Mice in Fe_2O_3 and SiO_2 Experiments*

Experiment	No. of Mice Alive		Animals with Lung Tumours					
	Control	Experiment	Control			Experiment		
			Total	Simple	Malignant	Total	Simple	Malignant
SiO_2	63	61	5	3	2	13	5	8
Fe_2O_3	—	52	—	—	—	17	3	14
$Fe_2O_3+SiO_2$	52	62	5	3	2	12	5	7
SiO_2+methylcholanthrene	66	63	9	5	4	15	11	4
$Al_2O_3+SiO_2+Fe_2O_3$	65	57	6	3	3	9	6	3
$Al_2O_3+SiO_2+Fe_2O_3+CaCO_3$	60	62	0	0	0	12	5	7
SiO_2 (93·4%)+"nickel" dust (6·6%)	40	46	2	2	0	8	4	4
SiO_2 (75–84%)+soda lime (16–25%)	—	54	—	—	—	6	3	3
Totals	346	457	27 (7·8%)	16 (4·6%)	11 (3·2%)	92 (20·1%)	42 (9·2%)	50 (10·9%)

TABLE III.—*Degree of Dusting. Deposit in Lungs and Tracheo-bronchial Lymph Nodes of Mice*

Experiment	Organ	No. of Mice with Deposits								Total No. of Mice with Dust	Average Dust Deposit
		Very Slight, or 12·5%	Slight, or 25%	Slight to Moderate, or 37·5%	Moderate, or 50%	Moderate to Heavy, or 62·5%	Heavy, or 75%	Heavy to Very Heavy, or 87·5%	Very Heavy, or 100%		
Anthracite coal	Lung	0	13	13	15	12	1	1	0	55	45%
Bituminous coal	,,	0	0	1	10	9	19	16	11	66	76%
SiO_2 (93·4%)+"nickel" dust (6·6%)	,,	14	8	15	4	0	0	0	0	41	28%
Anthracite coal	Lymph nodes	1	10	6	10	6	5	0	1	39	47%
Bituminous coal	,, ,,	1	1	2	7	4	12	10	22	59	79%
SiO_2+"nickel" dust	,, ,,	7	17	4	3	0	0	0	0	31	26%

From the above results it is obvious that so far as many of the causes of the increase in incidence of lung tumours are concerned mice and man show very fair agreement. It is considered that the processes involved are of a prolonged chemical nature—that is, small quantities of the dusts go into solution in the tissues before producing the cancerous effect, possibly the end-result being the same with all the different substances. In most cases the dusting was of a moderate degree or less, so that only moderate deposits or less of dust were present in the lung tissue. Heavier dusting with the apparently inactive dusts might have produced more positive effects. This brings us to the consideration of the mechanical factor due to such deposits. The lungs of the control mice, of course, equally with those of the experimental mice, contain small quantities of dusts from the sawdust of their bedding, from their food, and from their surroundings in general; these dusts may exert some influence in the development of lung tumours in susceptible mice, which may explain their presence in the control mice.

Mechanical Irritation

It is possible, of course, that the masses or collections of dust in the lung tissue might cause irritation by mechanical pressure, particularly during the movements of respiration. The harder the dust, or the larger the masses, the greater would be the irritation. Also the clumps of dust might by pressure occlude blood vessels so that a local anoxia might occur, and evidence has been obtained of some influence of anoxia in increasing the incidence of lung tumours in mice (Campbell, 1940a). In addition iron compounds might be freed from any stationary blood or haemoglobin in the occluded capillaries, and a chemical effect of the iron might be thus set up indirectly.

To study more closely any influence of mechanical irritation or pressure it is necessary to have some quantitative method for measuring the experimental dust deposits in the lungs. This is possible with the coloured dusts, and also for colourless dusts if mixed with coloured dusts. From experiments with coal dust and silica it is apparent that the two dusts are ingested by the same cells, so that the extent of the coloured coal-dust deposits covers also that of the colourless silica, as proved by the distribution of the coal and fibrous tissue in the silica nodules in the mouse's tracheo-bronchial lymph nodes. With the aid of the microscope it has been possible to identify four main degrees of deposit, such as slight, moderate, heavy, and very heavy, with four intermediate degrees as indicated in Table III. A very heavy deposit indicates masses of dust which fill up about three-quarters of the lung tissue but do not appear to shorten to any extent the life of the stronger mice. Such a very heavy deposit is arbitrarily termed a 100% deposit. A moderate deposit is half this degree, or a 50% deposit. A very slight deposit indicates scattered specks and particles of the dust. In this way it has been possible to obtain eight degrees of deposit and to estimate by microscopical examination how many mice fall into each of these eight sections. These are all added together to get the total number of mice with dust deposits. Then an average degree of dust deposit for this total is easily calculated from the number and percentage deposit in each of the eight sections. This average is given in the last column of Table III, and by using these averages the degree of deposit in the various experiments may be compared. The same method is employed for the dust deposits in the tracheo-bronchial lymph nodes as shown for some of the dusts in the same table. All the experiments have been dealt with in this way, and the results are collected together in Table IV, which also records the state of the lymph tissue in the lungs and lymph nodes.

The dusts produced hypertrophy of the lymph tissue in many of the mice. Normally there are very few and scattered collections of lymphocytes near the blood vessels and bronchial tubes in the mouse lung tissue; any definite increase on this is regarded as hypertrophy or reticulosis. Such a hypertrophy occasionally occurs in control mice too, so that it is necessary to divide the percentage of dusted mice with such a condition by the percentage of control mice which also show a hypertrophy. This ratio is given in column 4, Table IV, and indicates the increase in lung lymph tissue due to the dusting.

TABLE IV.—*Average Dust Deposit and Increase of Lymph Tissue in Lungs and Tracheo-bronchial Lymph Nodes*

Lung Dust Deposit Order	Experiment	Lungs: Dust Deposit (%)	Lungs: Lymph Tissue Increase — Dusted Mice % / Control Mice %	Lymph Nodes: Dust Deposit (%)	Lymph Nodes: Lymph Tissue Increase — Dusted Mice % / Control Mice %
1	Bituminous coal	76	9·6	79	4·4
2	Tar-free road dust	60	—	66	—
3	Fe_2O_3	59	2·8	45	3·7
4	Carbon, exhaust soot	53	—	47	—
5	Steel grindings	51	6·2	40	2·3
6a	$Al_2O_3+SiO_2+Fe_2O_3+CaCO_3$	46	15·6 / 0 0	30	4 4
6b	CO+tarred road dust	46	—	—	—
8	Anthracite coal	45	6·1	47	1·8
9a	Tarred road dust (1)	42	—	—	—
9b	Tarred road dust (2)	42	2·0	66	2·8
11	Coal soot	41	—	38	—
12	Dil. "nickel" dust	40	3·1	41	4·3
13a	$SiO_2+Fe_2O_3$	38	2·7	27	2·7
13b	$Al_2O_3+SiO_2+Fe_2O_3$	38	17·1	25	2·7
15	Czechoslovak dust (2)	35	2·9	62	2·5
16	SiO_2+"nickel" dust	28	4·8	26	2·2
17	Czechoslovak dust (1)	21	1·0	31	2·4

Normally the tracheo-bronchial lymph nodes are two in number, and if the diameter is more than 2 mm. a hypertrophy is regarded as being present. The increase due to the dusting is shown in the last column of Table IV. This increase in the lymph tissue in the lungs and nodes due to the dusting may not only be an effect of mechanical irritation but also a chemical effect. There does not seem to be any very close agreement between the degree of dust deposit and the increase in lymph tissue. There are high increases of lymph tissue in the lung with the highest degree of dust deposit—that is, with the bituminous dust, and also with the dust mixtures containing alumina, which is very hard (Nos. 6a and 13b, Table IV). The hard steel grindings also produced a high increase in lymph tissue in the lungs (No. 5), as did the hard anthracite coal (No. 8). It is obvious that all the dusts increase the lymph tissue in the lungs and lymph nodes, which might indicate in general a mechanical effect. When iron was present many of the "lymph" cells in the lung appeared to be of a sarcomatous type and tended to spread out into the lung tissue; this is apparently a chemical effect (see Plate, Fig. 2).

TABLE V.—*Absence of General Dependence of Lung Tumour Incidences in Dusted Mice upon Heavier Degrees of Dust Deposit in Lungs*

Degree of Lung Dust Deposit Column 3. Order	Experiment	Total Mice with Deposits classified as "Moderate to Heavy" or Higher (%)	Lung Tumour Incidence: Dusted Mice (E) %	Dusted Mice (E) % for Group	Control Mice (C) %	Control Mice (C) % for Group	E/C Group
1	Bituminous coal	83	12·1	25·8	1·9	9·8	2·6
2	Tar-free road dust	60	44·8		20·0		
3	Fe_2O_3	54	32·7		9·6		
4	Steel grindings	40	13·6		7·7		
5	Carbon, exhaust soot	35	33·3	18·7	20·0	7·1	2·6
6	Anthracite coal	25	9·1		7·0		
7	$Al_2O_3+SiO_2+Fe_2O_3+CaCO_3$	18	19·4		0 0		
8	Tarred road dust (2)	16	13·1		1·4		
9	Coal soot	11	20·0	40·4	20·0	9·4	4 3
10	CO+tarred road dust	10	47·3		7·5		
11	Czechoslovak dust (2)	8	20·3		2·1		
12	Tarred road dust (1)	7	74·0		8·0		
13a	$SiO_2+Fe_2O_3$	2	19·4	18·8	9·6	7·6	2·5
13b	$Al_2O_3+SiO_2+Fe_2O_3$	2	15·8		9·2		
13c	Dil. "nickel" dust	2	29·8		12·5		
16a	SiO_2+"nickel" dust	0	17 4		5·0		
16b	Czechoslovak dust (1)	0	11·5		1·7		

As regards the influence of the dust deposits upon the incidence of lung tumours, it is perhaps better to consider only the heavier degrees of deposit, such as those termed "moderate to heavy" or heavier, since if mechanical irritation of the dust is a factor in production of lung tumours the heavier dust deposits should be more active than the lighter deposits. Therefore, in Table V the experiments have been arranged in the order of the percentages of the total mice with dust deposits heavier than a moderate degree. The only experiments in which half the mice or more had such heavy deposits were those with bituminous coal, tar-free road dust, and iron oxide. In column 4, Table V, the lung tumour incidences in the dusted mice (E) are given, and a glance shows that in general there is no correspondence with the numerical order of the mice which had heavy dust deposits, so that the heavier degrees of dusting in the main do not control the production of lung tumours. In order to make the comparison accurate it is necessary to consider at the same time also the incidence of lung tumours in the corresponding control groups of mice. This is shown in Table V. From the last column it is evident that all the experiments, when grouped in fours for convenience and clarity, show increases in the incidence of tumours irrespective of the numerical order for the percentages of mice with the heavier dust deposits. It may be concluded, therefore, that in general the increase in incidence of primary lung tumours caused by dusts is a chemical and not a mechanical effect; but it is not possible at present to exclude completely a mechanical factor, since the bituminous coal, tar-free road dust, and iron oxide, with the highest degrees of dust deposit, did produce increases in incidence of lung tumours of some statistical significance. There are cases of lung cancer among coal-miners, but the incidence is low compared with that for certain other industries. In the mouse experiments, too, the bituminous coal does not occupy a very high postion (Table I) as a stimulator of lung tumours, although the dust deposit in the lung in this case was the heaviest of all in degree. This bituminous coal and the anthracite coal were obtained through the courtesy of the South Wales Coal Survey Committee, on the suggestion of Dr. P. D'Arcy Hart. The results given herein are merely some preliminary results, the main experiments, undertaken for another purpose, not yet being completed. In the present experiment with anthracite coal the average degree of dust deposit in the lung was less than moderate (Table IV). In the unfinished experiments heavier deposits are expected.

Influence of Age and Sex

The large majority of deaths from human lung cancer occur after the age of 55—that is, in the closing years of life. In mice also, lung tumours are rare until the last quarter of their average existence. These facts indicate the importance of the time factor and point towards some very prolonged action. This is why the prolonged dusting experiments with mice have been persevered with. It is possible by means of intravenous injection of very small quantities of some new carcinogenic agents to produce lung tumours rapidly in certain strains of mice (Andervont and Shimkin, 1940). It is doubtful whether with such rapid action these results can be applied to the usual cases, in which such prolonged action seems necessary, unless it be assumed that under normal conditions inhibitory agents may also be present, as seems to be the case in some strains of mice whose lungs are very resistant even to intravenous injection of powerful carcinogens (Heston, 1942).

Although in mice and man the incidence of lung tumours is highest in the closing years of life, it might be argued that the resemblance is superficial, because a mouse lives only two or three years. In reply it may be stated that the rate of respiration is higher in the mouse than in man, and all metabolic processes seem speeded up in these small animals. At any rate, in both mice and man a relatively prolonged action of the dust seems necessary for the production of lung tumours under ordinary conditions.

In human lung cancer, males appear to be affected much more often than females, but some observers find that for simple adenoma the reverse is the case. With mice, on the whole, sex does not appear to play any great part, but in the case of the experiments both male and female mice were exposed equally to the adverse conditions. In man environmental conditions are usually different for the two sexes for a great part of the day. The entry of women into industry during the war may in time change the distribution of human lung cancer.

Influence of Heredity and Susceptibility

The milk factor recently discovered by Bittner to be so important for the development of mammary tumours in mice has apparently no influence on the incidence of lung tumours; but it is evident that by inbreeding with brother-to-sister matings it is possible to produce strains of mice either very susceptible or very resistant to development of lung tumours (Strong, 1936; Bittner, 1939; Murray, 1934; Little *et al.*, 1939; Furth *et al.*, 1933, 1941). In this respect heredity is important, and in man there is a suspicion that some such inbreeding has had an influence in the production of the high incidence of lung cancer in the Czechoslovak pitchblende miners, although the radium, arsenic, or some other inorganic substance may act as the trigger in the mechanism of its development. These substances, however, do not appear to be so active in similar miners in other places, so that heredity due to a certain amount of inbreeding in the case of the Czechoslovak miners may explain the difference. Even with this mechanism the cancers often appear only long after the miners have left the mines, so that the time factor is of great importance here too. In this Czechoslovak region there are also cases among men who have never been in the mines and have worked outside them altogether, which seems to point to an influence of heredity or some factor present in the outside dust as well as in the mine dust.

LEGENDS FOR SPECIAL PLATE

Magnification in all cases × 200

FIG. 1A.—White mouse, male, aged about 22 months; exposed to bituminous coal dust for 1 year. Part of edge of lung cancer with oatlike cells (early stage) advancing on walls of adjacent alveoli. Weigert, van Gieson.

FIG. 1B.—Metastasis, in tracheo-bronchial lymph nodes, of large oatlike cells from a similar part of lung tumour, another part of which is shown in Fig. 1A. Weigert, van Gieson.

FIG. 2.—Fawn mouse, female, aged about 27 months; exposed to dust mixture $Al_2O_3+SiO_2+Fe_2O_3$ for 1 year. Small oatlike and sarcomatous cells (mostly transverse section) in part of adenocarcinoma. Haematoxylin, eosin.

FIG. 3.—White mouse, female, aged about 21 months; exposed for 1 year to a diluted Czechoslovak pitchblende dust (2), containing some inorganic substances, including radium, arsenic, silica, and iron. Lung cancer cells with formation also of fibrous tissue. Haematoxylin, eosin.

FIG 4.—White mouse, male, aged about 29 months; exposed for 1 year to a diluted Czechoslovak pitchblende dust (1) without arsenic and radium. Transitional area from papillo-adenocarcinoma to oatlike and spindle cells. Haematoxylin, eosin.

FIG. 5.—Fawn and white mouse, female, aged about 21 months; exposed for 1 year to road dust minus tar. Part of lung cancer with various types and conditions of cancer cells. Haematoxylin, eosin.

FIG. 6A.—White mouse, female, aged about 21 months; exposed for 1 year to Fe_2O_3 dust. Primary lung cancer, papillomatous nature. Haematoxylin, eosin.

FIG. 6B.—Metastasis, in tracheo-bronchial lymph nodes, of glandlike cells from lung cancer in Fig. 6A. Haematoxylin, eosin.

FIG. 7A.—White mouse, female, aged about 27 months; exposed to steel-grindings dust for 1 year. Lung cancer. Haematoxylin, eosin.

FIG. 7B.—Metastasis near oesophageal wall (note muscle coat) from lung cancer in Fig. 7A. Haematoxylin, eosin.

FIG. 8A.—Chocolate mouse, male, aged about 25 months; exposed to a mixture of SiO_2+a nickel dust mixture for 1 year. Lung cancer with spindle and other cells. Weigert, van Gieson.

FIG. 8B.—Metastasis in tracheo-bronchial lymph node of oatlike cells from lung cancer in Fig. 8A. Some remains of lymph cells are seen in top right-hand corner. Weigert, van Gieson.

In the above mechanism of heredity genes presumably would be active. Nucleoprotein, it is said, forms part of the constitution of genes, and it appears that the same holds good for at least some viruses (Stanley and Knight, 1941). It is tempting to suggest that some link or chain in nucleoprotein may provide the bridge between the heredity theory and the so-called virus theory held by some observers for cancer in general. So far there is no evidence that a virus is concerned in lung tumour development, unless a virus is similar to a gene.

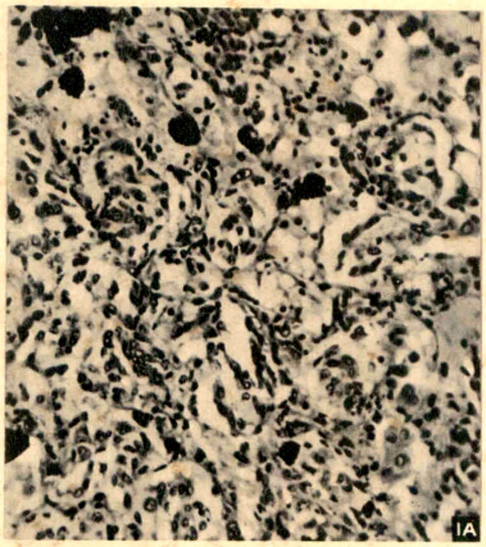
As a rule human populations, compared with closely inbred mice, are of very mixed strains, so that in man any influence of heredity must be much thinned out and scattered about, as it is in mixed strains of mice such as those used in the present experiments (Campbell, 1942b). Owing to this thinning-out of susceptibility in mixed strains, relatively large numbers of mice are required for each experiment. Human statistics in such a condition can hardly help in the solution of the problem unless it is realized that, as in the mouse, the mechanisms of development may be manifold and complex. Thus a very susceptible individual living in a moderately dusty atmosphere might be affected while an insensitive individual in a similar but very much dustier atmosphere might escape. It is this problem of susceptibility that at present interferes with the complete elucidation of the mechanism of lung tumour development. Although it is possible to name some factors which increase the incidence of lung tumours in mice and man, the ultimate *fons et origo* of the tumour itself remains obscure. Nevertheless it is obvious that dusts suspected or proved to be dangerous should be reduced as much as possible in industry and elsewhere.

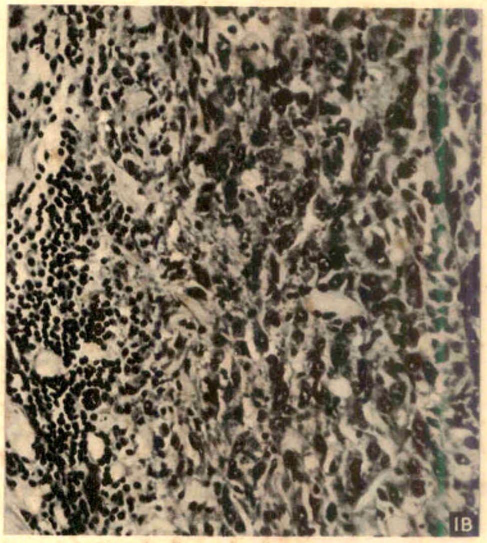
Morphology of Lung Tumours

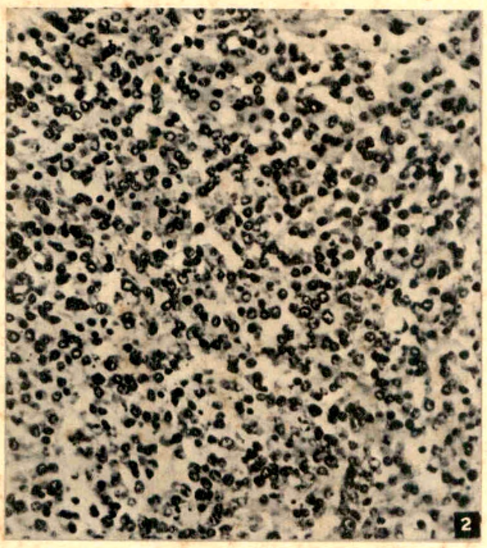
Many types of tumour cells are represented in the mouse lung tumours obtained in these experiments. There are simple adenomas, and very malignant tumours with extensions into other organs. Eighteen cases of such extensions into other organs have now been obtained among the experimental mice and only two such cases among the control groups. The most common extension is into the tracheo-bronchial lymph nodes, but extensions have been observed also in the heart, chest wall, and kidney. The tumours seem to arise often in collapsed areas of the lung, usually near the pleura; the cells become more or less cubical, and it is not possible to decide whether these cells arise from cells of the alveoli or as extensions from the terminal bronchioles. Many types of malignant cells may be found in one and the same mouse tumour, with transitions from the usual cells seen in adenocarcinoma to spindle-like cells or the larger and smaller oat cells, or to sarcoma-like cells. Some illustrations of these tumours and their metastases have been published (Campbell, 1937a), and others not yet represented are shown in the accompanying twelve photographs

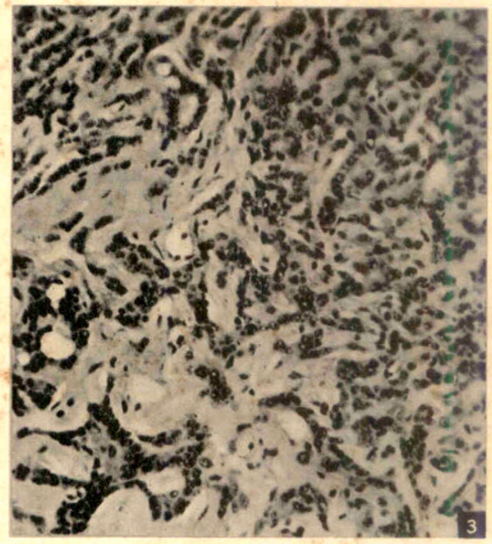
J. ARGYLL CAMPBELL: LUNG TUMOURS IN MICE AND MAN

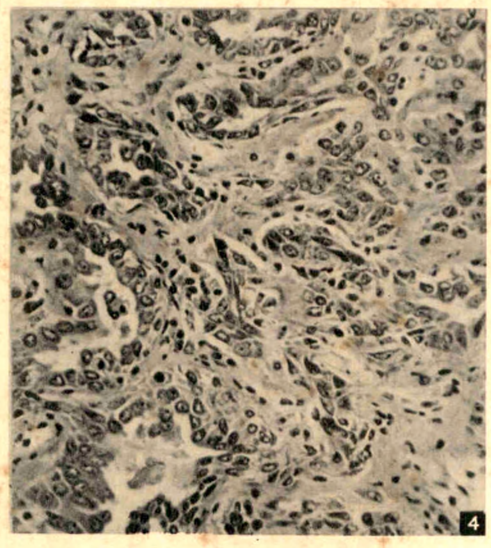
(*For legends see text*)

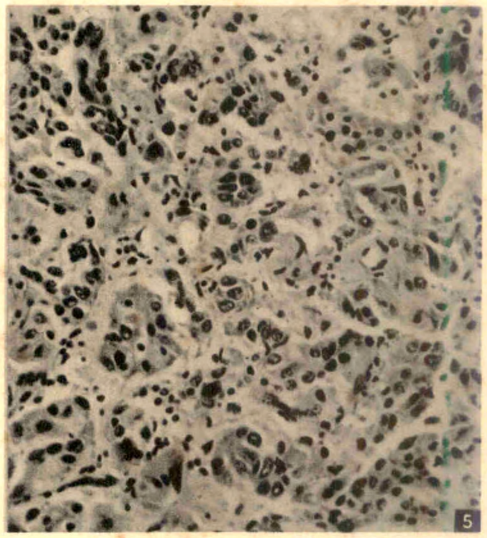






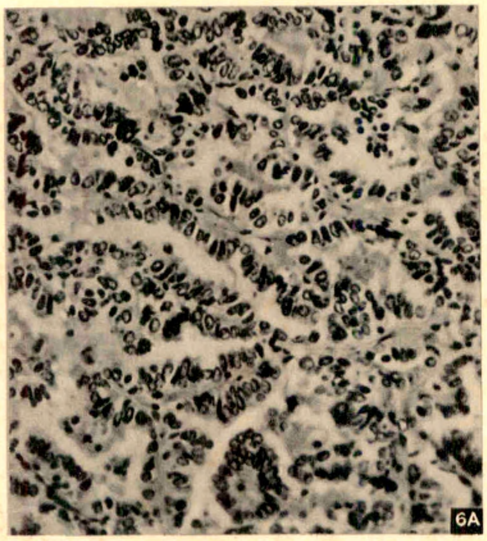




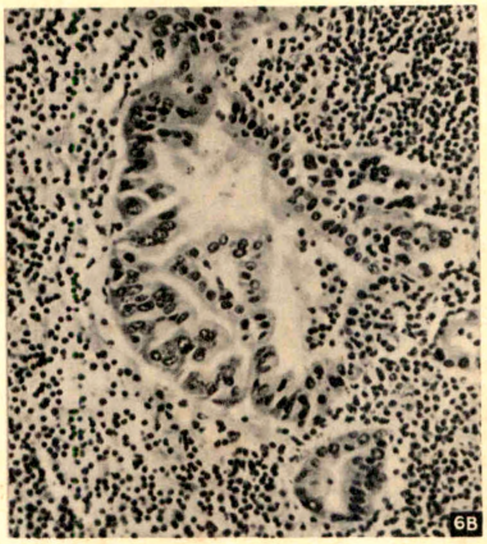


J. ARGYLL CAMPBELL: LUNG TUMOURS IN MICE AND MAN

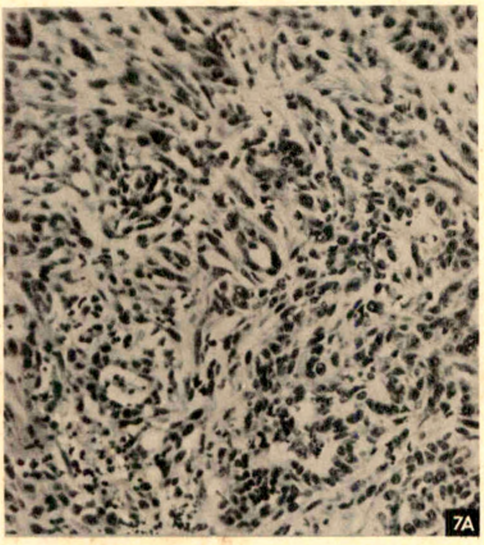
(*For legends see text*)



6A



6B



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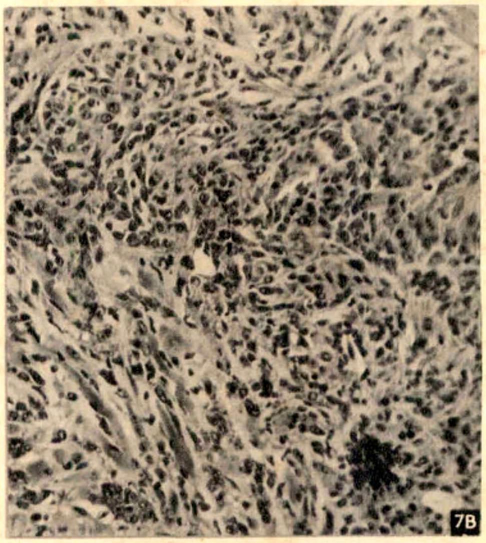

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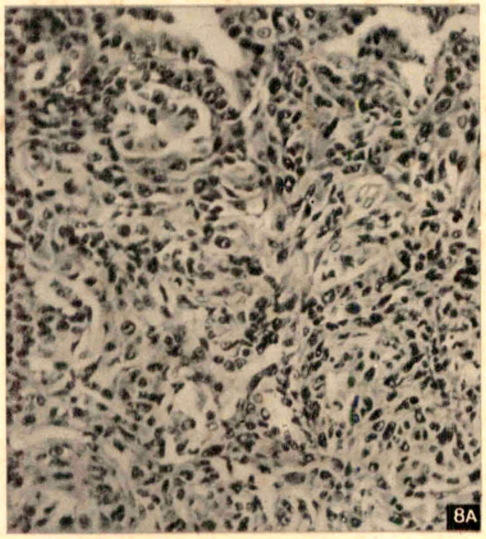

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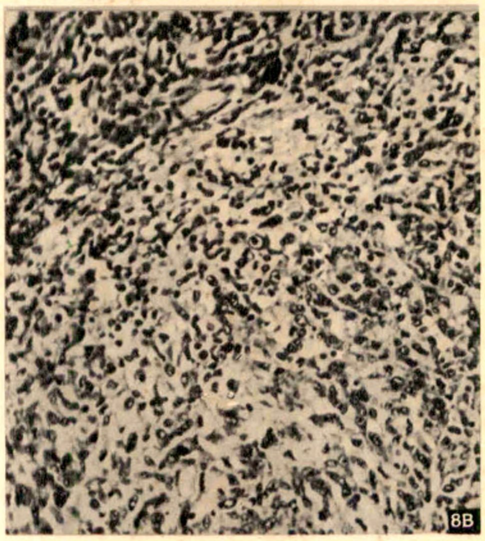

8B

taken by Mr. F. V. Welch of this institute (Plate, Figs. 1A to 8B). At one time mouse tumours were all considered to be simple and non-metastatic because evidently they were observed only in younger mice, the mice being killed early. This idea can no longer be held, and there seem to be really no fundamental differences from human lung tumours. Benign adenomas occur in man similar to some seen in mice. Human lung cancer cells are generally classified as squamous, columnar, spheroidal, polygonal, round, and oat: representatives of all these have been seen in mouse cancers, although there may be some minor differences. In mice, although some cases of epidermoid cancer occur (Wells *et al.*, 1941), the squamous cells are seen in their lungs usually only as metastases from skin cancer due to painting the mouse's skin with tar. In man, metastases are seen more often than in the mouse, but this may be due to differences in the vascular beds or to the erect position of the human body. Also, metastases in the brain are common in man but, so far as is known, have not yet been reported there for the mouse, although one has been reported in the skull (Wells *et al.*, 1941). In addition human lung cancers are usually described as bronchiogenic, while only a few of the mouse cancers seem so closely connected with the larger bronchi; but it seems impossible to exclude completely some connexion with terminal bronchioles. Often the mouse lung cancers are described as alveolar cancers, while only 5% of human lung cancers are thus designated (Neubuerger and Geever, 1942). Such differences may be due merely to the different lay-out of the lungs in mice and man. It may be concluded that there are no sound reasons why the results obtained with the mouse experiments may not be applied to human beings. Certainly the dust experiments often seem to produce malignant tumours similar to those seen in man.

Summary

There is a similarity between human lung cancers and mouse lung cancers as regards: (1) agents which increase the incidence of these tumours; (2) the time or age factor; (3) some aspects of the factor of susceptibility; (4) morphology of the tumours.

Although the main effect of certain dusts in development of lung cancer appears to be of a prolonged chemical nature, it is not possible at the moment to exclude entirely some effect of prolonged mechanical irritation by the harder or larger collections of dust. A method for comparison of the degree of dust deposit in the various experiments is given for the first time.

The increase in incidence of lung tumours in mice by certain dusts—tarred road-dust with and without the tar, Czechoslovak pitchblende dust, iron oxide, silica, a "nickel" dust mixture—is statistically significant, although in most cases the average deposits of dust in the lungs are of moderate degree only or less. Care should be taken to reduce exposure to these dusts.

Dusts produce a hypertrophy of lymph tissue in the lungs and in the tracheo-bronchial lymph nodes.

Some further illustrations of mouse lung cancers and their metastases are given.

There is no fundamental reason why the results obtained in mouse experiments with dusts should not be applied to man.

I am indebted to Dr. A. Bradford Hill for some help and advice with the statistical analysis; also to my technical assistant, Mr. C Pergande; and to Mr. F. J. Higginson for cutting and staining the sections.

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The latest instalment of the *Index to the Literature of Food Investigation* is Vol. 14, No. 1 (June, 1942). Once more it is divided into fifteen sections and an index of authors' names. It may be obtained from H.M Stationery Office, price 4s. 6d. net.

THE WAR NEUROSES: THEIR NATURE AND SIGNIFICANCE

BY

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The following conclusions which I have reached regarding the nature of the so-called "war neuroses" are based upon my experience of psychopathological conditions among military personnel during the present war, and more particularly in a special hospital which until recently formed part of the Emergency Medical Service.

The Traumatic Factor

The term "war neuroses" covers a great variety of clinical conditions; and there is now fairly general agreement among psychiatrists that, so far as symptomatology is concerned, the war neuroses possess no distinctive features differentiating them sharply from the various psychoneurotic and psychotic states which prevail in time of peace. Some psychiatrists have accordingly suggested that it would be more accurate to speak of "the neuroses in wartime" than to speak of "the war neuroses." On the other hand, there are psychiatrists who maintain that where cases among military personnel are concerned a distinction must be drawn between (1) a group of psychopathological states which appear to be precipitated by active warfare and (2) familiar psychopathological states which chance to occur during the course of military service but which might equally well have occurred in civilian life. This attempted distinction appears to be based on the observation that in an appreciable proportion of military cases a psychopathological state is found to have supervened upon some traumatic experience associated with warfare (e.g., a near shell-burst or bomb explosion). In contrast to this observation it is to be noted that "traumatic neuroses" are by no means unknown in time of peace; and here it must be kept in mind that, if such neuroses are less common in peacetime than in wartime, so also are violent traumatic experiences themselves. Actually it is not uncommon to find that a soldier suffering from a traumatic neurosis acquired in war has a previous history of a traumatic neurosis acquired in civilian life. In an appreciable percentage of military cases, too, the trauma upon which a "war neurosis" supervenes is found to be one (e.g., a motor accident) which is only incidentally associated with conditions of war. It is impossible, however, to dismiss the question of the part played by traumatic experiences in the precipitation of war neuroses without pausing to consider what constitutes a traumatic experience.

It is all too often assumed that a traumatic experience is one which produces a psychopathological state *de novo* Yet, when investigation is sufficiently painstaking, it is rare to find a case in which evidence of pre-existing psychopathological characteristics cannot be detected in the previous history. It is reasonable to conclude, accordingly, that a traumatic experience is one which serves to precipitate a psychopathological reaction through the activation of pre-existing but hitherto latent psychopathological factors. The correctness of this conclusion is confirmed by the fact that in certain cases it is possible to detect a very high degree of specificity in the traumatic experience.

Admittedly in many cases the specificity of the traumatic experience is by no means easy to establish. Nevertheless this in itself may not be without significance once the principle of specificity has been recognized. Significance may also be attached to the fact that in many cases it is far from obvious why a situation precipitating a psychopathological state should possess any traumatic quality at all; for many experiences which prove to be traumatic appear comparatively trivial in themselves. Investigation reveals a remarkable range of traumatic experiences, as may be illustrated by the following examples chosen more or less at random from cases that have come under my notice: being blown up by a bomb, being trapped in the cabin of a torpedoed ship, seeing civilian refugees massacred, having to throttle a German sentry in self-defence, being let down by an officer in a tight corner, being accused of homosexuality by another soldier, being refused compassionate leave to go home for a wife's confinement, and even being shouted at by the sergeant-major. When we consider the wide range of such a series the question may well occur to us whether in many cases the traumatic experience which precipitates a war neurosis may not be constituted by military service itself.

The Factor of Infantile Dependence

On the basis of data collected in the course of private psychotherapeutic practice I have gradually found myself driven to the conclusion that all psychopathological developments in the adult are ultimately based upon a persistence into later life of an exaggerated degree of that emotional dependence which is characteristic of childhood, and more particularly of infancy. The all-round dependence which distinguishes childhood requires little emphasis. It is a biological fact bound up with the extreme helplessness of the human infant at birth; and it provides the rationale of that most basic of all social institutions, the family. Since the family constitutes the primal social group, the dependence of the child, psychological no less than physical, is focused essentially upon his parents. In particular it is round his parents that his emotional life revolves; for they are not only his original love-objects but also the original objects of his hate and the objects to whom his earliest fears and anxieties are attached. In the ordinary course of development the individual's dependence upon his parents (and upon parental figures who come to deputize for them) undergoes a progressive decrease throughout the phases of childhood and adolescence until the comparative independence of maturity is reached. It is uncommon, however, for the process of emotional emancipation to prove a smooth passage; for even under the most favourable of conditions there is always a certain conflict between a progressive urge to abandon the state of infantile dependence on account of the many limitations which it imposes and a regressive urge to cling to it on account of the many advantages which it confers. Where conditions are unfavourable this conflict assumes exaggerated proportions, is accompanied by marked anxiety, and gives rise to exaggerated reactions. Whatever adjustments and compromises may issue from an acute conflict of this nature, its most significant consequence is the perpetuation of an attitude of infantile dependence in the emotional sphere—an attitude which is none the less present at deep levels of the psyche even when at more superficial levels it is overcompensated by an attitude of quasi-independence representing nothing more than a denial of the dependence which persists at a deeper level. It is the undue persistence of such an attitude of infantile dependence that I have come to regard as the ultimate factor predisposing to all psychopathological developments; and, in conformity with this view, all psychoneurotic and psychotic symptoms must be interpreted as essentially either effects of or defences against the conflicts attendant upon a persistent state of infantile dependence.

I was already well on the way towards formulating this point of view when it became one of my duties to investigate cases of "psychoneurosis" among military personnel on a considerable scale. I was thus most conveniently presented at the appropriate moment with a unique opportunity of testing the validity of my emergent views by means of a comprehensive survey of a large number of patients who had been suddenly removed from their normal environment, separated from their love-objects, and isolated from all the accustomed supports upon which a dependent person would ordinarily rely. The result was to confirm my conclusions in a most striking manner, as could be abundantly illustrated by clinical material if space permitted.

If the relationship between the development of a war neurosis and the persistence of infantile dependence is not equally obvious in all cases, this is partly because infantile dependence, in common with all characteristics, is subject to an infinite degree of variation; but it is chiefly due to the fact that the anxieties to which the state of dependence exposes the individual call into operation, in varying degrees, a number of mental defences which conceal the true position. Here it must be pointed out that a number of psychopathological symptoms themselves constitute desperate forms of defence against the anxieties attendant upon infantile dependence. At the same time there is another category of symptoms which must be regarded as products of a fundamental attitude of infantile dependence rather than as defences against its effects; and of these the most obvious and significant is unquestionably separation-anxiety. Not only is separation-anxiety invariably present in war neurotics but it is the only single symptom that is universally present. This symptom must accordingly be regarded as the greatest common measure of all forms of war neurosis.

Separation-anxiety

Separation-anxiety is so universal a feature of the war neuroses that it is difficult to believe that its prevalence can have escaped observation hitherto; and, indeed, the literature of the war neuroses does contain various references not only to this phenomenon but also to the occurrence of an exaggerated degree of dependence among neurotic soldiers. To the best of my knowledge, however, the universality and the real significance of these phenomena have never been properly appreciated even by those who have not been oblivious to their existence. The commonest interpretation placed upon them is to the effect that, like many a physically disabled soldier, the neurotic soldier wants to go home because he is ill. Even on this assumption, however, it should be remembered that the effect of illness of any kind is to produce a state of helplessness, which tends to revive an attitude of infantile dependence; but, so far as the neurotic soldier is concerned, the truth would appear to be not so much that he craves to go home because he is ill as that he becomes ill because he craves to go home. It is impossible, therefore, to draw any real distinction between the war neuroses and "home-sickness."

Another common, and misleading, interpretation of the phenomenon of separation-anxiety is that it is really secondary to anxiety over situations of danger, and that it is therefore a by-product of the self-preservation tendency. This point of view would appear to ignore the prevalence of suicidal thoughts and impulses among neurotic soldiers—a fact which is difficult to explain in terms of self-preservation. It would also appear to ignore the frequency with which breakdowns occur under military conditions involving little prospect of personal danger—e.g., among troops stationed in the Shetlands, where isolation rather than danger is the predominant feature of the soldier's life. It may be argued, however, that the wounded no less than the neurotic soldier is often found to exploit, if not actually to welcome, his disability as a means of escape from the dangers of the battlefield, and that the hope of receiving a "blighty" (to use the terminology of 1914-18) is not far from the conscious thoughts of many a good soldier in face of the enemy. It would be idle, of course, to deny the strength of the self-preservation tendency or the influence of personal danger in provoking a state of anxiety; but it still remains to be explained why some soldiers should break down in face of danger while others do not. The explanation would appear to be that the capacity to endure danger varies with the extent to which the individual has outgrown the stage of infantile dependence; and this explanation is in conformity with the notorious proneness to anxiety which characterizes the child as compared with the mature adult.

The Compulsion to Return Home

The significance of the part played by infantile dependence in the aetiology, and by separation-anxiety in the symptomatology, of the war neuroses may perhaps best be judged by the compulsiveness of the desire to return home that is such a marked feature in all cases. In cases in which the general symptomatology assumes a psychoneurotic form this compulsion, although experienced, is seldom so urgent as to give rise to marked disturbances of behaviour. In cases in which the general symptomatology assumes a psychotic form, however, the situation is otherwise; and in such cases it is not uncommon for the compulsion in question to manifest itself either in a fugue or in a consciously executed flight such as to constitute, from a disciplinary point of view, either absence without leave or desertion, or else, where the individual's sense of duty is strong enough, in an attempt at suicide.

Emotional Identification

The presence of a compulsion to return home in association with separation-anxiety is of special significance on account of the light which it sheds upon the psychology of infantile dependence; for it serves to direct our attention to the mental process which constitutes the distinctive psychological feature of this state. The process in question is that of *identification* —a process in virtue of which the individual tends to identify himself emotionally with, and *pari passu* fails to differentiate himself from, those upon whom he depends. So far as we can conceive the mental state of the child before birth, we must regard it as characterized by a degree of identification so absolute as to preclude its entertaining any thought of differentiation from the maternal body which constitutes its whole environment and the whole world of its experience. The process of identification which subsequently characterizes the emotional relationships of childhood would thus appear to represent the persistence into extra-uterine life of an emotional attitude existing before birth. So far as it influences behaviour, it would also appear to represent an attempt to restore emotionally an original state of security which was rudely disturbed by the experience of birth.

The figure with whom the dependent individual originally identifies himself is of course his mother; and, while it is not long before he begins to identify himself with other figures, particularly his father, the original identification persists underneath all others subsequently made. The extent to which this original identification persists, even in individuals who have relatively outgrown the state of infantile dependence, may be judged from the frequency with which the wounded soldier is known to cry out for his mother in his agony. It remains true, nevertheless, that the more emotionally mature an individual becomes the less his emotional relationships are characterized by identification. In the necessarily dependent phase of early childhood it is of course both natural and inevitable that identification should play a predominant part; but when emotional development is satisfactory there is a progressive decrease in identification throughout the years of childhood and adolescence until the relative independence of emotional maturity is reached. This progressive decrease in identification is accompanied by the progressive increase of a capacity on the part of the individual to differentiate himself from emotionally significant figures. At the same time the importance of the figures with whom he originally identified himself (parents and parent-substitutes) tends to diminish. Emotional maturity is consequently characterized not only by a capacity to sustain relationships with other individuals on a basis of mutual independence but also by a capacity to contract fresh relationships. These capacities are deficient in the individual who fails to outgrow the stage of infantile dependence. Such an individual remains childishly dependent upon his home and his loved ones; and he is so closely identified with them that he cannot endure any great measure of separation from them. As was the case in his childhood, they still constitute not only his emotional world but even, in a sense, himself. He feels that he is part of them and, equally, that they are part of him. In their absence his very personality seems to be diminished—and even his sense of personal identity may be compromised. Such being the case, it is not difficult to understand that, when placed under military conditions, he finds it too difficult a task to establish himself as a separate personality within the framework of the military organization, subordinate himself to the aims of the military group without any surrender of individuality, and maintain stable emotional bonds with the group while remaining differentiated from it. On the other hand, he usually finds great difficulty in either establishing or maintaining a reliable relationship with the military group on a basis of identification. This is due, of course, to the fact that his identification with his home and his loved ones proves too strong to admit of a competitor; and it is to the strength of this identification above all that the development of a war neurosis must be attributed.

The Factor of Morale

It should now be evident that identification, which is such a characteristic feature of the emotional life of the dependent individual, is not only the fundamental process underlying the development of a war neurosis but also a process imposing serious limitations upon the social adaptability of the potential war neurotic. That the process of identification should prove to be a common factor operating both in the direction of compromising social relationships and in that of promoting psychopathological developments in the soldier is a consideration in the light of which the whole problem of the war neuroses assumes an aspect that has hitherto suffered from almost complete neglect in medical literature. It is true that during 1914-18 there arose a powerful school of psychotherapists who regarded the war neuroses as products of a conflict between the soldier's instinct of self-preservation and his sense of military duty—the symptoms of the war neurotic being interpreted as motivated, albeit quite unconsciously, by a desire to find a means of escape from the danger zone without experiencing the sense of guilt which a deliberate dereliction of duty would involve. This view, at any rate, had the merit of recognizing the bearing of questions of social responsibility upon the aetiology of the war neuroses. Nevertheless, quite apart from what is now seen to be the superficiality of such an interpretation of the war neurotic's symptoms, no real attempt was made to explain the incidence of the war neuroses; and the conflict in which they were held to originate was treated as essentially a problem of individual psychology. In particular, no account was taken of the general character of the war neurotic's social relationships or of the underlying factors which determine it. Subsequent to the war of 1914-18, attempts were made, particularly under the influence of Freud's conceptions, to obtain a deeper understanding of the war neuroses; but the general tendency was to lay greater rather than less emphasis upon the individual nature of the war neurotic's emotional conflicts. This might have been otherwise if the line of thought pursued by Freud himself in his *Group Psychology and the Analysis of the Ego* had received more of the attention it deserved.

Among the various conclusions recorded by Freud in the work in question is one to the effect that the state of panic notoriously associated with the collapse of an army in the field is essentially due to a breakdown of the emotional bonds which unite members of the military group to one another under common leaders. According to the ordinary view, of course, it is when the situation of "every man for himself" arises that the group spirit (*esprit de corps*) disintegrates. According to Freud, on the contrary, it is when the group spirit becomes weakened that the situation of "every man for himself" arises and that panic invades the individual heart. It is thus not a case of the group spirit collapsing because the individuals who compose the group have given way to panic, but of panic assailing these individuals because, owing to the collapse of the group spirit, they have ceased to be members of a group. The essential feature of the situation is that each quondam member of the group becomes deprived of the support both of his former fellow-soldiers and of the military group as a whole, and is relegated to the status of an isolated individual facing the combined strength of a hostile force without any support. Confronted with such a perilous situation, it is small wonder if the soldier is assailed by panic. It is, of course, *mass* anxiety that Freud is here discussing; but those who have followed my argument will have little difficulty in recognizing that the phenomenon of panic to which he refers is essentially one of separation-anxiety affecting all (or nearly all) the members of a military group simultaneously. The panic-stricken condition of soldiers belonging to an army which has collapsed in the field must accordingly be regarded as one of transient war neurosis occurring under special conditions in individuals who are preponderantly "normal." The difference between the state of such soldiers and that of soldiers suffering from a frank war neurosis is then seen to lie in the fact that, whereas in the case of the "normal" soldier acute anxiety occurs only when the bonds uniting the group as a whole are dissolved, in the case of the neurotic soldier separation-anxiety may occur even when the bonds uniting the group as a whole remain intact. This means, of course, that the bonds uniting the neurotic soldier to the military group are unduly slender and precarious. They are slender and precarious because he has retained from his childhood an excessive degree of infantile dependence and has remained, at any rate at the deeper mental levels, so closely identified with his original love-objects within the family group that he is not capable of establishing any stable emotional relationship with the military group, or of participating adequately in that group spirit which is so indispensable to military efficiency and which is the essence of "morale."

That even the "normal" soldier may develop a war neurosis, albeit a transient one, in circumstances in which morale becomes impaired can leave us in no doubt regarding the intimate connexion of the question of morale and the question of the war neuroses. This phenomenon also serves to show that some measure of infantile dependence may be revealed even in the case of the most "normal" individual—the fact being that emotional maturity is never absolute, but always a matter of degree. In the light of what happens when an army collapses in the field we are further entitled to draw the conclusion that, whilst any high degree of infantile dependence is in itself inimical to morale, the existence of a high state of morale within a group can exercise a profound influence in counteracting the ill effects of infantile dependence among its members. In conformity with this view it has been strongly maintained by well-informed military opinion that during the war of 1914-18 the incidence of war neurosis varied between units in inverse proportion to their morale; and this opinion would appear to be capable of statistical verification even when allowance is made for the idiosyncrasies of regimental medical officers. The incidence of the war neuroses in an army may thus be regarded as a criterion of morale.

The Real Significance of War Neuroses

Reference has already been made to the view, widely held by psychotherapists during the last war, that the war neuroses derived their significance from the fact that their symptoms provided the affected soldier with an unconsciously motivated means of escaping from the dangers of the battlefield with a good conscience. The limitations of this view at once become obvious when we consider that many soldiers contract typical war neuroses without ever having been near a battlefield, and even in the absence of any great prospect of being near one. Actually, as I have tried to show, it is to the symptom of separation-anxiety that we must look for the real significance of the war neuroses. It is towards a return to his home and his loved ones, rather than towards an escape from the dangers of the battlefield, that the neurotic soldier is orientated. At the same time the older view just mentioned does embody an observation which, when properly interpreted, is certainly of great significance. This is the observation that the neurotic soldier characteristically displays a remarkable absence of guilt over his evasion of military duties. Such an absence of guilt is not invariable; for in a proportion of cases with depressive and obsessional features there is a definite tendency on the part of the patient to worry over letting his country or his unit down. Even in such instances, however, one usually gains the impression that the individuals concerned have actually given up all real effort, and that their apparent scruples amount to little more than lip-service to abandoned standards of the past. Further, in so far as such self-reproach is genuine, it is only in the prodromal stage of the war neurosis that it assumes an acute form—i.e., in the stage at which there is real conflict between the desire to return home and the sense of duty. This is usually before the individual reports sick; for by the time such individuals report sick the issue of the conflict is already almost invariably decided. With the exception of these cases, however, neurotic soldiers display a remarkable absence of self-reproach over the failure in military duty involved in their neuroses. This holds true not only of conscripts who have perhaps entered military service with reluctance but also of volunteers who have joined the Army out of patriotic motives.

It is evident, therefore, that the war neuroses are characterized not only by separation-anxiety but also by a definite deterioration of the sense of duty—i.e., by a definite disintegration of the mental structure of conscience. An unmistakable disturbance of the personality is thus seen to be involved in the development of a war neurosis. This disturbance is part and parcel of the regression involved in that revival of a hidden state of infantile dependence to which, as we have seen, a war neurosis is to be ultimately ascribed. What happens is that the war neurotic regresses, in greater or lesser degree, to an infantile level corresponding to a stage of development at which the structure of conscience has not yet been organized upon a stable basis. The neurotic soldier is thus more or less reduced to the emotional state of a child who has not yet reached the stage of accepting his parents as authoritative conscience-figures. At this stage the child is not so much concerned whether his own behaviour is good or bad (morally) in the eyes of his parents as whether his parents appear to love him or not—i.e., whether, from his point of view, they present themselves to him as good (in the sense of "nice") or bad (in the sense of "nasty") figures. What happens, therefore, when a soldier develops a war neurosis is that, regressing to an infantile emotional level, he ceases to regard his superiors in rank and the military organization in general as authoritative parental figures to whom he is bound by a deep sense of moral obligation, and begins to regard them as "bad" parental figures who have no love or consideration for him. At the same time he identifies those at home with "good" parental figures who love him, and who will look after him if only he can get back to them (distance often lending no little enchantment to the view). He thus becomes consumed by an overwhelming desire to escape from the insecurity which he experiences at the hands of the "bad" figures, into whose clutches he feels that military obligations have delivered him, to the security which the "good" figures at home seem, by contrast, to offer him.

That this is a correct interpretation of the situation which develops is confirmed in an interesting manner by two of the stock complaints voiced by neurotic soldiers in proof of their inability to "go back" to the Army. These are (in all cases almost identically phrased): "I can't stand being shouted at," and "I can't eat Army food"—the latter complaint being almost invariably followed in the case of married men by the remark, "But I can eat anything my wife cooks for me." The inner meaning of these complaints is, of course, that every word of command has become the shout of an angry father, and that every "greasy" (always "greasy") meal from the cookhouse has become additional evidence of the indifference of a heartless mother. Further evidence that the neurotic soldier feels himself to be in the power of evil figures is provided by the frequency of such symptoms as a sense of being watched, as well as by the frequency of nightmares about being chased or shouted at (not to mention somewhat less common nightmares about being crushed, strangled, or visited by ghosts). Such being the situation, it is not difficult to understand why it is that the war neuroses should prove so resistant to psychotherapy—and indeed to any form of remedial treatment in the medical armamentarium. Perhaps it is small wonder too that, after acquiring some disillusioning experience of neurotic Service men *en masse*, I was driven to remark, "What these people really need is not a psychotherapist, but an evangelist." In the light of further experience I see no reason to think that this remark was greatly in error; for I remain convinced that, from the national standpoint and from the standpoint of military efficiency, the problem presented by the war neuroses is not one of psychotherapy but one of morale.

I desire to acknowledge my indebtedness to the Department of Health for Scotland for permission to publish this paper, in so far as it is based on my experience as Visiting Psychiatrist in the Emergency Medical Service.

The report for 1941 of the South African Institute for Medical Research records expansion in all branches of its work to meet the needs of war. The training of medical men and technicians for military laboratories continued, seven courses being given: three for technicians in general field laboratory work, two for officers in general pathology, and two for officers in blood transfusion. An investigation was made into the possibilities of extracting vitamin C from natural sources available in the Union. Fresh guavas were found to be by far the richest source, equal, if not superior, to rose-hips in Europe. The skin and outer pulp yielded the most ascorbic acid, and fruit gathered immediately before it was fully ripe showed the maximum vitamin content and the greatest stability of the vitamin during storage. In a series of canning experiments under actual factory conditions some modifications of standard procedure were found to be desirable—namely, the selection of fruit at the correct stage of maturity, the retention of the skin, and the removal of seeds. The dried fruit was also investigated, and it was found that if the fruit was first blanched a powder containing 3 to 4.5% of vitamin C could be produced. From this powder guava sweets were prepared, each containing the required daily dose of ascorbic acid. Provided the preliminary drying had been thorough these sweets, wrapped in dark transparent paper and packed in pliofilm, withstood six weeks' incubation at 110° F. without appreciable loss of ascorbic acid or any deterioration in flavour colour, or palatability.

ABORTUS FEVER

BY

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Brucella abortus infection in cattle is very common. No doubt a good farmer eradicates known cases from his herd, but I have been told that it is an accepted practice in dairy-farming districts to send infected animals to the sales. The danger of infection to man is from mastitis in the cow, when Brucella is conveyed in the milk or through an abrasion in the hand of a farm worker. The disease is not notifiable, and it is difficult to estimate its incidence; since its symptoms are often trivial, very variable, and never distinctive, diagnosis depends almost entirely on the agglutination test, and there seems little doubt that the true incidence is several times that of the recognized cases. Subclinical infection is probably very common. Huddleson (1939) refers to a study in school children which disclosed a significant agglutination titre in 40% after all had drunk infected milk, when only two of the children developed symptoms of the disease; agglutination titres in symptomless subjects rose as high as 1 : 12,000, and many had titres of 1 : 320. These children were observed over a period of more than a year, and the development of maximum agglutination was often a matter of months. Wilson (1942) estimates that 500 cases per annum occur in England and Wales.

Human cases of the disease were not recognized for many years after it was known that infection in cattle was common; mortality is low, and the disease does not appear to be a cause of abortion in women, for more than one case has been observed in an undisturbed pregnancy. The number of Brucella in infected cows' milk is far less than of *Br. melitensis* in goats' milk, and this may account for the relative mildness of abortus fever as compared with undulant fever. The two organisms can only be distinguished serologically, and the clinical course of the infection is very similar.

The general picture of the disease is that of an insidious onset (with uncertain but probably long incubation), a prolonged course of anything up to several months but usually some weeks, with limb pains and sweating as the prominent symptoms, an undulant type of fever, leucopenia, and negligible (possibly no essential) mortality. This is a true account of many cases, making a picture easily kept in mind, and if the blood of every patient presenting it were examined for *Br. abortus* agglutinins the great majority of cases would probably be diagnosed. One might perhaps question the need for laying stress on the importance of correctly diagnosing a disease which is essentially not fatal, which causes no lasting disability, and which is very possibly not amenable to any specific treatment. The importance is twofold: (1) the infection is a cause of a good deal of prolonged invalidism, and if there is no recognition of its prevalence there will be the less energetic search for a cure and for measures to eradicate it; (2) a true diagnosis will often serve greatly to relieve the mind of patient and doctor, and may prevent a long-continued enforced period of medical observation and inactivity for suspected tuberculosis. Abortus fever is a more likely diagnosis than tuberculosis in patients who have sweating as the presenting symptom.

Quite a high proportion of abortus fever cases, however, have bizarre symptoms, and these may present in such a way as to make diagnosis most difficult. Huddleson thinks that "latent" infection may become evident after some intercurrent, perhaps trivial, illness; on the other hand, in one of my cases the onset of the fever was the signal for the development of a streptococcal endocarditis. It seems worth while to give an account of 8 cases which I saw between June, 1938, and June, 1942, because of the extraordinary diversity of their symptoms: so much is this diversity impressed upon one by even such a limited experience of the disease that the diagnosis is automatically considered in every case of fever unexplained after a few days. In the central laboratory of the area an agglutination for *Br. abortus* is included in every Widal reaction.

The endemic nature of the infection is shown by the time of onset of these 8 cases from one area:

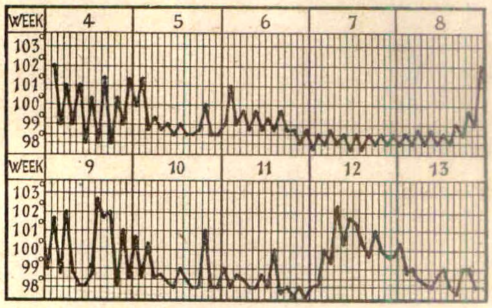
1938			1939				1940				1941				1942		
	1				1	1	1			1		1	1			1	

Only one case had direct contact with cows: the others were therefore all due to infected milk. The provisional diagnoses before the finding of positive agglutination were: typhoid (1), pyelitis (1), pulmonary tuberculosis (1), meningitis (2), bronchitis (1), neurosis (1), rheumatism (1)—i.e., in no case was a correct diagnosis made immediately, and most of the patients had been ill for some weeks before the diagnosis was proved.

Case I: Typical Undulant Fever with Psychosis

A married woman, aged 49, with a lifelong history of psychosomatic symptoms. First seen Jan. 3, 1942. Diagnosis of abortus fever on Nov. 16, 1941, when agglutination titre was 1 : 1,600. History then about 3 weeks, and symptoms: constipation, rigors, sweating, limb pains, and exhaustion. Two attempts to give sustained treatment with a sulphonamide abandoned for lack of co-operation. Three undulations of fever (see Chart).

Condition of Patient in the Eighth or Ninth Week of Illness.—Apathetic, querulous, and discontented. Complete insight into her condition. No lack of emotional control at this stage. Required trained nursing at home and made life difficult for the nurse. Attempted to supervise affairs of house and family. Physical condition good, but tongue dry; fairly heavy sweating, almost entirely at night. No pain on movement of limbs. No albuminuria and no physical signs found in nervous system; no enlargement of liver or spleen. Differential cell count on Dec. 30, 1941: P. 66, L. 29, M. 3, B. 1, E. 0.5%. Blood count on Jan. 6, 1942: R.B.C. 4,170,000, Hb 77%, C.I. 0.92, W.B.C. 6,150 (P. 58, L. 40, M. 2). She found it difficult to sleep, and had been given both bromide and barbiturate; a slight tendency to disorientation and to aphasia and to agraphia, which was evident as hesitation in the finding of words, was attributed at this time to the effects of the barbiturate.



Temperature chart of Case I (4th to 13th weeks), showing three undulations of fever

She resisted admission to hospital until Jan. 25, by which time both her physical and her mental condition had deteriorated. She had lost weight and refused food. Her attitude to doctors and nurses was critical and resentful, but there was still complete insight and she was quite prepared to accept the fact that her depression and irritability were the result of her illness. The periods of depression did not correspond with periods of temperature. After admission she had an irregular pyrexia, one definite relapse of the undulant type from Jan. 20 to 27, and thereafter no significant rise of temperature. A little later she developed lack of emotional control and strong paranoid tendencies.

On admission to the Royal Northern Infirmary (Jan. 25) agglutination to *Br. abortus* was 1 : 16,000. An estimate of blood bromide was made on the suspicion that her depression might be due to bromide poisoning, and was 250 mg./100 c.cm. Complete withdrawal of bromide, however, made no impression on the emotional state. There was intermittent albuminuria and the urine sometimes showed pus cells. Her blood culture on Jan. 22 was sterile. The blood count showed a deterioration, and on March 3 was: R.B.C. 2,880,000, Hb 59%, C.I. 1.0.

Comment.—The symptoms in this patient were essentially psychotic, and consisted of depression, apathy, lack of emotional control, slight tendency to aphasia and agraphia, irritability, and suspicion. Throughout there was complete insight into her state

This case can hardly be regarded as a chronic one, because 5 months after the onset she was restored to her usual health. It is notable that the agglutination increased from 1 : 1,600 to 1 : 16,000 between the third and eighth weeks of the illness. There was no notable leucopenia. Sulphonamides were not used effectively because of lack of co-operation, but short trials of 6 g. daily of (*a*) sulphanilamide, (*b*) sulphapyridine, and (*c*) sulphathiazole had no influence on the temperature.

Case II: Bronchitis with Steatorrhoea: ? Pancreatitis: Intermittent Albuminuria

A rigger in the R.A.F. aged 37. History of recurrent bronchitis for 10 years. Was admitted to a military hospital on Feb. 13, 1940, with cough and sweating, present for some weeks. The onset of this attack was described as influenza. Transferred to Royal Northern Infirmary Feb. 22. Febrile; signs of bronchitis. Treatment with sulphapyridine begun, but discontinued because of persistent nausea and subsidence of temperature. Inconstant albuminuria; centrifuged urine contained red cells. Blood urea, 39 mg./100 c.cm. Standard urea clearance, 118% of normal. Blood culture sterile. From the first he complained of tenderness in the epigastrium and abdominal pain, and showed muscle spasm. Profuse sweats. Hb 75%, W.B.C. 13,000 (P. 69, L. 29, M. 2). Agglutination for *Br. abortus* positive 1 : 8,000. Stools rather frequent, very pale. Total faecal fat, March 4, 44 g. % (60% split, 40% unsplit). Urinary diastase 50 units per c.cm., and total urinary diastase 62,500 units in 24 hours. March 18: total faecal fat 50.3 g. % (63.1% split, 36.9% unsplit). Serum bilirubin 0.4 mg./100 c.cm. By March 11 his symptoms had disappeared except for slight stiffness in the joints and for the signs of bronchitis.

Case III: Meningism, Pyuria, and Urticaria

A schoolgirl aged 11. Onset Nov. 1, 1940, with vertigo and stiff neck. Seen 3 days later by family doctor, who found nuchal rigidity. T. 101.8° F., P. 130. Spinal fluid normal. Given 6 g. of sulphanilamide daily for ? 3 days. Seen then by medical specialist, who found slight cyanosis, dilated pupils, diminished tendon-jerks, resistance to palpation of abdomen, furred tongue, and an urticarial rash. Urine showed pus cells, and diagnosis of pyelitis was made. Symptoms, however, continued. On Nov. 25 Widal reaction, because of continued temperature: agglutination to *Br. abortus* 1 : 480, negative to typhoid group. Blood culture sterile. Blood counts: Nov. 6—R.B.C. 5,100,000, Hb 83, C.I. 0.82, W.B.C. 3,500 (P. 43.5, L. 36.5, M. 19.5, B. 0.5); and on Nov. 7—W.B.C. 6,500 (P. 69, L. 20, M. 9.5, B. 0.5).

I saw her on Nov. 25: temperature still raised; sweating not excessive; pain in the back and hands and feet. No physical signs. Sulphanilamide 6 g. a day was given again, and was discontinued after 2 or 3 days: complete subsidence of symptoms, which did not recur.

Case IV: Bacterial Endocarditis

A hotel maid aged 19. Rheumatism at 13; established mitral disease. Seen in hotel July 31, 1939, 12 days after onset of an acute illness with delirium. No headache; no pains in limbs; no dysuria; no diarrhoea; no vomiting. Examination: Flushed; furred tongue; erythematous rash very suggestive of typhoid (about 20 small erythematous spots on trunk and limbs). Agglutination to the typhoid group negative, but positive to *Br. abortus* 1 : 3,000. She was admitted to the fever hospital; on admission, R.B.C. 3,970,000, Hb 68, C.I. 0.85, W.B.C. 7,350. No albuminuria. She was given sulphapyridine 6 g. daily, with short intermissions, for a period of 5 weeks. Temperature showed rises at irregular intervals of a few days and usually persisted for 24 hours; occasionally febrile periods would last 3 days. Temperature never reached a higher level than 101° F. The temperature chart suggested a recrudescence of temperature whenever sulphapyridine was stopped. Erythematous rash reappeared on Oct. 5.

Transferred to Royal Northern Infirmary on Nov. 6, 1939: R.B.C. 2,360,000, Hb 34, C.I. 0.72, W.B.C. 14,150 (P. 77, L. 18, E. 1, M. 3.5). Platelets 123,610 per c.mm. Reticulocytes 2.5%. Blood film showed anisocytosis, poikilocytosis, and polychromasia. Examination: Very pale; furred tongue; tachycardia; B.P. 140/70; albuminuria—centrifuged deposit of urine showed red cells. Blood urea 135 mg./100 c.cm. No embolic phenomena apart from the kidneys. Agglutination to *Br. abortus* 1 : 120. Blood culture: *Str. viridans*. Further attempts were made to treat this patient with sulphapyridine and heparin, but she shortly afterwards died of uraemia. No necropsy was allowed.

Case V: Typical Mild Case with Sweating and Limb Pains

A labourer aged 20. Seen at Royal Northern Infirmary as out-patient on April 15, 1941. He had been off work for 4 weeks with "influenza." The symptoms were of limb pains, headache, and sweating. The sweats occurred about midnight, and he was referred to hospital because of the sweating. During the daytime he had no symptoms. Had not lost weight. Examination: A thin, nervous man with acne. No physical signs found. Sweats thought to be emotional, but blood sedimentation rate 7 mm. (Westergren), and agglutination to *Br. abortus* positive 1 : 8,000.

Case VI: Mild Case; Onset with Rigors

A bank clerk aged 25. Diagnosis here less certain than for the others. Admitted to Royal Northern Infirmary 2 weeks after onset of illness with slight rigor. An old case of pulmonary tuberculosis with maintained pneumothorax: last refill the day after onset of symptoms. Temperature raised from beginning of symptoms, and a week later pain in limbs and joints and headache, but no joint effusions. R.B.C. 4,350,000, Hb 73, C.I. 0.81, W.B.C. 7,950 (P. 76, L. 21, M. 3). Agglutination to *Br. abortus* negative on July 14, 1941; agglutination positive 1 : 120 on July 21, and positive 1 : 60 on July 27. B.S.R. on July 19, 21 mm. (Westergren). Blood culture sterile; stool culture negative. Treated with sulphathiazole, 1 g. 6-hourly; immediate subsidence of temperature and symptoms.

Case VII: Pleural Pain, Dyspnoea, and Tonsillitis

A soldier aged 44. Sent to hospital Oct. 3, 1939, as suspected case of pulmonary tuberculosis. Easily tired, breathless on exertion; nocturnal cough, pleural pain, sweating; sore throat one week before admission; no gastro-intestinal symptoms; no limb pains. Examination: Not severely ill; signs of bronchitis; no rash; sputum, no T.B.; B.S.R. 3 mm.; W.R. negative; W.B.C. 14,250 (P. 61.5, L. 30.5, M. 7). Agglutination to *Br. abortus* positive 1 : 4,000. Treatment with sulphanilamide without any spectacular result, and symptoms still present on Nov. 19, 1939.

Case VIII: Meningism and Ocular Palsy

A farm servant aged 15. Admitted to hospital July 30, 1938, three weeks after onset of illness, with rigor, sweating, and exhaustion. Seen by doctor, but no diagnosis made. Improved. Returned to work for one week, when symptoms recurred with severe sweating and frontal headache. Intermittent diplopia from onset. Examination July 30: Flushed, sweating, dilated active pupils, normal fundi, slight nuchal spasm, and positive Kernig's sign. Left sixth nerve palsy. Spinal fluid twice examined; completely normal. Remained febrile for 3 weeks; symptoms and signs then gradually subsided. Sixth nerve weakness observed intermittently. No albuminuria. Agglutination to *Br abortus* positive 1 : 16,000 on Aug. 6, and positive 1 : 960 on Aug. 17. W.B.C. 6,350 (P. 55, L. 21, M. 20, E. 4). W.R. negative. Blood culture sterile on Aug. 12.

Comments

1. In none of these cases was enlargement of liver and spleen noted.

2. Anaemia was not a feature apart from intercurrent or pre-existing disease, nor did any case show an important loss of weight.

3. *Leucocytes.*—A considerable diminution in the polymorph count and in the monocyte count, without any proportionate increase in the lymphocytes, is considered characteristic of *Br. abortus.* Only one of these patients, however, showed any material reduction in the polymorphs (Case III; total polymorphs 1,505), but the next day this child's polymorph count had increased to 4,485. The monocyte count was certainly rather low in several cases, the lowest figure found being 122. One case (No. VIII) had a total monocyte count of 1,260, which is a high figure—so high, in fact, that mononucleosis was considered as a possible diagnosis, as also in Case III, in which the monocyte count was at one time 19.5%. The leucocyte counts are set out in the following table:

Leucocyte Counts

Case	Age	Total	P. (%)	L. (%)	M. (%)	E. (%)	B. (%)
I	49	6,150	58	40	2	—	—
II	37	13,000	69	29	2	—	—
III	11	3,500	43·5	36·5	19·5	—	0·5
		6,500	69	20	9·5	—	0·5
IV	19	7,350	—	—	—	—	—
V	20	—	—	—	—	—	—
VI	25	7,950	76	21	3	—	—
		10,700	65	32	3	—	—
VII	44	14,250	61·5	30·5	7	—	—
VIII	15	6,350	55	21	20	4	—

4. Blood cultures in 6 cases at various times, and several during the acute phase, were all sterile.

5. Blood sedimentation rate was estimated only 3 times. It was 7 mm. in Case V, 21 mm. in Case VI, 3 mm. in Case VII (Westergren 1 hour). One might perhaps suggest that high

rates are not found because of the absence of any massive inflammatory exudate.

6. *Skin Eruptions.*—Only 2 cases showed rashes which were considered to be due to the disease. Case III had an urticarial type of eruption, and Case IV in the early stages an eruption indistinguishable from typhoid, which was the original clinical diagnosis. According to Huddleson a typhoid-like eruption is frequent.

7. *Agglutination.*—Agglutination titres with the corresponding period of the disease are given below:

Agglutination Titres

Case I: At 3 weeks, 1 : 1,600; at 12 weeks, 1 : 16,000
" II: At 7 weeks, 1 : 8,000
" III: At 4 weeks, 1 : 480
" IV: At 2 weeks, 1 : 3,000; at 5 months, 1 : 120
" V: At 4 weeks, 1 : 8,000
" VI: At 1 week, nil; at 2 weeks, 1 : 120; at 3 weeks, 1 . 60
" VII: At 4 weeks, 1 : 4,000
" VIII: At 4 weeks, 1 : 16,000; at 6 weeks, 1 : 960

It seems to be agreed that agglutination does not become positive until the second week, probably not until the tenth day from the onset of symptoms, and Huddleson says it may be negative right throughout a chronic case. The minimum diagnostic titre is a little difficult to determine. It will be noted from the above figures that there was no case with a titre less than 1:480, except Case VI, in which diagnosis, apart from the symptomatology, rested upon an increase in the agglutination titre from 0 to 120 during the first two weeks of illness; at the end of the third week it was found to be 1:60. It so happens that this was the only case in which a rather strong impression of the influence of sulphonamide treatment was gained. Harries and Mitman (1940) give 1:100 as the critical level, but consider that in London, where use of pasteurized milk is general and subclinical infections are less common, a titre of 1:80 is suspicious. This figure is also given by Wilson (1942) as significant. Huddleson gives 1:50 as the level for a presumptive diagnosis. Huddleson uses in diagnosis a skin-sensitivity test made from the products of a broth culture in a form which he calls "brucellergen," but the agglutination test seems to provide all that is required for a positive diagnosis.

8. *Unusual Symptoms.*—Meningism is reported by Huddleson as common in Malta. I have found no previous reference to it in abortus fever, nor any reference to ocular palsy. Cases of bacterial endocarditis are reported by Spink and Nelson (1939), who discuss the difficulties of diagnosis, and by Scott and Saphir (1928).

9. *Treatment.*—There is scanty evidence of any positive effects from the use of any special line of treatment. Huddleson claims a shortening of the infective period by the use of a vaccine. An antimony compound, stibophen (traded as "fouadin"), which is used in schistosomiasis, has been claimed as effective, but the positive evidence is slight (Neumann, 1936). An attempt was made to use this drug in one protracted case, but the appearance of albuminuria after the first dose prevented any further administration. There have been no dramatic or even very encouraging results reported with any of the sulphonamide compounds. All except one of the 8 patients here reported were given a sulphonamide, but without any obvious effect. Sulphapyridine was used in 2 patients, sulphanilamide in 4, and sulphathiazole in 1. In Case VI there was an abrupt termination of symptoms after the use of sulphathiazole; such a mild case, however, is clearly not enough to warrant any definite conclusion.

Summary

A description is given of 8 cases of abortus fever, which is endemic in this country. The disease is benign, but gives rise to great difficulties in clinical diagnosis, and it may be the starting-point of more serious disease. Since milk is almost entirely the source of infection, universal pasteurization would eradicate it. The agglutination test is conclusive in diagnosis.

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FOOT-AND-MOUTH DISEASE IN MAN

BY

HENRYK DLUGOSZ, M.D.

With each new epizootic of foot-and-mouth disease (f.a.m.d.) we must consider whether infection of man is possible, and, if so, is it of practical importance? That infection may occur is instanced by the experimental infection of French scientists through drinking infected milk; by similar results among workers in the German research centre on the island of Rügen; and, finally, by positive results obtained in guinea-pig inoculation from certain cases of f.a.m.d. (aphthous fever) in man which have been described in medical journals.

Infection of man is therefore possible, and, although occurrence is rare and characterized by persistent mildness, we consider it to be of no little scientific interest. The rarity of the disease in man (we know of only ten cases prior to the last war, as opposed to many thousands of cases in animals), and its mildness, do not deprive it of interest, as the slightly affected man may start a serious outbreak among valuable live stock. As the disease causes cattle to lose weight and their milk production is lowered the condition is of paramount importance to farmers and exporters. To-day especially, when the need for maximum food production is a major consideration, the early diagnosis of all cases is essential, if only from the purely economic point of view.

I have had the opportunity of observing two cases of f.a.m.d. in man. The first I studied in detail in Poland, in the University Clinic of Lwow. This has been described in *Polska Gazeta Lekarska* (1938, **17**, 501). The second case, that of a Polish soldier, was brought to my notice in Scotland in September, 1940.

Case I

A man aged 40 was wounded in the finger by a splinter from a butcher's table. The wound, although slight, healed very slowly. A transitory lymphangitis and lymphadenitis followed in a few days in the affected arm. Two weeks later general weakness, headache, and febrile manifestations developed, the temperature rising in a few hours to 102° F. These symptoms persisted for three days, the patient believing himself to be suffering from "influenza." On the third day painful mastication and salivation ensued; multiple vesicles appeared in the mouth, later giving way to ulcer formation. The following day the ulcerations were found to be larger, and were bleeding. The doctor, reconsidering his original diagnosis of "aphthous stomatitis," suspected an acute leukaemia or agranulocytosis. Blood examination, however, revealed no abnormality. Within the next few days the temperature had risen to 105° F., the mouth symptoms had increased, and the skin around the mouth showed areas of pustulation. The patient at this stage was sent to the University Clinic.

On my examination (at the end of the first week of the illness) I found the temperature to be 103° F., while excessive salivation was a prominent feature. On the skin around the mouth there were vesicles filled with a serous turbid fluid. Some of these were covered with crusts. Multiple vesicles and small polycyclic ulcers with grey bases were found over the inner sides of lips, cheeks, and palate, the surfaces of the tongue, and on the pharynx. There was slight bleeding from the ulcerating surfaces, and the breath was very foul.

The characteristic sweetish-mouldy smell of the patient reminded me of the smell I once sensed near a cow with foot-and-mouth disease. This smell facilitated the diagnosis. On the skin of the trunk there was a group of vesicles resembling herpes zoster Large erythemata of cherry-red colour were present on the palms, while on the soles there were single polycyclic spots of similar coloration.

On the tenth day the mouth lesions began to heal, but on the palms and around the finger-nails large vesicles appeared. Vesicles appeared also on the soles, but these remained single. During the next few days the mouth lesions had healed, but the vesicles on hands and feet persisted. By the third week of the illness the ulcers of the mouth had healed without cicatrization, and the perioral lesions had disappeared. Finally the vesicles on the hands and feet healed after separation of the epidermis, leaving no cicatrices. There were no sequelae or complications, the temperature gradually returning to normal after the appearance of the vesicles.

Blood examination during the illness revealed no abnormality, but a lymphocytosis was present during convalescence. The red cell sedimentation rate (Westergren–Biernacki) was never above 8 mm. an hour. The Wassermann reaction of the serum was negative. Guinea-pigs inoculated with the serous fluid from the soles and palms developed the typical signs and symptoms of f.a.m.d. after 12 to 14 days.

The Veterinary Office at my request undertook a search for cases of f.a.m.d. in the patient's district, and were successful in locating several cases among cattle. The diagnosis of the disease in man was therefore instrumental in bringing to light unsuspected cases in animals in the same locality.

Case II

A Polish soldier, aged 31 and of previous good health, reported sick on account of vesicles on his hands which made work impossible. He gave a history of general weakness of 14 days' duration. Twelve days previously he had been troubled by vesicles in the mouth and on the inner surface of his lips, which he attributed to burns from hot food. Vesicles had been present on his hands for seven days before reporting. Large quantities of unboiled milk formed part of his normal diet. Examination revealed ulcerated areas on the tongue and inner surface of cheeks and lips. Vesicles with crusts were present round his mouth; while the palms, fingers, and soles showed areas of vesiculation. His temperature was 98.6° F. A diagnosis of f.a.m.d. was made on these findings, and the patient was sent to hospital in Glasgow owing to the proximity of pasturage to the camp.

Commentary

These two cases may serve to show the occurrence of f.a.m.d. in man. Infection may be external, as evidenced by the first case and by the work of experimenters, or via the digestive system as in Case II and in the French researches. The incubation period is apparently about 14 days.

Characteristic findings are the headache and general weakness, and pain in the extremities. About the third day excessive salivation and superficial ulceration of the oral mucous membrane and vesiculation of the skin around the mouth ensue. Later the vesicles appear on the palms and soles and around the nails, being preceded by cherry-coloured erythema. The vesicles contain a turbid serous fluid. All the skin and mucous membrane lesions heal without cicatrization. The temperature is high at first and falls after the appearance of the vesicles, returning to normal by the second week. In a few cases the temperature remains normal throughout. No changes are apparent in any of the internal organs, in the blood, or in the sedimentation rate (an important point in the differential diagnosis of acute leukaemia and agranulocytosis). The disease appears to run a more moderate course in man than in animals.

Differential diagnosis must include aphthous stomatitis, acute leukaemia, agranulocytosis, scurvy, and drug rashes. The distribution of the lesions, blood examination, and guinea-pig inoculation will aid diagnosis. Treatment is purely symptomatic.

Taking into account the appearance of two such cases in my own experience in so short a time, I am in some doubt as to whether f.a.m.d. is as rare in man as I had hitherto believed. Owing to the comparative mildness of the constitutional upset many cases may never come to the notice of the medical man, and not a few cases may be wrongly diagnosed.

Conclusions

The sanitary authorities would be well repaid if more attention were given to the prevention of the spread of f.a.m.d. by man.

There should be co-operation between the doctor and the veterinary worker to prevent human sufferers with f.a.m.d. from having contact with animals.

A new sterilization decree has been issued in Norway by Quisling aimed at "inhibiting the reproductive capacity of mentally or physically defective persons whose children might suffer from the same weaknesses; and of insane or mentally defective people who have abnormally developed sexual impulses and might commit sexual offences." Doctors, prison and hospital officials, police, and social welfare institutions may propose an investigation with a view to sterilization, and decisions will be taken by the Director of Public Health alone. Under the law passed in 1934, the Director of Public Health could decide on cases only after they had been considered by a special board appointed by the public health department.

PREGNANCY AND LABOUR IN A CASE OF CONGENITAL COARCTATION OF THE AORTA

BY

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Congenital coarctation of the aorta, being a somewhat rare abnormality and moreover affecting males more often than females, in the proportion of 3 to 1, is seldom seen as an obstetrical complication. Jensen (1938), reviewing the literature, found references to child-bearing in 7 cases of coarctation, the most important account being that of Strayhorn (1936), whose patient showed signs of commencing cardiac decompensation during pregnancy, but was rested and successfully delivered by Caesarean section. Of these 7 patients, two died during pregnancy—one from cerebral haemorrhage, the other from rupture of the aorta into the pericardium; a third died from congestive heart failure 14 days after pregnancy had been terminated. In addition to the foregoing, Bramwell and Longson (1938) give details of a case in which there was dyspnoea and palpitation on exertion from the fourth month onwards; this patient was successfully delivered by Caesarean section, and made an excellent recovery.

Case History

Mrs. A., a farmer's wife, had suffered from tiredness and sudden fainting fits from the age of 8, could not indulge in games, and had to leave school early. She was diagnosed at the age of 20 as a case of congenital coarctation. At this time she was incapable of exertion, and had had her activity greatly restricted for several years; but she became stronger, married, and in the autumn of 1941 became pregnant for the first time, being then 31 years old.

On Nov. 5, when I first saw the patient, she was in the second month of pregnancy and looked well. On examination scoliosis was seen to be pronounced: the heart showed displacement and enlargement to the left, the apex beat being at a level with the lower border of the manubrium sterni and axillary in position, being 6 in. from the midline. A harsh systolic murmur was heard in the second and third intercostal spaces to the left of the sternum, and extending towards the apex: the second sound in this area was sharp and reduplicated. At the apex the first sound was loud and accompanied by a systolic murmur, and the second sound was sharp. The pulse rate was 72, and the blood pressure in the arm 210/100. The blood pressure in the leg was difficult to obtain, but appeared to be about 125 (systolic). Arterial pulsation was marked above the clavicles, but not elsewhere. A radiograph of the heart was similar to one taken 10 years earlier, except that the left border of the heart appeared straighter and the apex almost at the left border of the chest (1/2 in. further to the left than 10 years before): typical rib-notching was present. Apart from left axis deviation there were no abnormal appearances in an electrocardiogram. The pregnant uterus presented no unusual features, the pelvis was of good size, and the urine was normal.

The patient remained extremely well throughout pregnancy, doing her own housework, taking walking exercise, and retiring to bed at 7.30 p.m. Her doctor found no cardiac, arterial, or urinary changes throughout, but on examining her 5 weeks before term he found premature labour to be starting, and she was admitted to hospital.

On admission the patient was seen by a surgical colleague (Mr. B. G. Scholefield), who had seen her in early pregnancy also: he agreed to the continuance of labour, but was ready to perform Caesarean section should this appear advisable. The progress of labour was very gradual, mild pains with 10 to 15 minutes' intervals continuing throughout the day. The patient was given a night's sleep (morphine gr. 1/4, atropine gr. 1/100), and labour continued the next day, dilatation of the os proceeding gradually without producing distress. The blood-pressure reading was unaltered by these pains, though some frontal headache was complained of after 11 p.m., the os being by then almost fully dilated. The change to second-stage pains was dramatic and alarming. These set in with rupture of the membranes, and the patient immediately became acutely distressed and breathless, and complained of severe headache. Pulsation of expansile appearance became pronounced at the root of the neck; the pulse rate was 128. Unfortunately it was impossible to delay to obtain a blood-pressure reading. The patient was at once anaesthetized, and at midnight was delivered by forceps of a living premature child of 5 lb. Convalescence was uneventful, and a radiograph of the heart and an electrocardiogram taken before discharge from hospital three weeks later showed no alterations from those taken in early pregnancy.

Comment

The decision to allow labour to continue rather than have early recourse to Caesarean section was prompted by the following considerations: the patient felt strong and well, was calm and confident, and was anxious to make the attempt; the infant was small and its presentation normal (L.O.A.), so that its passage might reasonably be expected to be an easy one; the early progress of cervical dilatation was free from fatigue and cardiac distress. In spite of these favourable circumstances the labour had to be stopped as soon as second-stage pains set in, as it was obvious that the tension in the upper circulation was being dangerously raised. With a full-time child, a less favourable presentation, a maternal heart having less reserve, or in the presence of more distressing first-stage pains, the danger-point might well be reached before dilatation was complete and delivery possible. This being so, it would appear that in cases of coarctation of the aorta, however favourable, the obstetrical procedure of choice is Caesarean section at the onset of labour.

My thanks are due to Dr. P. King Lewis for permission to publish this case, and for his share in its management.

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Medical Memoranda

A Case of Anaphylaxis after Anaesthesia

There has been a general tendency in the last 10 years to perform an increasing number of operations under local anaesthesia, and this tendency has been given an added impetus by the war. Local anaesthetics are cheap, convenient, portable, perhaps require no special training, and are more economical of man-power. It is therefore essential to know something of their relative toxicity.

Toxicity may be due to (*a*) rapid absorption, (*b*) idiosyncrasy, and (*c*) accidental injection into a vein. This last can usually be prevented by suction through the syringe, when the presence of blood is shown in the solution. This means that the needle must be removed and reinserted elsewhere.

In 217 cases of "conduction anaesthesia" with novutox[*] I have met with only one untoward incident. Novutox is the proprietary name for the preparation of 2% w/v solution of ethocaine hydrochloride with adrenaline 0.00002 g. per c.cm. in Ringer's solution with caprylhydrocupreinotoxin HCl in a proportion of 0.00002 g. per c.cm. and thymol 0.0004 g. per c cm.

CASE HISTORY

The patient, a quite healthy individual, complained of severe muscular pain and was given an intramuscular injection of 0.75 c.cm. of novutox in the right flank, the area of maximum tenderness. Ten minutes later he had a severe itch in both arms, pain and dryness of the gums, thirst, and lacrimation. There was shivering, and the eyes became red; the nostrils were blocked, the voice became hoarse, and he was troubled with a severe throbbing pain in the head and frontal sinuses. The face, neck, and hands were livid and unbearably hot. His systolic B.P. was 210, the pulse 115 per minute, and the temperature 105°. He became speechless and dyspnoeic.

The patient's clothes were loosened, and the windows in the room widely opened. He was thoroughly mopped with a wet Turkish towel, which after each application to his face became hot and steaming. After 20 minutes he received 6 drachms of brandy without any effect. Tincture of spirit of ammonia was then given to inhale: this partially cleared the nasal and bronchial passages. In about 45 minutes from the outset he began to speak incoherently in a muffled nasal way. Respiration, though easier, was still laboured, and he now felt cold and shivering. He was at once given a hypodermic injection of two minims of adrenaline hydrochloride, and in exactly 10 minutes was able to dress himself, and his B.P. came down to 180 mm. Hg, the pulse to 84, and the temperature to 99.5°. In another 10 minutes he took a cup of tea and felt much better.

He travelled in a public conveyance home, where I visited him the next day. He was pale but in good humour, joked about his experience, and said that he thought he was going to pass out.

R. ARMATTOE, L.R.C.P.&S.Ed.

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[*] Novutox does not contain cocaine, is not on the D.D.A., and is five times less toxic than cocaine.

Reviews

NEPHRITIS

Nephritis By Leopold Lichtwitz, M.D. (Pp 328 25s.) London: William Heinemann. 1942.

Prof. Lichtwitz, who is now in New York and who is well known for his many contributions in the past to the German literature of kidney disease, has recently given English workers the benefit of his experience in a short readable volume. A large part of the book is devoted to discussions on the physiology and functional pathology of renal disease, including such conditions as water metabolism, albuminuria, oedema, and uraemia. He describes the method of testing the function and capacity of the kidney which has been in use in his clinics for many years. This, in its simplest form, merely consists of an estimation of the excretion of solid substances by measurement of specific gravity and urinary volume under standard conditions. It can thus be carried out by any clinician without expert laboratory assistance. Further information can be gained by studying the excretion of chloride and urea over a period while the patient is on a special diet designed to test his excretory capacity. This section, the more physiological, is undoubtedly the best in the book, which, however, regarded as a textbook on nephritis, is rather disappointing. The author follows, on the whole, the German school, and his references are very largely of German origin. The more recent work of English and American authors is given scanty consideration or, in some cases, none at all. This is especially regrettable as the work of Goldblatt on hypertension and the recent writings of Ellis and Wilson in this country have done so much to clarify a difficult chapter in medicine.

Lichtwitz does not attempt any satisfactory classification of kidney disease. He deals only briefly with essential hypertension, but does not stress the importance of the malignant type. Even if he holds that this is not primarily a disease of the kidney, it is surely of the greatest importance in differential diagnosis. His consideration of uraemia, again, rather takes us back to the days when there was no clear distinction between true chemical uraemia and many similar symptoms which are caused by acute or chronic states of hypertension. The book is well worth reading by anyone particularly interested in renal disease, as it gives a new viewpoint on many aspects of the subject, and brings the English reader an easy summary of Continental literature. It cannot, however, be considered a comprehensive or even an up-to-date statement of present-day views on nephritis.

HUMAN NUTRITION

Food and Planning. By J. R. Marrack, M.D., D.S.O., *M.C.* With a preface by Sir John Boyd Orr, D.S.O., *M.C.* (Pp. 285. 15s.) London: Victor Gollancz, Ltd. 1942.

This admirable book is about to appear, we understand, in a second printing; therein doubtless several minor printer's errors will have received attention. The chief, if not the only serious, defect of the first edition will also, it is hoped, be put right. It is obvious from internal evidence that a very long time must have elapsed—long, anyhow, in relation to the rapidly changing circumstances of to-day—between the author's completion of his manuscript and the publication of the book. Thus, Table I contains no analytical data for national bread (only for white and for wholemeal), while banana and orange are both included in that table. It is also a pity when publishers, expert in catering for their own general or specialized publics, should presume to knowledge about the requirements of other publics, and then show themselves lacking in this knowledge; the publications of the Left Book Club or of Miss Dorothy Sayers can generally, if not always, dispense with an index, but its removal from Prof. Marrack's manuscript (wherein he must certainly have included it) has almost fatally affected the book's permanent utility, especially as it covers the whole of the very wide field over which those interested in human nutrition must to-day cast their eyes. Prof. Marrack ranges easily and lucidly from the structural formulae of pure vitamins to the less obvious implications of food control, from the conditions that produce deficiency diseases to the planning of agriculture in the post-war world.

Everywhere the author's common sense—sometimes, moreover, expressed with an attractive pungency—makes itself felt. This is a book that will be enthusiastically welcomed by the level-headed reformer and even by the intelligent revolutionary, but will give poor comfort to the food crank or to the defeatist. Prof. Marrack knows what we all need, and shows how it can be got; he does this, however, without in any way minimizing the difficulties that may have to be overcome.

The book begins with a chapter that constitutes a general introduction to the physiology of nutrition—so excellent an exposition as to make unjustifiable the continued publication of many of the numerous cheap booklets in which predigested nutritional science is gingerly dropped into the intellectual mouths of John (and Jane) Citizen by our more dietetic-minded guides, philosophers, and friends. The author's next two chapters are on food requirements and the effect of deficiencies on growth. The first chapter and these two might well be reprinted separately as the "Intelligent Woman's Guide to Social Feeding." The addition of Chapter IV, in which the nutritive value of different foods is considered in detail, would provide her with practically everything she need know about the principles of a scientifically based diet, whether for herself in pregnancy and lactation, the newborn infant, the growing family, the wage-earner, the school dining-room, the factory canteen, or the British Restaurant.

The next part of Prof. Marrack's book surveys what people actually eat (Chapter V) and the relation between health and the food that different groups have been found to consume (Chapter VI). The remaining six chapters contain, among other things, a most interesting survey of rationing during the last war, and may remind many readers of things that they have forgotten—perhaps subconsciously urged to this forgetfulness—of which they would be glad to be reminded when considering the problems of this war and its sequelae. There are, further, two chapters concerned particularly with war problems—one on war and health and the other on planning during scarcity—as well as an examination, in so far as available data permit, of the present position in Britain, Germany, and some other countries. Finally, Prof. Marrack has given us his views on the changes that will be needed if we are truly to plan for plenty; he is clearly of the opinion that this must involve restrictions both of national sovereignty and of private enterprise, especially of the latter, though the two cannot be separated.

It would be unfair, because misleading, to refer to the small number of *obiter dicta* that seem to call for some qualification. Any book of as wide a range, written with an equally genuine sincerity and tempered anxiety, must furnish examples of such casual comments. Perhaps, however, one may be permitted once more to point out the unfair implication usually conveyed by authors who refer to rickets as "the English disease." Prof. Marrack is among those who have managed to give the impression that this phrase was coined on the Continent because the condition was characteristic of these islands, whereas it was, in fact, so called because Glisson gave the first complete description. It was in honour of British medicine, not as a reproach to our climate or diet, that rickets got its association with this country. Again, the implication of a remark on p. 71 is that all dried milks, because they have been dried, require an antiscorbutic supplement for infant feeding. The truth, of course, is that all cows' milk (and many breast milks) should be so supplemented, whether raw, pasteurized, boiled, condensed, evaporated, or dried. On the other hand, one cannot write too strongly in support of Prof. Marrack's wise words about the so-called "protective" foods: his remarks are well worth quoting.

> "There has sprung up also a kind of snobbish attitude to foods, which are divided into an aristocracy of 'protective foods,' a middle class of 'body-builders,' and a lower class of 'workers and warmers.' In the first place, it is rather absurd to regard foods that supply vitamins as specially 'protective.' A man will die in a few days if deprived of water, and in a few weeks without any food, but can last for months without protein or vitamins. As far as 'protection' goes, water comes first, calories second, vitamins and proteins also run. And what foods, apart from sugar and perhaps unfortified margarine, do not contribute some vitamin or body-building substance?"

From among the growing pile of books under which the bookshelves and desk of the nutritional reviewer are slowly being submerged there is none that provides a more level-headed view of the present position or a saner appraisement of the problems lying in wait for those who wish to go forward on the basis of "sufficiency for all before abundance for some."

NEUROSURGERY

The Principles of Neurological Surgery. By Loyal Davis, M.S., M.D., Ph.D., D.Sc. Second edition, thoroughly revised. (Pp 503. 35s.) London: Henry Kimpton. 1942.

The author modestly claims that this book places before the practitioner the possibilities of neurosurgery, leaving out technical detail and the intricacies of neurological theory, but drawing attention to the chance of therapeutic relief in many conditions which formerly have been considered hopeless. Actually it achieves much more than this, for in the wide field it covers it sets forth a well-balanced summary of the majority opinion of neurosurgeons at the present day.

It is intended principally for the general practitioner and the undergraduate student, but we suspect that the latter may find it difficult to distinguish between matters of primary and secondary importance, since the book is written in the style of a monograph rather than that of an elementary textbook, and the absence of the cruder forms of sign-posting may be a handicap. To the student who is prepared to make his own abstract it offers a mine of information which will amply repay his industry.

In addition to a comprehensive review of intracranial disease there is an excellent account of peripheral nerve injuries and of the surgery of the sympathetic system, including an assessment of the modern treatment of arterial hypertension. In all sections adequate reference is made to recent literature, and the author's personal experience is freely drawn upon to enhance the practical value of the work.

Notes on Books

The 75th annual volume of *Whitaker's Almanack,* for 1943, has now appeared in three forms—library edition, leather-bound with coloured maps, at 21s.; complete edition, cloth-bound, at 10s.; and a shorter edition, containing the first 704 pages of the full book, paper-bound, at 6s. One of its principal features is the increase in space given to Government and Public Offices, extending to 101 pages. The diary of the war is condensed into 16 pages, and "Government by Party," which appeared in the 1932 edition, is reprinted in the present issue, with an extension covering the past 10 years. Upwards of 30,000 index references are given, ranging from a single line to the classified summary of 250 entries for Scotland and 300 for the United States. The publishers ask us to state that copies of this almanack may not be available at once.

The second edition of Dr. ARTHUR J. AMOR'S *X-ray Atlas of Silicosis* has only one change in its contents—a reference to the work of D'Arcy Hart and E. A. Aslett in their survey of chronic pulmonary disease in South Wales miners. The production of a second edition two years after the first is in part due to destruction of some of the first edition by enemy action. New blocks have had to be made of many of the original illustrations, and in spite of current difficulties their quality has been maintained and, in a number, improved. The reappearance of this valuable monograph is to be welcomed. It is published by John Wright and Sons of Bristol at 30s.

The *Annual Charities Register and Digest* for 1943 has just been published by Longmans, Green and Co for the Charity Organization Society. This is the fiftieth edition of a very useful reference book which provides information concerning the societies, associations, and other bodies that provide relief in all kinds of affliction and distress. It contains the same number of pages as last year, and gives details of more than 2,700 institutions and societies. Copies can be had from the C.O.S., Denison House, 296, Vauxhall Bridge Road, S.W., or from the publishers (8s. 6d.).

In reviewing the first edition of *The Design of Experiments,* by R. A. FISHER, Sc.D., F.R.S., we expressed the opinion that it was one of the most important contributions to methodology of our time. We see no reason to vary this opinion and are glad to see that, even in these times, a new edition is required, the third in six years. A book like this cannot be easy reading, and its success is good evidence that intelligent persons are increasingly interested in the statistical control of experiments, so that the maximum of information may be had with the least expenditure of time and money. The publishers are Oliver and Boyd, and the price is 12s 6d.

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THE B.M.A. AND THE BEVERIDGE REPORT

In spite of their many professional preoccupations at a time of year when sickness in the civil population makes unusual demands on a doctor's time even in peace, the various committees of the Association have been hard at work studying the Beveridge report, and in particular Assumption B: "Comprehensive health and rehabilitation services for prevention and cure of disease and restoration of capacity for work, available to all members of the community." At its meeting on Feb. 3 the Council of the B.M.A., the proceedings of which are reported in this week's *Supplement*, had before it the recommendations of the committees, the chairmen of which in turn gave the Council some idea of the atmosphere in which discussions had been conducted. The Chairman finally put before the Council a motion for its consideration and ultimate transmission in the form of a recommendation to the Representative Body. The motion was so framed as to embody the sense of the recommendations of the several committees. It was closely examined, and alternative readings of most of the sentences were considered, before the final form was adopted.

> "That it be recommended to the Representative Body that if Parliament, after consideration of the Beveridge report, decides to accept the assumptions of the report and to put into operation the proposals of the report, taken as a whole, including a scheme for comprehensive health and rehabilitation services for prevention and cure of disease and restoration of capacity for work, available to all members of the community, the Association would be willing to co-operate in the preparation of such a scheme provided—
>
> (*a*) That the character, terms, and conditions of the medical service are determined by negotiation and agreement with the medical profession; and
>
> (*b*) That those members of the community who decide not to avail themselves in part or in whole of the benefits of the service open to them should not be precluded from obtaining the medical services they desire from doctors within the scheme, paying for such service privately, with the necessary safeguards to prevent abuse."

This recommendation will be considered by a special meeting of the Representative Body and of the Panel Conference, and by a joint meeting of the two, at the end of March. Between then and now the Divisions will consider the Council's recommendation, and it is hoped that as many members as possible will attend their Division meetings.

The first point to be noticed in the recommendation is that co-operation is offered on the ground that Government action is taken on the report as a whole. This is fundamental. In the first place the Government might offer a sop to the public by putting into effect only the proposals for a medical service. But this service cannot be considered apart from the context of the report, as the medical profession is closely concerned with the health aspects of Sir William Beveridge's attack on want and idleness, the removal of which by his plan would be a public health measure of the first importance. So, although the medical profession must concentrate on Assumption B, it cannot shut out from consideration the report as a whole. In deciding what its attitude to this should be and to the medical implications in it, doctors should keep clearly in mind one factor, and that is the wide public interest in the problem of social security and the growing public desire to see that after this war such security is obtained. No Government, we believe, could afford to let such conditions arise as fostered the bitterness, disillusion, cynicism, and apathy that were the sour fruits of the victory of 1918.

The medical implications of Sir William's Assumption B are contained in the following two sentences from the report: "From the standpoint of social security, a health service providing full preventive and curative treatment of every kind to every citizen without exception, without remuneration limit, and without an economic barrier at any point to delay recourse to it, is the ideal conception. It is proposed accordingly that, in the contributions suggested as part of the plan for social security, there shall be included a payment in virtue of which every citizen will be able to obtain whatever treatment his case requires, at home or in an institution, medical, dental, or subsidiary, without a treatment charge."

That the whole resources of modern medicine should be at the disposal of every man, woman, and child in the country is a proposition to which every doctor naturally assents. That at some times, and in some places, various lets and hindrances prevent some citizens from taking full advantage of these resources cannot be denied. But neither can it be denied that all the time continuous efforts are being made by official and private agencies to fill the gaps that exist, to co-ordinate and unify services, and to facilitate the practical application of new knowledge and technique. There has been general acceptance of the B.M.A.'s proposals that the scope of national health insurance should include consultant and other services, and be extended to the dependants of insured persons. In other words, the idea of a complete service on a compulsory insurance basis is already accepted by the medical profession for roughly nine-tenths of the population. The Beveridge proposal is that such a service should be available to the whole population, rich and poor alike. The medical profession in Great Britain has to make up its mind what its attitude to this proposal is to be.

Upon what grounds could the medical profession oppose the complete acceptance of the Beveridge proposal? It is certain that if it is put into operation it will affect the private practice of all doctors and will affect adversely the incomes of some doctors. But could the medical profession hope to oppose the Beveridge plan successfully on the ground of finance? A more formidable argument against the plan is that the creation of a service open to the whole community might lead sooner or later to a whole-time salaried State service, and to this the majority of the doctors in this country are at present resolutely opposed.

But the "100% proposal" does not necessarily imply a whole-time State salaried service. If it did, the Council of the B.M.A. would have advised the Representative Body to reject it. It would, however, be quite another matter to advise the rejection of the proposal that the State should make available for every member of the community a comprehensive health and rehabilitation service.

Whether the compulsory insurance scheme should cover 100% of the population, or only, say, 85 to 90%, is a matter which Parliament has not yet decided or even discussed. Whatever the people of this country, through their representatives in Parliament, may decide on this issue of coverage, it would be undemocratic, not to say foolish, for the medical profession to run counter to the rest of the community at a time when it needs all its sympathy and support in what is the gist of the matter—namely, determination of the conditions and terms of service. The Council advises co-operation, with the important proviso that the character, terms, and conditions of the service must be negotiated with and agreed by the doctors of this country. And the doctors of this country do not believe that it is in the public interest that the medical profession should be turned into a whole-time salaried civil service, with the doctor the servant of the State. The doctor must be the servant of his patient.

In the past the medical profession has too often found itself fighting a rearguard action. Here, it seems, is an occasion when the medical profession can take a forward-looking view on a matter of the first importance, and this without sacrificing any of those professional principles upon which the practice of medicine is based.

AETIOLOGY OF LUNG CANCER

There has been an alarming increase in the amount of lung cancer diagnosed during the past twenty years. To describe the increase as one in diagnosed cases is important, because improved diagnosis accounts for much of the apparent difference in incidence between present and past; the clinical picture of this disease is not unmistakable, and in the absence of radiological or post-mortem facilities many cases must have gone unrecorded. Nor is it safe to deduce an absolute increase from the experience of any single institution. As Passey has pointed out, largely increased numbers of cases have been recorded from hospitals to which a tuberculosis dispensary is attached, for the evident reason that doubtful cases reach them from a wide area through this channel, while at other hospitals it may be a policy not to admit incurable cases, and there in-patient and post-mortem figures for the disease will be correspondingly low. When these sources of error have been eliminated, and allowance is made for the longer life of the average individual, there nevertheless remains an increase in the frequency of lung cancer which is considered by most authorities to be absolute. It is natural to seek the cause of this in some condition of modern life, and particularly among materials which may be inhaled, since nothing in connexion with cancer is better attested than the local carcinogenic effect of long-continued application of certain "irritants." Tar, certain lubricating oils, soot, arsenic, and various radio-active substances will cause epithelioma of the skin; the long-continued inhalation of any such substance may well produce cancer of the lung. That in the Schneeberg and St. Joachimstal miners' cancer we have a clear example of this effect there is no doubt, but the frequency of the disease among these miners is exceptional, as is the composition of the dust to which they are exposed. It is of greater interest to inquire whether other materials in air to which much larger numbers of people are exposed can have a similar if less pronounced effect. This question can be approached in two ways, of which one is to ascertain the incidence of the disease in occupational classes. Evidence has in fact been extracted from the Registrar-General's returns that lung cancer is commoner in certain occupations. The other method is experimental. It is of course well known that actively carcinogenic substances will produce lung cancer as well as tumours elsewhere, but to obtain evidence bearing more directly on the human disease it is necessary to expose animals to atmospheres containing dust or other supposedly carcinogenic materials on which suspicion has fallen. This is a singularly tedious form of experiment, requiring the utmost patience if the necessary conditions are to be fulfilled.

Such a study has been pursued for ten years by J. Argyll Campbell, whose principal findings are recapitulated and discussed at p. 179. He has been able to show that a variety of dusts, natural or prepared, will increase the frequency of lung tumours in mice, sometimes to a very marked degree. He also advances reasons for regarding these findings as applicable to man. It may perhaps assist judgment on this matter to state the particulars in which the mouse and human tumours differ. The first and most obvious is that lung tumours are exceptionally common in some strains of mice; their incidence in control animals in some of these experiments was 20%. No other animal behaves in this way, and innumerable dusting experiments conducted for the study of silicosis have not been found to produce lung growths in rabbits, guinea-pigs, or rats. The tumour itself in the mouse is usually an adenoma, in which malignant change is the exception. It is true that bronchial adenoma is gaining increased recognition as a common human tumour, but in both site and age incidence it differs from the mouse tumour, while of course it may be held to stand apart from primary lung cancer, the disease with which we are mainly concerned. On the other hand, when lung tumours are produced in mice by actively carcinogenic hydrocarbons they usually take this form, and the mouse adenoma, when it occurs with unexpected frequency, may therefore rightly be regarded as a response to a carcinogenic stimulus. Another aspect of this subject on which finality of conclusion would perhaps be premature is the position of silica. Whether silicosis itself or the inhalation of siliceous dust predisposes to cancer of the lung has been hotly debated. The weight of evidence seems to point to a negative answer, in particular the very imposing figures collected by A. J. Vorwald and J. W. Karr.[1] Campbell's findings, on the other hand, incriminate this agent, both in experiments with pure silicon dioxide and by implication in experiments with road dust, the extraction of which with benzene in order to free it from tar reduced its capacity to stimulate neoplasia, but did not abolish it. It should be mentioned that the validity of this conclusion has been questioned by A. Kling *et al.*[2] on the ground that extraction with benzene does not entirely remove the carcinogenic constituents of tar from dust; minerals are said to absorb tar and part with it reluctantly. They themselves made an artificial mixture of 100 parts of powdered stone, as used for road metal, with 1 part of tar, and after extracting with benzene until this solvent removed nothing more, they treated the powder successively with sulphuric ether, and acid and alkaline alcohol; in all three of these solvents they could demonstrate benzpyrene. This is therefore one of several aspects of a difficult subject upon which some doubt remains. A general belief that some forms of atmospheric pollution may be a factor in producing lung cancer is well justified, and some constituents, notably tar, are more suspect than others. How seriously to regard non-tarry dusts, soot, exhaust gases, and tobacco smoke is a question to which the present answers can only be provisional.

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[1] *Amer. J. Path.*, 1938, **14**, 49.

[2] *Bull. Acad. Méd. Paris* 1939 **121**, 784.

WASTING DISEASE AND LESIONS OF THE NERVOUS SYSTEM

The probability of an increased incidence of wasting disease and dietary deficiency in Europe makes a recent contribution from China of particular interest. Hypovitaminosis in man may result from inadequate intake, faulty absorption, excessive loss, or a requirement increased by heightened metabolism in febrile disease, all factors which are known to be prevalent in China. Hsü[1] carried out a very thorough histological examination of the central nervous system in 13 subjects who had died from wasting disease associated with dysentery and tuberculosis. In every case distinct lesions of the intestine were demonstrated. The changes in the nervous system were remarkably uniform in nature, including primary irritation of the Betz cells, and degeneration of the dorsal spinal ganglia, posterior columns, posterior nerve roots, and peripheral nerves. In beriberi peripheral nerves are primarily affected, while in pellagra the brain appears to be the earliest site of disturbance. The symptoms of vitamin-B deficiency were recorded in only one case, but it is possible that these manifestations had been overlooked in the others. The author, indeed, after an exhaustive search of the literature and analysis of his own findings, has come to the conclusion that the combination of pathological changes points to deficiency of the vitamin-B complex. Whether or not this is the case, it raises the interesting problem of the organic basis for the neurological abnormalities that arise in the course of general diseases. The association between disorders of the alimentary tract and disease of the nervous system has long been suspected. Hsü stresses the importance of an exhaustive neuropsychiatric examination in all those showing disturbances of the gastro-intestinal system. It must be left to experimental work to decide whether disease of the alimentary tract acts directly on the central nervous system, presumably by cutting down some hormonal effect or indirectly by impairing the absorption or utilization of one of the vitamins. Meanwhile, it might be wise again to emphasize the importance of adequate vitamin intake for all patients with digestive disorder.

THE EPIDEMIOLOGY OF STREPTOCOCCAL INFECTIONS

Of three great advances made during the past twenty years in the study of streptococcal infections two have been American and one a British achievement. The Dicks of Chicago elucidated the relationship of *Str. pyogenes* to scarlet fever, and thus provided the means for its specific treatment and prevention. Lancefield applied the precipitin test to the classification of this organism, and thus furnished a ready means of identifying strains as potentially dangerous. More detailed antigenic analysis, a task beset with difficulties which defeated other workers, was carried to fruition by the late Frederick Griffith, and resulted in the definition of about 30 types, nearly all included in Lancefield's Group A, which are now inseparable from his name. Thanks to the labours of Griffith himself and others whom he instructed in his methods, this country has led the world in studying the epidemiology of haemolytic streptococcal infections. Only by typing has it been possible to prove the source of cases of puerperal fever, to trace the origin of milk-borne scarlet fever, and to follow the migrations of streptococci in epidemics with such various manifestations that they had previously gone unrecognized. That the same streptococcus may successively cause in different individuals tonsillitis, scarlet fever, erysipelas, simple wound infections, an almost symptomless throat catarrh, otitis media, and, if opportunity occurs, puerperal fever, is now generally recognized. Any of these manifestations may be produced in certain circumstances by any streptococcus of Group A, with the single proviso that the rash which alone differentiates scarlet fever from other streptococcal throat infections will develop only if the streptococcus is of one of the types which form the erythrogenic toxin, and then only if the patient is susceptible to that toxin. This knowledge has made plain much that was obscure before, but in the recognition of ward and other epidemics and in devising precautions to check them there is still much to be done in applying it.

The typing of streptococci was for some years a British prerogative, but it has now found its place in the United States, and C. S. Keefer and his colleagues[1] describe a study made in Boston in which 819 strains from various sources were examined. Agglutinating sera were available for 19 of Griffith's types, and served to identify all but 180 strains. The types most commonly encountered were 1, 11, 13, and 15, but, although their frequency distribution doubtless varies in different countries, no conclusions on this should be drawn from any single study: the chance occurrence of epidemics embraced in it will exaggerate the numbers of that type to a figure not representative of a wider area or a longer period. Analysis of the infections caused by each type shows no special organ predilection, or any association between type and a particular lesion such as erysipelas. It was found that when multiple infections occurred in households or institutions, however various their nature, they were usually due to a single type and often traceable to a single individual. The inclusion of many cases of scarlet fever enabled the authors to study the effects of reinfection with a different type of streptococcus during the course of this disease, an occurrence now known to be common in fever hospitals. When a complication such as otitis media occurred early in the disease, the type was usually unchanged; when it developed after the fifteenth day it was unchanged in only 2 cases and different in 16. Two cases of recurrent scarlet fever were both associated with a change of type. Here and in many other of the varied aspects of streptococcal activity the serological method supplies an explanation obtainable in no other way.

ANTI-SOCIAL BEHAVIOUR DISORDERS

Most medical men are familiar with the admirable work of the Chadwick Trust in furthering preventive medicine, and the trustees did wisely when they recently instituted a lecture on the differentiation, prevention, and treatment of anti-social behaviour disorders. Such ills are not often regarded as within the scope of State medicine, but they menace the health of the community quite as gravely as do venereal disease or typhoid fever. As Dr. W. Norwood East, the lecturer, said in his opening remarks, Sir Edwin Chadwick, who acted as Jeremy Bentham's secretary for the last three years of Bentham's life, must often have discussed with the philosopher-jurist the causes and treatment of anti-social behaviour, for they were both interested in the subject. In general terms, said Dr. East, such disorders result from stress acting upon an innate constitutional pattern which is modified by environmental factors. Social reactions are closely related to the desire for security and satisfaction, the achievement of pleasure, and the avoidance of pain. In the ordinary affairs of life behaviour is related to both proximate and distant aims. In strong and harmoniously organized characters whose reactions are well balanced, short-term satisfactions are useful as occasional stimuli which assist them to realize long-term ideals. It is characteristic, on the other hand, of much anti-social disorder that the desire of the moment is more importunate and decisive than a long-term ambition. Disordered behaviour associated with insanity is rarely criminal: less than 1% of persons admitted to prison are insane. The anti-social behaviour of many of these could have been avoided by early medical advice and treatment. Similarly, much anti-social behaviour due to mental deficiency can be prevented if the mental condition is ascertained early and there is effective supervision. Anti-social behaviour associated with neurosis is characterized by its emotional content, which partly depends upon mental conflicts. The most important corrective factor is, perhaps, early recognition. Since the social difficulties of the psychopath are largely due to apparently innate factors, anti-social behaviour disorders in this group are often not easy to prevent. Treatment may be unavoidably restricted to modifying the particular activity which is adversely affecting the behaviour. Child guidance clinics, by recognizing those influences in the child which give rise to unusual behaviour, can often prevent future behaviour disorders. Critics of the methods of Government Departments might do well to study more closely the industry and bold readiness to experiment which the Home Office authorities constantly show in their struggle against delinquency and crime. Dr. Norwood East hopes that the Criminal Justice Bill of 1938 will be revived as soon as the war is over, and declares that the stepping-stones laid down by scientific research workers must be used; for, he argues, in a democratic State we cannot afford to ignore the effect upon each one of us of social hazards which are harmful and preventable. He had already observed in dealing with child guidance that the materialism and determinism of past years are being displaced in many directions by a spiritual approach to some of life's problems which is independent of science. Social historians of the future will be able to judge whether reforms such as the Beveridge plan, which will presumably remove a good deal of the insecurity which is an ingredient in behaviour disorders, have contributed at all towards reducing anti-social behaviour. It may be doubted whether greater material prosperity will produce a better society unless that society is welded by aims and beliefs that are not material.

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[1] *Arch. Neurol. Psychiat.*, Chicago, 1942, 48, 271.

[1] *Arch. Intern Med.*, 1942, 69, 952.

EXPERIMENTAL TUBERCULOSIS

The role of genetic constitution in determining resistance to tuberculosis is even now not well understood. There are so many variables. Massive infection can overwhelm naturally good resistance, and other factors of a non-genetic character can reinforce or nullify the advantages or disadvantages with which the child may have been born. It is not surprising, therefore, that so much remains mysterious or controversial; but what is surprising, perhaps, is that more use has not been made of animal experiments. This omission lends special interest to the contribution of M. B. Lurie of the Henry Phipps Institute of the University of Pennsylvania (assisted in some observations by P. Zappasodi), who has presented[1] a detailed account of seven years' careful work on rabbits. Six families were used, close inbreeding being practised, and it was found that under uniform environmental conditions there were notable differences in resistance between the families. These differences could be demonstrated by measuring survival time after a parenteral standard dose of tubercle bacilli; after inhalation of known numbers of bacilli in a specially designed apparatus; or after natural respiratory contagion. It was noteworthy that, using the first two methods, the differences could be abolished by sufficiently massive dosage. Under natural conditions of infection—which, it is suggested, are similar to those occurring in man—the rabbit families fell into three groups, and the pulmonary tuberculosis acquired, generation after generation, had the essential features of the disease as manifested by different racial groups of human beings.

After natural respiratory contagion rabbits of the resistant family acquired a tuberculosis of long duration, usually originating in a single, slowly progressive, encapsulating primary focus which became excavated. The draining tracheo-bronchial glands did not become involved. The disease was confined chiefly to the portal of entry, the lungs, where it spread from the softened primary lesion and where the secondary foci progressed in a similarly chronic manner. There was little dissemination to the rest of the body, and in the few instances of pulmonary haematogenous dissemination the tubercles did not thrive. The disease was essentially a localized ulcerative pulmonary phthisis analogous to the reinfection type seen in white adults. Microscopically, it was found that only in caseous foci undergoing softening did the bacilli accumulate in any considerable numbers. The disease extended only by the aspiration of bacillus-laden softened material into preformed channels, the high natural resistance of the tissues being thus overcome by flooding with vast numbers of organisms. What is probably of fundamental importance is that the mononuclear phagocytes of this family acquired the capacity to inhibit the growth of tubercle bacilli in their cytoplasm.

Rabbits of the susceptible families presented a very different picture. The disease also originated as a single primary focus in the lung but rapidly progressed without encapsulation or excavation. The draining glands became massively enlarged and caseous, and widespread blood dissemination then took place. The disease was a primary, rapidly progressive, generalized tuberculosis simulating the so-called childhood type in man and resembling the rapidly fatal form observed in Senegalese troops. Microscopically, tubercle bacilli were seen to swarm in the mononuclears, and blood vessels underwent necrosis *en masse.* Secondary lesions were equally rapidly progressive. In one family, what were apparently factors favourable to resistance were overcome by a particular vulnerability of the blood vessels to bacillary invasion. The rabbits belonging to some families were intermediate in their behaviour, and it is suggested that in them the course of the disease resembled types observed in the American negro. Essentially, resistance seemed to depend on the completeness and rapidity with which the tissues acquired a local immunity. There was also some evidence of an association between high resistance and low skin permeability, the rapid and intense development of allergic sensitivity, and the rapid production of antibodies.

It is good to know that these valuable studies are being continued. One point, for example, which may be elucidated is the number of bacilli forming the unit of infection which is responsible for the single primary focus in the rabbit, and also perhaps in man, for when the inhalation apparatus was used, even with relatively small numbers of bacilli, there were always multiple foci proportional to the dosage.

The next session of the General Medical Council will open on Wednesday, Feb. 17, at 10.30 a.m., when the President, Mr. H. L. Eason, will take the chair.

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[1] *Amer. Rev. Tuberc.*, 1941, 44, Supplement to September issue.

Reports of Societies

PRINCIPLES OF ANATOMY AND THE PERIPHERAL NERVES

At a meeting of the Section of Physical Medicine of the Royal Society of Medicine on Jan. 13, with Dr. PHILIPPE BAUWENS in the chair, Prof. H. A. HARRIS of Cambridge University, who was to have given an address under the title "The Anatomical Basis of Physical Medicine," said that since choosing his subject he had received the Medical Research Council War Memorandum No. 7, *Aids to the Investigation of Peripheral Nerve Injuries,* and it occurred to him that it might be of some advantage to consider to what extent the principles of anatomy were exhibited in this most recent publication.

The development of the limb bud in the human embryo began, he said, towards the end of the first month of embryonic life as a raised papule in the neck region and emerged as a mitten-shaped projection for the hand; a few days later the wrist was in sight, to be followed in turn by the forearm, elbow, arm, and shoulder. The two surfaces of the limb were distinct, the flexor muscles with their fine movements covered with hypersensitive and pliable flexor skin, the extensor muscles with their coarse movements covered by skin relatively less sensitive and tougher. As far back as 1885 there was intensive study of the morphology of the nerve plexuses of the limb by such men as Herringham, Paterson, Head, and Sherrington. It was Herringham in particular who stated that the nerve supply of the limbs was fundamentally segmental. He maintained that the skin of the limb was stretched like a sheet of rubber over the limb, that the extensor area was greater than the flexor area, and that the central nerve of the plexus only emerged on the skin surface at the periphery. He held that although the lower four cervical nerves and the first thoracic nerve constituted the basic five nerves of the brachial plexus, yet some skin had been borrowed from adjoining segments or dermatomes.

In the lower limbs the plexus was fundamentally formed from the last two lumbar nerves and the first three sacral, but as a result of the great development of the buttock and thigh, skin had been borrowed extensively from the adjoining segments or dermatomes at the pre-axial border. This borrowing was limited to the pre-axial border and could not take place at the post-axial border, as this lay "next door" to the territory of the fourth sacral nerve in the perineum in general and in the anus in particular. In the skin of the lower limb, not only were areas supplied by the adjoining dermatomes of the first three lumbar segments, but an area extending from the iliac crest to the great trochanter of the femur was supplied by the lateral branch of the twelfth thoracic or subcostal nerve.

Segmental Nerve Supply of Skin

Herringham paid great attention to the analysis of the typical segmental nerve, its posterior primary division for the skin and muscles of the back, its anterior primary division for the skin and muscles of the body wall, and particularly the lateral branch of the anterior primary division which supplied the flank. The limb bud always developed in the territory of the lateral branch of the anterior primary division of the segmental nerve. If the body were placed with the limbs in the embryonic position of flexion with the thumb and great toe towards the head, palm towards palm and sole towards sole, the pre-axial and post-axial borders of the limb gave the key to all the main points in the cutaneous supply to the limbs. In the upper limb the pre-axial and post-axial borders were marked out roughly by the cephalic and basilic veins; in the lower limb by the great saphenous and the small saphenous veins. Herringham stated that of two spots on the skin of the limb that nearest the pre-axial border tended to be supplied by the higher nerve. Of two spots on the pre-axial border the lower tended to be supplied by the lower nerve, but of two points on the post-axial border the lower was supplied by the higher nerve. Herringham went further, and pointed out that on the ventral and dorsal surfaces of the limb there was a hiatus in the numerical sequence of the nerves, explicable on the ground that the central nerves of the plexus, which failed to reach the surface in these situations, were replaced by cutaneous branches from neighbouring nerves. This gap or hiatus was the axial line.

These classical descriptions by Herringham were in part envisaged even as early as 1857 by Sir John Goodsir, professor of anatomy in Edinburgh a hundred years ago, for he recognized that the higher or pre-axial nerves in the plexus did not run as far into the limb as the lower or post-axial nerves.

Nerve Supply of Muscles

The principles which worked so well for the nerve supply of the skin had their counterpart in the segmental nerve supply of the muscles. Muscles near the pre-axial border, such as the deltoid, would be supplied by the higher nerves, the fifth and sixth cervical, whereas muscles near the post-axial border, such as the flexor carpi ulnaris, would be supplied by the lower nerves, the eighth cervical and first dorsal. In the upper limb all the muscles were supplied by the five basic nerves of the plexus, and there was no borrowing of muscle and nerve from the adjoining segments. On the other hand, in the lower limb, on account of the extensive growth and development of the buttock and thigh, the nerve supply of the muscles was not limited to the five basic nerves, from the fourth lumbar to the third sacral. The nerves and muscles of the adjoining pre-axial second and third lumbar segments had been brought in to provide the muscle and nerve which, with the fourth lumbar segment, constituted the quadriceps mass and the main part of the adductor mass, supplied respectively by the femoral and obturator nerves.

Herringham emphasized the segmental character of the nerve supply to muscle and insisted on the greater complexity of the flexor muscles as compared with the extensors. This complexity was reflected in the fact that the nerves of the flexor compartment were more numerous than those of the extensor compartment. The additional nerve of the flexor compartment was always post-axially placed. In the upper limb the posterior cord supplying the extensor mass was supplied by the lower four cervical nerves only, but the flexors were supplied in addition by the first thoracic nerve, which was post-axially placed, and practically all its fibres were in the ulnar nerve. Similarly, in the lower limb, the extensor mass was supplied by the nerves ranging from the second lumbar to the second sacral, but the flexor mass was supplied also by the third sacral, post-axially placed, in the nerve to the biceps femoris.

Prof. Harris maintained that the recent M.R.C. report showed but little evidence of acquaintance with the clinical implications of the work of Herringham on the morphology of the nerves to the skin and muscles of the limbs. It showed also little evidence of our knowledge of the classification and actions of muscles as established by Winslow, John Hilton, Duchenne, Charles Beevor, and Sherrington. The editions of Quain's *Anatomy* and of Cunningham's *Text Book of Anatomy* published at the beginning of the century had not neglected the importance of these anatomical principles. Modern textbooks had shown a tendency to do so.

The Stretched Nerve

A correspondence had recently taken place in the *British Medical Journal* concerning new and unnecessary names for certain objective and subjective phenomena in relation to nerve injuries. With regard to nerve injury the thing which mattered most was the stretching of the nerve or interference with its blood supply. Everyone was familiar with "pins and needles" of the leg and foot, a vascular phenomenon, but the stretching of a nerve was a more serious matter because recovery might not follow. For this reason it was worth while considering the many nerves in the body which were in such a position that they were liable to be injured as a result of stretching in various occupational injuries.

One common symptom was found in people working a lever when, instead of depressing it with the hand as a whole, they used only the hypothenar eminence to bang the lever down. They injured the ulnar nerve between the pisiform and the hook of the unciform bone. Similar trouble arose from working with the elbows pressed on a work bench with an upturned edge like a tea-tray. The ulnar nerve was rubbed on the coronoid process of the ulna and palsy resulted. Prof. Harris demonstrated by means of a skeleton the number of bends in the course of the ulnar nerve which went down the length of the arm. The fibres of the first thoracic nerve in the ulnar were stretched over the neck of the first rib; the ulnar nerve was stretched at the medial condyle of the humerus, and again as it passed around the hook of the unciform. Similarly those fibres of the fourth lumbar nerve which joined the sciatic presented sharp bends on emerging outwards from the intervertebral foramen, passing downwards in front of the sacro-iliac joint, backwards through the great sciatic foramen, and again outwards almost to the anterior superior iliac spine in the course of the superior gluteal nerve to glutaeus medius and minimus and tensor fasciae femoris. Another nerve, the sixth cranial, was in such a position that any disturbance of the brain or the cerebrospinal fluid was liable to stretch it, giving the transient palsies seen after slight accidents. The first thoracic, the fourth lumbar, and the sixth cranial nerve "lived dangerously," and were perpetually on the verge of a breakdown.

He also referred to the diagrams customarily given to show the tendon sheaths. A tendon sheath was grown where it was wanted. It made its appearance in response to the range of movement. The same with bursae. These would be grown where they were wanted, either in response to movement or to pressure, or because of ill-fitting footwear or unaccustomed work. The arrangement and extent of the flexor synovial sheaths in the hand were determined by the range of movement of the metacarpal bones and overlying tendons. This was maximal in the mobile metacarpal of the thumb with a continuous synovial sheath, next greatest in the mobile metacarpal of the little finger, and least in the rigid metacarpals of the index and middle fingers. He believed that the principles of anatomy were there for whoever wished to seek them; the monstrous burden of endless detail now placed upon the student was entirely due to the fact that teachers would not recognize that principles were designed to save time, to avoid useless memorizing, and to provoke further thought. In anatomy, as in other subjects, it was well worth while occasionally to pay heed to one's grandfather, because he might have acquired not only facts but certain valuable working hypotheses or principles.

SMALL-POX IN SCOTLAND IN 1942

At a meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine on Jan. 22, with Dr. J. D. ROLLESTON in the chair, some aspects of the epidemiology of small-pox outbreaks in Scotland in 1942 were discussed.

Dr. IAN SUTHERLAND, having first mentioned two earlier epidemics in Scotland—one in Glasgow, a major small-pox epidemic in 1920-1 which caused 176 deaths, and the other in Dundee, a minor epidemic in 1927-8 which caused no deaths—said that there arrived at Glasgow on May 29 last year a ship with a case of major small-pox on board. The source of infection was a mystery. The man might have been infected while ashore at Capetown, or on board from a missed case, but no small-pox was known to exist at Capetown at the time the boat was there, and there was no other case on board with a rash. An electrical engineer occupied the same cabin as this first case and looked after the man, but he did not get small-pox; he went, however, to repair a potato-peeling machine for the assistant cook, and the assistant cook subsequently developed a small-pox eruption. In this outbreak in Glasgow there were 11 ship cases, 21 in the general population in which the source of infection was untraceable, and 4 in contacts. The "untraceable" cases were not scattered throughout the city area; the west and a large part of the south were free. Following the main wave of "untraceable" cases there were three or four secondary cases, including some persons who had little contact with the outside world and whose chances of acquiring a prevalent infection might be thought to be small. The range of ages in the "untraceable" cases was from 12 to 72. The last group included a patient in a mental hospital outside Glasgow who had been there for 14 years and had not had a visitor during the previous three weeks.

The epidemic in Fife apparently started with a patient whose rash appeared on August 21, and 26 subsequent cases were traceable to the original case or to secondary or derived cases. A general vaccination campaign was started in the district in October, a very large number of people accepting vaccination. Two further cases occurred in November, one of them "untraceable." No connexion was established between the Glasgow and the Fife outbreaks. Eight days after the last Fife contact case a man who was under the care of a surgeon in an Edinburgh hospital developed a small-pox rash, and this was followed by a small-pox rash in a boy and 3 students who had no connexion with the hospital patient, and in 16 patients of the same hospital and convalescent home, many of whom had been returned to their own homes before the outbreak declared itself. In the convalescent home the outbreak was baffling. The cases were confined to patients in one ward, about half of whom developed small-pox. The only connexions between the hospital and the convalescent home were the laundry and the interhospital ambulance, but investigation of these was negative. The next stage in the Edinburgh outbreak was the appearance of a group of 8 "untraceable" cases spread over 30 days in the general population. There was no feature of special interest in the social incidence, and no proof that the Edinburgh cases derived from the previous outbreaks. The disease was of a major type, with a fatality rate of 24%. Known contacts were always offered, and rarely refused, vaccination. General vaccination campaigns were started in Glasgow on June 30, in Fife on Oct. 3, and in Edinburgh on Nov. 18. Reviewing the range of clinical manifestations, the possibility of infection below the level of clinical recognizability could not be excluded without postulating any change in virulence; the existence of carriers remained speculative.

Dr. J. GLEN based his remarks on 35 cases which were admitted to Robroyston Hospital, Glasgow. There was evidence that a virulent infection was concerned; 64% of the cases were severe, including haemorrhagic and confluent cases. The routine treatment was as follows: 2 g. of sulphadiazine given 4-hourly day and night for 24 or 36 hours, followed by 1 g. 4-hourly for 6 to 10 days, typical cases receiving a total of 50 to 60 g. In addition 100 g. of ascorbic acid was given. In severe cases the eyes were irrigated with normal saline 2-hourly during the day and 4-hourly during the night. There were three groups of cases: (1) discrete small-pox in 18 cases, of which 6 were severe, none of which had been vaccinated; none of the discrete cases proved fatal; (2) haemorrhagic small-pox in 4 cases, 3 of them unvaccinated, and all were fatal; (3) confluent small-pox in 11 cases; 8 of these were unvaccinated, and in the 3 who had been vaccinated the vaccination had taken place 72, 37, and 13 years previously; 3 deaths occurred. No toxic complications were observed with the drug used.

Post-vaccinal Picture

Dr. PETER MCKENZIE said that in July, 1942, in Glasgow approximately half a million persons were vaccinated. Arrangements were made to concentrate any cases of encephalitis and vaccinal eruptions in one hospital. Fourteen cases were admitted as vaccinal encephalitis, and in 7 the diagnosis was confirmed. In no case did encephalitis follow primary vaccination in infancy; 6 of the 7 cases occurred in previously unvaccinated children between the ages of 2 and 16. The time of onset varied from 6 to 14 days after vaccination, and the duration of illness was from 5 days to 6 weeks; 2 of the children died, the other 5 recovered completely. In both the fatal cases there were rolling nystagmoid movements of the eyes with marked strabismus which varied from hour to hour. The arms were spastic and flexed, and on attempting to elicit nuchal rigidity a rough tremor developed in the forearms. Sections of the brain in the fatal cases showed a distinct zone of perivascular infiltration and oedema, with a suggestion of some lysis of the cerebral tissue in the part. More specialized neurological methods revealed that in the perivascular zones there had been obvious loss of myelin. During the epidemic period 3 cases were admitted to hospital which appeared clinically to be Kaposi's varicelliform dermatosis, characterized by the rapid appearance of pustules on the head, arms, and legs of a child already suffering from eczema. It was apparent in these 3 cases that the pustules in no way resembled varicella, but were indeed varioliform in character. All 3 patients were unvaccinated. He had been able to trace a further 7 cases of this condition which occurred in Glasgow during July and August, 1942. This was a rare condition, and the occurrence of a number of cases in relation to an outbreak of variola must be regarded as of some significance.

In further discussion Dr. GAUTIER (League of Nations Health Section) said that experience on the Continent had suggested that certain strains of lymph were more likely to give rise to post-vaccinal encephalitis. Dr. ANTONY DAVIDSON spoke of the good response of the Scottish public to vaccination, over one million persons having been vaccinated. He also referred to the capricious nature of the spread of small-pox, which made it the more difficult to control, and the increased difficulty in the clinical diagnosis of the disease in view of the fact that the long disappearance of this infection had left younger medical men unfamiliar with it. Col. WILLIAM BUTLER recalled the London epidemic of 1905, when it was found that vaccination given during the incubating period did not protect, so that it was a common experience to have vaccinia and small-pox concurrently, and these cases were more severe than the other features of the attack seemed to warrant. Sir LEONARD ROGERS urged that a declaration on the need not only for vaccination in infancy but for subsequent vaccination was required, and the Section passed a resolution in that sense. Dr. J. A. H. BRINCKER, after recalling an outbreak in Kent where secondary cases came out a couple of months later, asked whether they were sure that the cases of post-vaccinal encephalitis had nothing to do with the vaccine. Was it not possible that these cases might be due to a virus or some other form of infection latent in the individual, which the fact of vaccination was enough to set in action? Dr. E. A. UNDERWOOD said that there was a fair amount of evidence that post-vaccinal encephalitis was the precursor of some neurotrophic change in the nervous system which expressed itself not only in this form but in other similar conditions.

The PRESIDENT said that it was important to emphasize the fact that the encephalitis following vaccination did not occur in infancy, and that vaccination should be carried out as soon after birth as possible. It was important also that the child suffering from eruptions should not be vaccinated.

MATERNAL NUTRITION DURING WARTIME

At a meeting of the Medical Society of London on January 18, with Dr. HOPE GOSSE, the president, in the chair, a discussion took place on the subject of maternal nutrition, though it ranged also over the general subject of nutrition in wartime.

Prof. JAMES YOUNG said that from the evidence available it was not easy to determine the effect of the present planned dietary on the adequacy of maternal nutrition. The drastic restriction in meat, eggs, and fish had reduced the main sources of first-class protein and iron, and there had been a compensatory increase in the consumption of bread, potatoes, and other vegetables. Priority for milk for pregnant and nursing women had to some extent neutralized this dietary shift; priority in eggs appeared to be fictitious, and should not be taken into account in assessment of present nutrition standards. There was some evidence that deficiency anaemia was on the increase among women and infants, but none, so far as he knew, of calcium shortage. The incidence of rickets among infants required serious study. The intakes of vitamins A and D were relatively satisfactory because of the priority in milk and the fortification of margarine. The substitution of 85% extraction flour for white bread had improved the situation with regard to the B complex. There was some evidence of shortage in vitamin C.

He proceeded to give results of an investigation carried out by Dr. Hilda Hargreaves at the British Postgraduate Medical School on the mean birth weights of infants and the evidence of prematurity and immaturity during the years 1937-42 (omitting 1939). Prematurity was defined as birth before the 40th week, and immaturity related to infants under 5½ lb. in weight. The investigation had been restricted to booked cases only, and did not include cases admitted as emergencies. Comparing 1938 (the last full peace year) and 1942, the results were as shown in the accompanying table. Both in primigravidae and multigravidae there had been an appreciable fall in the mean birth weight of the infants. In the primigravidae there had been a striking fall in the prematurity rate during the years 1941 and 1942 (from 18 or 19% in the earlier years to 11.06% in 1941 and 12.18% in 1942). There had been no appreciable trend in the immaturity rate in either category. There had been a marked drop in the prematurity rate for primigravidae, but no similar decline in the immaturity rate, and the reason for this discrepancy was not easy to explain. It might be that, although in the earlier years the prematurity rate was higher, the drop in the mean birth weights of full-term children had in later years implied the transfer of a relatively larger number of infants during those years to the immaturity group.

Year	Total Births	Mean Birth Weight Full-time Infants		Premature Infants		Immature Infants (under 5½ lb.)	
		Number	lb.	Number	Per cent.	Number	Per cent
			Primigravidae				
1938	890	705	7·31	162	18·20	70	7 86
1942	804	679	7·08	98	12·18	73	9·07
			Multigravidae				
1938	875	740	7·54	108	12·34	48	5 48
1942	629	531	7 39	81	12·87	41	6 51

In conclusion Prof. Young said that a critical analysis of the evidence permitted some conclusions to be drawn, although many of the data were incomplete or equivocal. There could be no doubt that the dietary standards of the mother during pregnancy and lactation exerted a profound influence on her health and on the health and growth of the infant before and after birth. It had become clear that this was a dominating consideration in the social, economic, and administrative reforms directed to the improvement of the health of the nation

Broader Nutritional Considerations

Dr. T. IZOD BENNETT, after illustrating some of the results of vitamin deficiency, said that a great deal of nonsense had been and would be talked about vitamins. Instead of thinking in terms of normal human beings having more or less normal and varied food, many had approached this subject of vitamins from the point of view of laboratory animals placed on an unnatural diet and exemplifying gross deficiencies. The first law of nutrition was to ensure the primary elements of diet—protein, carbohydrates, and so on; and the second law was to ensure that these substances were given so far as possible in the form of natural food and not as synthetic preparations or extractives. If the latter expedient were adopted, and one factor, say a vitamin B complex, were added, there would almost certainly be a shortage of another factor which the chemist had not been clever enough to isolate; or, to put the matter more broadly, the primary constituents of diet were far more important than vitamins. If the natural foods were cut too low there would quickly be a shortage of some of the amino acids, which, although they might not be required in great quantity, were essential for the proper building up of protoplasm.

Some conditions which were described as due to vitamin deficiency were really due to psychological conditions or to faulty food habits; but these cases were very few and far between. Deficiencies were also seen in patients with ulcerative colitis, for example, due to excessive elimination. An increase in tuberculosis was sometimes ascribed to vitamin want, but he felt that it ought not to be so ascribed when such obvious causes as lack of ventilation and overcrowding might be cited. Neither in the wards nor in the out-patient department had he seen an increased number of deficiency cases.

Mr. ALECK BOURNE said that he thought it was the general experience that prematurity, which accounted for about 60% of all neonatal deaths, was very much conditioned by nutrition. He was surprised to hear that there was no vitamin deficiency at the present time in this country. This seemed contrary to the experience of Orr and others; there must, he thought, be a certain amount of subclinical deficiency. On the continent of Europe one of the most urgent tasks after the armistice would be the feeding of pregnant women. He believed that the rise and fall of tuberculosis depended to a considerable degree upon nutrition, and that an increased incidence was not to be put down solely to conditions arising from the black-out.

Correspondence

A Member Resigns

SIR,—Your leading article (Jan. 30, p. 135) is interesting; the member has done a service to the B.M.A. Your article shows the Association is perturbed by the letter and recognizes there is some reason for the member's criticisms. "There is no smoke without fire." I have been a member of the B.M.A. for over forty years and have seen many ups and downs, mostly "ups," as the B.M.A. has done great service for its members. We are now going through one of the "downs." Many members are threatening resignation, especially the younger ones; the older members are apathetic. I often hear them say, "What is the Association doing for its members?" Others say, "Only playing into the hand of the Ministry." I try to point out that members are answerable for the policy of its officers. "Why don't you attend meetings?" I ask. "What is the good?" is the answer; "too many old men in power and we are too soft to turn them out." The younger generation should now take its place on the councils of the B.M.A. The profession is hoping for a real lead by the B.M.A. in the future: not a bolstering up of the old methods, but a true progressive policy which will appeal to the younger generation. The Association is the largest and most powerful medical organization, but it appears to many members to show little originality in its policy.—I am, etc.,

Birmingham F. A. L. BURGES.

SIR,—I write as a member of twenty years' standing who has no intention of resigning his membership, in spite of not always seeing "eye to eye" with B.M.A. policy.

A patient, a member of the teaching profession, surprised me one day by saying, "Your profession has the strongest 'trade union' in the country." Thinking he meant the B.M.A. I disagreed with him, as in my experience negotiations between the Health Ministry and the B.M.A. invariably turn to the advantage of the former. He was thinking, however, of the power of the G.M.C., which is an entirely different matter, as I explained to him. This confusion of thought as regards the B.M.A. and the G.M.C. is not uncommon among the lay public, and something could be done to re-educate them accordingly.

The old saying that "the people get the Government they deserve" applies equally well to the British Medical Association.—I am, etc.,

East Kilbride JOHN MCLAREN, M.B.

SIR,—Your leading article published under the above heading (Jan. 30, p. 135) is interesting to me, a member of the B.M.A. for forty years. I am grateful for what they have done for me personally, on more than one occasion, as well as for the profession as a whole, both in and out of Parliament. The Association always takes a leading and honourable part in current medical topics. It always tenders sound advice when consulted by its members: Non-members are invariably welcome at its meetings. There is no other body of medical men more representative of the profession, both young and old, than the B.M.A. "Splitting," if there be any, is done by individuals, not by the Association. Medical progress cannot but be retarded by destructive criticism. But the respect of the general public is assured, as it is well aware of the power for good for which the B.M.A. stands and has always stood.—I am, etc.,

London, W 2 R. GALWAY MURRAY.

SIR,—As we have many organs in one body and all organs have not the same function, so we being many—general practitioners, consultants, surgeons, pathologists, and so on—are one body in the British Medical Association, whose organization corresponds to the nervous system which enables the body to act as a co-ordinated whole. That is the ideal. Alas, how far short of it we have fallen in the actual!

Perhaps the most serious result of this poor performance is that owing to failure on the part of members to make proper use of the Divisional Meeting the Central Executive is not brought under the will of the membership. Now to justify its existence an executive must act in obedience to the will either of those who have placed it where it is or of some other interest, whichever applies the greater pressure. Every self-respecting executive would prefer to obey the former, but it cannot choose. It must ultimately yield to superior force, wherever it comes from, or resign. The Executive of the B.M.A. is no exception to this law. We, the members, have failed to give it a proper backing, and now there is lots of evidence to prove that it has been yielding to outside pressure. Neither the members nor their patients have ever demanded a planned medical service, except as moved by propaganda, and yet our Executive is actively engaged in the furtherance of such a scheme. It justifies its action by declaring that its plan is designed to save us and the country from the imposition of a somewhat different plan of which it does not approve. But this is merely to confess that the B.M.A. has lost the initiative and that it is no longer master in its own house. Were space available particulars might be given of the nature of the outside pressure which is being applied, but, since it is not, these details, which are of relative unimportance to the present argument, must be omitted.

From what has been said it now appears obvious that the essential task of the moment is to achieve unity within "the body," and to take the necessary steps to generate a sufficiency of force to eject the invader. That boils down to improving the mechanism by which the member may impress his will on the Executive, and inducing him to use it. Brief references will now be made to three portions of this mechanism.

(1) Annual Representative Meeting. This appears useless for the purpose mentioned. If the report in the *Supplement* of the last A.R.M. was a true picture then the meeting was a fiasco. Something must be done about it. I don't quite know what.

(2) Our Representatives. These must take their job much more seriously than is usually the case. They must find out what their constituents want and continuously press these demands on Headquarters, not wait for the A.R.M. Perhaps some paid representatives would be worth while.

(3) Divisional meeting (political). Everything depends on this. It is the power house. It is the source of policy. It represents the circumference from which a continuous stream of stimuli should pass to the centre, keeping it up to scratch. Here are the end-organs keeping the mind in touch with reality. Members should state clearly what they want in both particular and general terms, and transmit these demands through their representative to Headquarters. The following is an example of a general statement of policy presented to one Divisional meeting for its consideration: We want, before every other professional consideration, freedom to function as doctors in response to the demands of our patients and to the satisfaction of the persons immediately concerned. Any interference with or threat to this freedom shall be resisted with all our power.

I have a good deal of sympathy with the writer of the letter which is the subject of your leader, "A Member Resigns." He sensed truly that there is something seriously wrong. He acted. Unfortunately, in my opinion, he acted ill-advisedly. I hope he will reconsider his decision, and that if at some future date he should desire to rejoin the Association no difficulty will be placed in his way.—I am, etc.,

Bexley, Kent. E. U. MACWILLIAM.

"Calorie Control" Diabetic Diet

SIR,—Dr. A. C. Crooke's article (Jan. 16, p. 64) appeared to suggest the practicability of permitting a free interchange of carbohydrates, proteins, and fats in diabetic diets, providing the total caloric value remained constant. Dr. R. D. Lawrence (Jan. 30, p. 143) queried, I think with justification, both the theory and practice. Dr. Crooke then made it clear that he meant "within the limits of experiments described." Perhaps these limits could be defined more clearly and mathematically, in respect not only to permissibility but also to actuality. As regards theory, Dr. Crooke draws attention to Prof. Ellis's experiments in which he replaced proteins and fat by their glucose equivalent, and found, as a result, a strikingly diminished insulin requirement. I wonder if these important experiments are strictly applicable, since (1) Ellis did not suggest that there was no need to vary the insulin dosage accordingly—on the contrary very rapid changes were necessary; and (2) he gave the insulin and glucose hourly throughout the day and night.

Nevertheless, it is true that when Pörges and Adlersberg first suggested high carbohydrate diets in diabetes there were objections raised on physiological grounds. It may be that further clinical experiments will justify Crooke's suggested innovation, but until then I think it more prudent for those in charge of diabetic patients to adhere to present practice.—I am, etc.,

London, W.1. S. L. SIMPSON.

SIR,—Dr. A. C. Crooke (Jan. 16, p. 64) proposes an interesting revolution in diabetic dietary, and claims that he has shown this revolution to be successful in a number of cases. In fact he has shown no such thing. He claims that protein, fat, and carbohydrate are interchangeable in a diabetic diet so long as the calorie intake is constant. This is a remarkable claim, and it is made without evidence, for he gives no details of the actual carbohydrate, protein, and fat intakes of his patients. Dietary habits are hard to alter, and it is most likely that the majority of his patients retained their previous diets more or less intact. Who would choose to have nothing but bacon and butter for breakfast if cereal and bread are available? Further, wartime restrictions (even with the extra allowances for diabetics) make it impossible to subsist entirely on protein and fat. The diabetic ration allows about 75 g. protein and 100 g. fat. This gives 1,200 calories, so that 200 g. carbohydrate are necessary to make up a diet of 2,000 calories. This is a reasonable orthodox diet and may well have been the diet taken by Dr. Crooke's patients, who were allowed 2,000 calories.

To substantiate Dr. Crooke's claim it would be necessary to study in-patients (who alone can be brought under accurate dietary control), to balance them with insulin on pure carbohydrate diets, and to estimate their blood sugar throughout the day. Then they would have to be put on to pure protein and fat diets of the same calorie value with the same insulin dosage. If his hypothesis is correct then the blood-sugar levels throughout the day should remain unchanged. Until such evidence is forthcoming it would be foolish to accept Dr. Crooke's revolutionary hypothesis. In peacetime, with unlimited protein and fat, it might be dangerous. There is, however, one inference that may be derived from his paper, and that is, that diabetics are very conservative in their dietary habits. It is important to remember this when conclusions are reached as the result of experiments with out-patients.—I am, etc.,

St. Bartholomew's Hospital, E.C.1 C. M. FLETCHER.

Nomenclature of Typhus Group

SIR,—In your issue of Nov. 21 (p. 597) Dr. A. Felix, in discussing the nomenclature of the typhus group of fevers, takes me to task for the alleged recent introduction of the term "exanthematic" typhus as a synonym for louse-borne typhus. The propriety of using the adjective "exanthematic" in speaking of the relationship between louse-borne and flea-borne typhus, in which latter condition the rash is as a rule less in evidence than in louse-borne typhus, may be open to question. It is, however, incorrect to assert that "exanthematic" as applied to typhus is "a new invention." Dr. Felix can hardly have forgotten that on the Continent "typhus exanthematicus," "typhus exanthématique," and "tifus exantemático" have been in use for many a long day. An examination of past volumes of the *Tropical Diseases Bulletin* and of standard English textbooks here available, many of them by no means recent, shows that the term "exanthematic" applied to louse-borne typhus is of such an age that I cannot well claim its parentage even if I had wished to do so.—I am, etc.,

G. M. FINDLAY.

Eventration of the Diaphragm

SIR,—I venture to think that Dr. Mills (Jan. 23, p. 97) is incorrect in regarding his interesting case of eventration as congenital in origin. The clinical and radiological features are rather more in keeping with a diagnosis of *aérogastrie bloquée*, which he dismisses, I think, too lightly. I am not familiar with the occurrence of the cup-and-spill or cascade type of stomach in congenital eventration of the diaphragm, but it has been a feature of all of the four or five cases of *aérogastrie bloquée* that I have seen. The loculation is due to the pressure of gas in the splenic flexure of the colon and has been well called the pressure hour-glass effect. It is my belief that the condition of *aérogastrie bloquée* starts in an upper gastric loculus formed in this way. In this loculus gas is trapped, and as its pressure increases the cardia becomes displaced and relief by belching is prevented. Two of my patients could not belch wind and never had been able to as long as they could remember. The upper loculus gradually distends backwards and upwards, pushing the left dome of the diaphragm into the thorax and the heart over to the right. Pain, and sometimes very severe pain, is a common though not invariable symptom; fullness and distension are usual, and sometimes an upper abdominal tumour may be visible. In my view, then, Dr. Mills's case is one of eventration of the diaphragm secondary to *aérogastrie bloquée*.

I was not aware of Korns's sign, but the divergence of the costal margin on inspiration is an interesting and somewhat neglected physical sign in diagnosis, occurring to a greater or less extent in all cases where contraction of the diaphragm is exerted through an arc greater than normal, thus offering less than its usual antagonism to the intercostal muscles. The movements of the costal margin as an aid to diagnosis are well described by Charles F. Hoover in the Nelson *Loose Leaf Medicine*, Volume III.—I am, etc.,

Birmingham. T. L. HARDY.

Houses to Live In

SIR,—"Homes to Live In" would have been even better for the title of your leading article (Jan. 30, p. 136). You will say that that was not the question asked, but I reply that it ought to have been. We are all out for that "harmony of human relationship" mentioned in the review of *Psychological Effects of War on Citizen and Soldier* (Jan. 30, p. 133), and here is a great opportunity for our profession not to accept calmly the *status quo* or to stand by while grievous wrong may be done to the body politic. Every person is entitled in a democracy to be recognized as a personality, the roots of which are embedded in family life. We may play a large part in insisting upon this. The College should emphasize the fact that tenement flats are destructive of family life. The sound instinct and knowledge of the people recognize this, and over 90% of them have said so. Warehousing our peoples does not make for a vigorous people full of initiative.

You may wonder why I say this, but it is not possible to argue this question without the knowledge that vested interests in the land of great cities and in the materials of which flats are made are looking for encouragement just now, and it should be our business not to appear as "appeasers." Harmony of social life demands a positive policy. We do not want to wake up to find that damage has been inflicted upon people by foisting on them a sterile unimaginative static condition which need not exist.—I am, etc.,

Letchworth, Herts NORMAN MACFADYEN.

Sulphonamide-resistant Bacteria

SIR,—I was much interested in the article by J. Petro (*Lancet*, 1943, 1, 35) on the increasing incidence of a strain of gonococcus which is resistant to the action of the sulphonamides. I think a fair inference is that this strain has become resistant due to the ineffectual treatment of patients by too small doses of the sulphonamides. Is it not time that the medical profession at large realized this danger, and took greater care to avoid breeding strains of organisms which may spread, and thus give rise to a state of affairs approximating to the pre-sulphonamide era?

I have in mind particularly the treatment of streptococcal sore throats by means of these drugs. It was, and to some extent still is, the practice of many nurses, medical students, and even medical men to take a sulphonamide whenever they have a sore throat. The doses are nearly always much too small, so as to avoid the unpleasant side-reactions. Even with the very best use of these drugs, it is practically impossible to remove all haemolytic streptococci from an infected throat, and those which remain are resistant to further dosage. If this germ is now coughed on to the perineum of a puerperal woman she is likely to have puerperal sepsis of the resistant type. Only a day or two ago I came across a case of a medical student, now engaged on her "midder" course, who had a sore throat and was taking large doses of sulphapyridine even before the bacteriological diagnosis was completed. Presumably, she would have been excluded from the midwifery wards until her throat was pronounced clear of haemolytic streptococci after three swabs; but this precaution is by no means universal, and many a doctor must return to his practice still carrying haemolytic streptococci in his throat, now with an increased fastness to these drugs. Before the sulphonamides sore throats were very successfully treated by the medical methods of gargles, etc. I feel strongly that we should return to these methods of treatment, and only use these new drugs when we are sure that we can completely exterminate the germ population which is the cause of the disease we are treating, or when no other treatment will succeed.—I am, etc.,

Amersham HENDRIK MULLER.

Military Psychiatry

SIR,—The last paragraph of Dr. Richard Eager's letter (Jan. 23, p. 111) suggests that insufficient attention is being given by medical recruiting boards to nervous and mental manifestations before enlistment. It is not so easy as that. A psychoneurotic can appear before a board and be found physically fit and answer all questions intelligently without disclosing previous neurotic attacks. And, in point of fact, he may be truthful, for in the even course of civil life no abnormal mental condition may ever have been evoked. Medical boards are not slow to consult their psychiatrists if there is any indication of mental deficiency. Modern Army "toughening" conditions find various recruits unable to respond to the demands made upon them, and an anxiety neurosis develops which goes from bad to worse in their course of intensive training.

The remedy does not lie in making recriminations to the boards and discharging these cases from the Service, but in further efforts to secure proper adjustment. Many a man found unsuitable for a machine-gun team would be quite all right as a batman or in equipment stores or the cook-house. The number of discharges is far too large. Few regimental medical officers, however, can spare time to supervise a neurotic, especially one who is keen to get out of the Army and finds a claim to nocturnal enuresis or other malingering devices an ever-present help in regaining his freedom from service.—I am, etc.,

Dalkeith, Midlothian G. DOUGLAS GRAY.

Unwarranted Cardiac Invalidism in Children

SIR,—With reference to Dr. R. P. Garrow's letter (Jan. 23, p. 114) may I report a case which is very illustrative of the risk of undue stress being laid upon systolic murmurs without more detailed examination by radiology and, where possible, the electrocardiograph.

In 1930 I was asked, incidentally to a private visit, to examine a younger sister of a friend. With the stethoscope there were gross murmurs, which I have since loosely described as "the thorax was like a musical box." I found the child had always been healthy, but this condition had been discovered by routine school examination. The mother had been told to take the child to one of the large teaching hospitals, I think, every fortnight. I refused to give an opinion until the child had been brought to me for x-ray examination, when I found the heart normal in position, contour, size, and pulsation. I then took upon myself the responsibility of telling the mother not to take her again to the teaching hospital, as this could only be for demonstration purposes, and in my opinion would render the child a pampered chronic invalid. Meanwhile I advised moderation in exercise and that the child should certainly attend school. I re-examined her three months later and I have seen her from time to time. Later the child not only excelled in all sports, particularly high-diving, but had a brilliant scholastic career, gaining the B.Sc. and higher qualifications, with appointment as a demonstrator at a university. A pretty girl, a brilliant academic career appeared likely when, last July, she came and informed me she wished to forgo this future to join the W.R.N.S. without any compulsion to do so, but was afraid she would be rejected, and asked my assistance. I wrote a letter stating her case to the relative medical board. On stethoscopic findings the board was apparently afraid to pass her but sent her to a well-known cardiologist. He concurred in my opinion, she was passed, and now for many months has been engaged, I understand, on mathematical calculation work of a metrological nature.

I feel sure that had earlier importance been placed upon this very marked case of systolic murmurs, with years of attendance at hospital for demonstration, the child would have long ago been a chronic invalid. In numerous cases of heavy life policies, after disclosing the facts of systolic murmurs with radiological normality I have recommended first-class acceptance, and, to date, have never been informed by the respective insurance companies that my recommendation has resulted in early decease and payment of the insurance.—I am, etc.,

London, E.7 BERNARD LEGGETT.

Ethyl Chloride Spray in Pleuritic Pain

SIR,—In view of the relief afforded to patients with sprains of the ankle and similar conditions by spraying the part locally with ethyl chloride, it occurred to me to try the method in cases of pleuritic pain. The effect proved to be pronounced and immediate, and the relief experienced by the sufferers distinctly gratifying.

The method is simplicity itself, consisting in locating the pain so far as possible, which, generally speaking, is not difficult, and spraying a patch over it about 2 inches square with ethyl chloride till blanching occurs. Often a single application is enough, but in cases of very sharp and severe pain which is only mitigated and returns in a short time further applications may be made. I should think it is worth while to call—or maybe to recall—the attention of the profession to this extremely simple and apparently harmless method of relieving what is often a most distressing symptom.

I should be interested to hear of the effect in pneumonia and allied conditions, as my own experience is for the most part limited to pleuritic pain arising in connexion with tuberculous lesions. No doubt there are a number of other conditions amenable to this form of therapy. For instance, one patient recently, who had severe pain over the right frontal region due to sinusitis, experienced immediate relief. In this case it was, of course, necessary to shield the eye itself from the spray.—I am, etc.,

NORMAN MACDONALD.

Diphtheria during Immunization

SIR,—It would be a pity if such a case as is recorded by Dr. G. A. Garrett (Jan. 23, p. 102) were to be numbered under the above heading. The case is clearly one of follicular tonsillitis in one who was a carrier of the Klebs-Loeffler bacillus. There was no clinical diphtheria, which would have required both notification and antitoxin. There is no evidence that a prophylactic activates a dormant bacillus. The suggestion to swab all throats before inoculation and use antitoxin in cases with a positive finding is not a practical policy and would greatly interfere with prophylaxis. I had a nurse who was a carrier of K.L.B. who had to leave hospital and was in an infectious diseases hospital for three months to clear her throat, but it was found impossible to do so. Carriers are not all easily cleared of their variety of K.L.B. The diagnosis of diphtheria rests on clinical phenomena and not on the presence or absence on the swabs of K.L.B.—I am, etc.,

Southsea A. G. NEWELL.

Oestrogen Treatment of Diabetes

SIR,—I was very interested in the annotation on the oestrogen treatment of diabetes (Jan. 23, p. 107). It may interest you to note that I have observed in several cases the beneficial effects of the male hormone in reducing glycosuria and elevation of the blood sugar. One's observations on the male hormone in relation to this particular problem bear out what one has so often observed in other circumstances—i.e., that the male hormone is less an antagonist of the female than an equivalent and sometimes a dominant. Expressed otherwise, in some conditions—e.g., post-involutional depressions in women—where you get a good result with the oestrogens, you can often anticipate an even better result if you switch over to testosterone. I have observed the beneficial effect of testosterone in other conditions—e.g., thyrotoxic states.

I am convinced that the future will reveal a far more ubiquitous usefulness for sex hormones, particularly the male. I feel that one is a little too diffident in experimenting with these problems in widely differing conditions. One feels illogically that one is utilizing something like a "cure-all." I think we shall find that the sex-gland products are among the most ubiquitously useful of all therapeutic agents, and that inability to recognize this fact is responsible for a great deal of retardation in the development of therapeutics. For instance, despite the fact that it is established that in certain cases of hyperpiesis the hormones, the oestrogens in particular, will reduce blood pressure with the most beneficial effects where nothing else will, I encounter such cases, not by any means frequently, but steadily and persistently, and it surprises me greatly that such methods are not more widely used.—I am, etc.,

Bath A. GUIRDHAM.

Thrombophlebitis of the Cavernous Sinus

SIR,—Dr. A. R. C. Doorly, in his interesting account of a case of thrombophlebitis of the cavernous sinus (Jan. 9, p. 42), discusses the surgical treatment of the established condition and of the local lesion, concluding that the safest course is the combination of sulphathiazole therapy with repeated transfusions. There remains one simple surgical measure of very considerable value in the prophylaxis of cavernous sinus involvement which he does not mention, although its timely employment may entirely avert that grave complication. I refer to ligature and division of the angular vein, whose tributaries include the small veins of the ala nasi. Mr. Hamilton Bailey, discussing the indications for this operation (*Emergency Surgery*, 4th edition, p. 559), says: "... the necessity for timely interference must always be before us. On the whole it is better to err on the side of activity. A sign which foretells impending danger is oedema spreading from the lip to the inner canthus, and this is usually found in the presence of suffusion of the eyelids. As far as my own observations have gone, the premonition is invariably unilateral. If in addition to this sign there is considerable elevation of temperature, the call for action is imperative."

It is, of course, impossible to determine whether in the case described ligature and division of the left angular vein on the second or third day would in fact have prevented cavernous sinus thrombophlebitis, but this operation deserves a place in any consideration of the treatment of pyogenic facial infections in the danger area.—I am, etc.,

D. STAFFORD-CLARK.

Measles associated with Unusual Nervous Signs

SIR,—The following report of a case of measles associated with unusual nervous signs may be of interest.

The patient, a girl of 4, was seen six hours after the appearance of the rash. She was tossing violently about in bed. Examination revealed this to be due to vigorous pronation–supination movements of the limbs on the left side. The head was rapidly following the direction of these movements. The child was semi-conscious, and there was urinary and faecal incontinence. The mother stated that these signs all came on suddenly about an hour before my arrival. A history of repeated attacks of vomiting since the previous day was obtained, but nothing abnormal was discovered on abdominal examination.

The temperature was 101° F., pulse rate 112, and respirations 32. The rash was typically morbilliform in appearance and distribution, and was accompanied by the usual catarrhal signs. There was no neck rigidity, nor could Kernig's sign be elicited. Tendon jerks on the affected side could not be estimated due to the violent muscular movements, and were absent on the opposite side. There was a weak extensor plantar response on the affected side, and a normal flexor response on the other. Both pupils were dilated and equal and sluggishly reactive to light. The cutaneous abdominal reflexes were present and brisk. The cheek muscles on the affected side were markedly less prominent than those on the other, but there was no facial paralysis. The mother stated that the discrepancy in the size of the cheeks had been present from birth. The confinement had been normal, no instruments were used, but the child had had "violent muscular twitchings" for four days after delivery. These had then subsided, and the child made normal progress, although it was "slightly backward in its speech" and "very perverse by nature." There was no history of any previous infectious disease, or of injury of any sort. The child was put on a mixture of sod. salicyl., tinct. camph. co., and pot. brom.

The next day (second day of the disease) the patient was much better generally. The muscular over-activity had completely subsided, but there was flaccid paralysis of the limbs on the affected side. The tendon reflexes could not be elicited on either side, but there was a very marked extensor plantar response on the affected side. The opposite plantar response was normal. The pupils were still dilated, but reaction to light was good. Vomiting had ceased, also incontinence. The temperature and pulse were similar to the previous day, but the respirations were down to 24 per minute.

On the third day the general improvement was maintained. The temperature was 99° F., pulse 92, respirations 20. The tendon jerks were present, but weak on both sides. The plantar extensor response was vigorous on the affected side. The limbs on this side were markedly improved. The child was able to raise its arm through an angle of 60 degrees, and could hold a small article (i.e., coin) in its fingers, which it could not do on the previous day. It could also slightly raise its leg. On the fourth day the child appeared a normal fourth-day measles, the only remaining abnormal C.N.S. sign being a Babinski on the left side, and this was much less vigorous than previously. Complete range of movement had returned to the left arm and leg. On the fifth day the Babinski was replaced by a flexor response, and from then onwards the child progressed normally, all abnormal C.N.S. manifestations having completely disappeared.

Osler states that out of 120 cases of measles complicated by hemiplegia, only four developed the nervous signs during the course of the fever, and the condition usually persisted. In this case all abnormal signs had disappeared by the fifth day.—I am, etc.,

Leicester. C. M. WARNOCK.

Prevention of Sterility

SIR,—Dr. E. Schleyer's three comments on the prevention of sterility (Jan. 16, p. 71) are timely, but I do feel that he has merely touched on the fringe of this important subject. All medical men are aware of the scientific reasons for sterility and the appropriate treatment, but very little attention has been paid to the non-scientific but nevertheless important group of apparently sterile marriages.

1. The couple who are over-anxious to have a child adopt excessive coitus, which results in complete saturation of the vagina with seminal fluid and vaginal secretions, which trickle out of the vagina. Secondly, excessive copulation has an adverse effect on the nerves of the man and woman, which soon leads to disharmony and marital quarrels. This affects the wife deeply, and she, unhappily, dislikes the mating. This method can result in conception, but to both partners it is a nerve-wracking business and not a pleasure. Treatment is based on an explanation on the lines of the above, and separation of the couple for a time: if this is not practicable, avoidance of coitus for a time.

2. The couple who for financial reasons or even selfish reasons adopt methods of contraception and then at a later date decide to have a child. The flora of the vagina and even the normal secretion have become changed by contraceptives or by chemical douching after the act. These substances and/or the changed flora militate against the normal activity of the spermatozoa. (This does not occur with the sheath or Dutch cap.) Treatment: Douching with plain warm water; an active outdoor life; good wholesome food with an adequate amount of fat.

3. The woman who as a result of hypersensitivity and/or sensuality has a firm and prolonged "vaginismus" which at the climax expresses the seminal fluid. Treatment: Avoidance of parties, cocktail or otherwise; in other words, a quiet, ordered life; bromides; instruction of the husband how to promote an early climax in his wife so that his orgasm occurs after hers.

Having decided the cause of the apparent sterility, there are five further considerations for the family doctor. (*a*) Age—A woman in her forties may be passionately devoted to children in the abstract, but when confronted with a yelling infant of her own who requires constant attention now finds herself tied down and not able to be a companion to her husband, who finds it more comfortable to be out. Of course the maternal and infant risk is great. (*b*) Past and present health of the mother to be—albuminuria of pregnancy, for example. (*c*) The pelvic measurements—It would be very unpleasant to inform the mother that the created baby can only be delivered by Caesarean section (to a layman this is a major catastrophe). (*d*) A family history of tuberculosis, mental disease, etc. (*e*) Financial.

Lastly, I have been faced with the problem of the wife who desires a baby before her husband goes abroad. The method I have adopted is purely mechanical, and the advice given has been successful in nine cases out of eleven apparently sterile marriages. Five young couples had been married only a short time; two cases had been married five years, one six years, and one eight years. The method adopted is as follows. The woman places one or two pillows beneath her buttocks and coitus takes place. This allows deeper penetration and seminal fluid is thrown deep into the vagina and even over the os. The woman remains in this position for the rest of the night. The most fertile time is believed to be two weeks before the period and after, or at such time when the woman is "desirous of coitus." The above idea I think is not entirely original.—I am, etc.,

Boston, Lincs G. R. DARLEY-USMAR.

Dietetics of Pregnancy

SIR,—Mr. R. B. Fisher (Jan. 30, p. 144) is mainly critical of the results of certain field experiments. Among other statements is the following: "The work of the People's League of Health has been dealt with ably and forcibly by Doyne Bell in a discussion at the R.S.M. and has been reported on in your columns. I would refer your readers to the full report in the current issue of the *Proceedings of the Royal Society of Medicine.*"

The statement made by Dr. Doyne Bell which related to the investigation by the P.L.H. was as follows:

> "A research also addressed to the problem of the effect of diet upon the infant was initiated before the war by the People's League of Health, and an interim report has been published in the *B.M.J.* and the *Lancet*. Unfortunately the concept of prematurity, defined as birth before the 40th week of gestation, has been used as a yardstick to measure the success of the changed diet. In order to try to assess the suitability of such a yardstick for this purpose, I have, with the permission of Mr. Eardley Holland, taken a random series of 147 babies born in the London Hospital in 1938 and 135 babies born in 1942 and have made a histogram of their estimated gestation periods. . . . It will be seen that in 1938 the estimated gestation periods are distributed normally about the 40th week with a standard deviation of approximately ±10 days—that is, between 3 and 4%.
>
> "This observation leads to the expectation that one-eighth of all normal gestations will terminate before the 40th week. I venture to suggest that the differences of 3.8±1.10% for primigravidae and 4.1±1.33% for the multiparae achieved by the dietetic methods adopted in the work sponsored by the People's League of Health are probably of no significance. My conclusion is reinforced by their admitted failure to influence the birth weight of the babies."

As we were the statisticians who carried out this particular analysis we think it proper that we should give an answer to the criticism passed on this work. We think that Dr. Doyne Bell's knowledge of statistical technique is somewhat imperfect, because we have never even claimed the degree of statistical significance in our results which he ascribed to them. For example, the difference in the incidence of prematurity between treated and controls, primiparae, was 3.8%, and it had a standard error due to sampling of the magnitude of ±1.58, not ±1.10 as stated by him. He has erroneously regarded the standard error of a percentage as identical with the standard error of a *difference* between two percentages.

We admit that a significant increment in prematurity was unaccompanied by a significant decline in the mean birth weights, but there is nothing contradictory in this result. A difference of 3.8% between the respective primiparae groups represents an excess of 54 premature births, and it is unlikely that this number would influence significantly the mean birth weight of the control series based on 1,512 observations (especially as all premature babies are not subnormal in weight).

As regards Dr. Doyne Bell's own data for the London Hospital, he states that in the statistics for 1938 "the estimated gestation periods are distributed normally about the 40th week." This statement is not correct, because, in point of fact, 22% of the observations were under 40 weeks and 54% over 40 weeks. It would be interesting to discover the statistical basis for his statement that "one-eighth of all normal gestations will occur before the 40th week." What is meant by normal in this instance? If it were a normal distribution, then 50% of the observations would occur before the mean value of 40 weeks. But the actual distribution recorded by him does not follow the normal curve; it is not even symmetrical. We maintain that there is no justification for his particular statements.—We are, etc.,

W. T. RUSSELL.
W. J. MARTIN.

London School of Hygiene and
Tropical Medicine.

Obituary

SIR STCLAIR THOMSON

Dr. DOUGLAS GUTHRIE writes: It is hard to realize that Sir StClair Thomson has left us. His genial presence, his unaffected simplicity, his wide grasp of affairs, and his many interests made him a delightful friend whom it was always a real pleasure to meet. Those of us, and many we are, who accepted his kindly hospitality in Wimpole Street can never forget him as the perfect host who loved to converse with his guests in his own inimitable fashion, or to show them, with pardonable pride, some of the treasures of his charming home. Young specialists from the Provinces, distinguished foreigners, and London colleagues were all equally welcome, for he was the first to entertain the stranger when any meeting relating to laryngology was held in London. Since coming to Scotland two years ago he had renewed old friendships and had made many new acquaintances, as was natural to one so approachable and so friendly. Before settling in Edinburgh he spent some months in his native county of Argyllshire, but, as he remarked to me, he found it "too quiet for a young fellow like me." Despite his 80-odd years his heart was ever young and he loved the society of youth. An invitation to address the Students' Medical Society of Edinburgh University gave him the keenest satisfaction, his pleasure being shared by all who were privileged to hear his sparkling description of "A House-surgeon's Memories of Lister." It was characteristic of Sir StClair Thomson that one of his last acts was to visit in a sanatorium near Edinburgh a medical man suffering from tuberculosis of the larynx. "Not that I can do much for him," he remarked, "but I can at least tell him of my own experience, and that always cheers a patient up." Sir StClair Thomson was the embodiment of cheerfulness; and what sweeter memory could he leave with us, his friends and colleagues?

Dr. ALFRED COX writes: The tributes to Sir StClair Thomson in the *Journal* are a graceful and fitting memorial to a great doctor, but I miss any reference to his particular services to our Association, which were many. I do not allude to his official connexions with our Annual Meetings, but to those services which are unrecorded. When I was Medical Secretary I often had to appeal to him for help and never in vain. Once, when the Section of Laryngology seemed likely to be a failure owing to certain personal difficulties, he intervened at my request at the last moment and succeeded in steering us round a very awkward corner. Nobody but he could have done it. And those who were present at the Annual Meeting Dinner at Winnipeg could never forget the way in which he intervened at a critical moment when disaster seemed to be imminent. The room was very crowded; some of those at the back had difficulty in seeing and hearing; there had been two very long and rather dreary speeches; and the younger and more remote sections of the dinner party began to be decidedly restive. The President changed the order of the toast, called on Sir StClair Thomson, and in two sentences he had the whole company cheering and laughing. I have heard of similar instances, but this one remains deeply impressed on my mind. Tact and a supreme gift for diplomacy and friendliness were among his great gifts. I doubt whether there was any man in our profession in his time more deservedly popular and loved than he was.

ROBERT HENRY PARRY, F.R.C.S.ED.

The death of Mr. Robert Henry Parry, which occurred in London on January 22, will stir feelings of regret in many who recall their memories of the Glasgow School in the period 1890–1920. Not favoured by early fortune, he overcame by ability and by hard and sincere work many difficulties, and reached an established and recognized position as a surgeon and teacher in Glasgow and the West of Scotland. In one respect he was granted a special opportunity, for he lived in the day when a new hospital was built—the Victoria Infirmary, Glasgow—and he was appointed by a courageous board of directors as surgeon in independent charge of wards at a comparatively early age. By the quality of his work he promptly justified this appointment, and soon, developing his natural teaching ability, he attracted many students both to his clinic and to his class-room. From this developed naturally a rapidly growing consulting practice, while by his manifest sincerity and readiness to co-operate Parry was always on excellent terms with his colleagues. He cultivated a wide sympathy in the practice of surgery, and was a bold and skilful operator.

When he retired to the South of England in 1923 he had hoped to collect for publication a record of his accumulated experiences, and to cultivate laboratory research work. Unfortunately his health soon failed, and for several years before his death he was an almost helpless invalid. Hence his published contributions to surgery are relatively few in number, but in them may be recognized the thoroughness and enterprise well known to his contemporaries. It is mainly through his work at the Victoria Infirmary and at the Royal Hospital for Sick Children and through his pupils, whose devotion and gratitude to him never failed, that Parry made a valuable contribution to his day and generation. He became a member of the B.M.A. in 1888 and took an active part in the Annual Meeting at Glasgow in 1922. By his colleagues he was elected to many positions of responsibility and honour, and many of these will recall memories of his loyalty and good-fellowship. In his home and family life Parry found both help and solace, and to his widow and his two sons many friends will desire to offer an assurance of sympathy and regard.

C. O. H.

CHARLES JOHNSTON-SMITH, C.B.E., F.R.C.S.ED.

The death of Prof. Charles Johnston-Smith at the age of 62 in St. Mary's Hospital, London, on Jan. 25 will be a source of grief to many medical men who knew him in the Far East, where he occupied an eminent position in surgery for many years. Son of an Edinburgh schoolmaster, he was educated at the Royal High School, Edinburgh, and at Edinburgh University, where he graduated M.B., Ch.B. in 1904 and proceeded to the F.R.C.S. in 1909. After occupying various surgical posts in England he went to Malaya in 1911 and joined the Government medical service. At first he worked in the small town of Seremban, and had a splendid surgical clinic there. Later he moved to Singapore, where he was senior surgeon in the general hospital and professor of surgery at the Singapore School of Medicine. He was a most dexterous and courageous surgeon, and on more than one occasion successfully sutured a cardiac wound. He made many technical improvements in the operation of splenectomy. Johnston-Smith had a commanding and distinguished appearance, the embodiment of the popular idea of a surgeon. His kindliness to his patients and all around him, and especially to the newly arrived house-surgeon, made him a much-loved man. Although deafness was a great handicap it did not make him remote, and the picture of him with hand "capped" over his ear and kindly smile will long be remembered. Notwithstanding his long stay in the Tropics and his poor health he started in surgical practice in Guernsey in 1936, the year after he retired from Singapore, and was soon as popular on that island as he had been in Singapore. He was surgeon to the Victoria Hospital, Guernsey. His life was a long struggle against pulmonary tuberculosis, which eventually claimed him, after thirty years of battling against it. His ending was particularly sad, for his wife, Kathleen, to whom he was devoted, was a prisoner in Guernsey and his two daughters were far away when the end came.

Dr. **ORBY RUSSELL MORGAN WOOD**, who practised for many years at Woolpit, Suffolk, was the son of the Rev. Dr. Wood of Woodbridge and received his medical education at the University of Edinburgh, taking the Scottish triple qualification in 1889 and the M.B., C.M. degrees in 1890. Dr. Wood joined the B.M.A. in 1893, was a member of the Central Council from 1913 to 1918, and represented his constituency at five Annual Representative Meetings. He was vice-chairman and a member of the executive committee of the West Suffolk Division from 1914 to 1919 and represented his Division on the Suffolk Branch Council in 1920 and 1921. During the war of 1914-18 he served for three years as temporary honorary secretary of the Division. In 1921 he was elected president of the Suffolk Branch, becoming vice-president in the following year. After his retirement he was elected an associate member of the Branch in 1926.

Universities and Colleges

UNIVERSITY OF OXFORD

In a Congregation held on Jan. 21 the following medical degrees were conferred:

B.M., B.CH.—R. C. Evans, A. M. N. Gardner, J. K. Hawkey, A. M. Sweet, A. W. F. Erskine, D. C. Byron-Moore, G. M. T. Tate, F. E. Lodge, Margaret Myers, Renate H. Schulz, *D. F. Barrowcliff, *B. Bevan, *W. B. Matthews, *L. P. Le Quesne, *A. I. Spriggs, *E. L. Barr, *C. S. Gardner, *R. T. C. Pratt, *D. M. Strathie, *P. Vlasto, *D. J. Arkle, *Constance L. Simpson.

* In absence.

UNIVERSITY OF CAMBRIDGE

The titles of the degrees of M.B., B.Chir. have been conferred by diploma on H. M. Comely of Girton College and P. B. Shaw and Mrs. M. E. Wehner of Newnham, and that of M.B. on Mrs. P. M. Dobbs of Newnham.

UNIVERSITY OF LONDON

The University College Hospital Medical School announces that two Goldsmid Entrance Scholarships, entitling the holder to the final course of medical study, will be offered for competition in July. They are open to students who are preparing for the degrees of the Universities of London, Oxford, Cambridge, Durham, or other British universities, or for the diplomas of the Royal Colleges of Physicians and Surgeons; also one Goldsmid Entrance Exhibition and one Filliter Entrance Scholarship in Pathology entitling holders to a reduction by £80 and £52 10s. respectively of the fees due for the full course of final medical study. Notice of intention to compete must reach the secretary of the school (from whom full particulars can be obtained), University Street, Gower Street, W.C.1, by July 3.

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

A quarterly meeting of the Council was held on Jan. 30, with the President, Sir William Fletcher Shaw, in the chair.

The following were admitted: *To the Membership:* Janet E. Bottomley, Phillis Dingle, Marjorie O. Dunster, Christina McD. McTaggart, L. Resnick, G. S. Sturtridge, K. G. P. Worner.

CONJOINT BOARD IN SCOTLAND

The following candidates, having passed the final examinations, have been granted the diploma of L.R.C.P.Ed., L.R.C.S.Ed., L.R.F.P.&S. Glas.:

M. W. Awad, J. D. H. Bankier, Margaret Barker, J. S. Bateman, C. E. Bell, J. M. Bolton, J. N. G. Burns, D. S. H. Cadzen, N. A. Chisholm, R. P. Cookson, J. H. Couper, Margaret M. A. Dunn, O. Ellabewitz, Margaret S. Elliot, G. St J. Frost, M. Gaines, S. J. Halkett, I. Hamilton, Isobel M. Hill, Regina Kemmerling, A. Manson, T. Notman, J. J. Polland, R. K. Richardson, J. T. Rossouw, G. Solomons, G. P. Stulley, I. Turnbull, H. W. Weisman, S. Wiederlight.

G. C. Laszlo, a graduate of a recognized foreign university, was also admitted a licentiate.

The Services

A Bar to the M.C. has been awarded to Capt. J. S. Lancaster, M.C., R.A.M.C., and the M.C. to Capt. (temp. Major) A. M. George and Capts. M. S. Chayen, G. Dison, and C. F. Young, R.A.M.C., in recognition of gallant and distinguished services in the Middle East.

The King has conferred the Efficiency Decoration of the Territorial Army on Lieut.-Col. (temp. Col.) R. E. B. Rees, M.C., Major (temp. Lieut.-Col.) C. L. Broomhead, and Major E. White, R.A.M.C.(T.A.).

Lieut.-Col. Eustace Trevor Neave Taylor, I.M.S., has been appointed C.I.E. for services in the Burma evacuation. The official citation in a *Supplement* to the *London Gazette* dated Jan. 29 reads as follows:

> "Lieut.-Col. Taylor was posted in Feb., 1942, to Kalewa on the refugee organization, where, by untiring efforts, he succeeded in checking a cholera epidemic among the refugees which might have brought work on the India-Burma road to a standstill and resulted in great loss of life. On the advanced refugee camps being withdrawn he became responsible for the medical arrangements in the Manipur area, at a time when reductions of staff and the state of exhaustion and disease in which the refugees were arriving made his task particularly difficult. Before leaving he had re-established the civil medical administration in Manipur. Throughout he displayed tireless energy, complete disregard of hardship, and outstanding organizing ability."

Lieut.-Col. David Kenneth Llewelyn Lindsay, I.M.S., and Major William McAdam, I.M.S., have been appointed O.B.E. (Civil Division) for bravery and distinguished services in the Burma evacuation. The official citations in a *Supplement* to the *London Gazette* dated Jan. 29 read as follows:

> "Lieut.-Col. Lindsay did magnificent work when Lashio was bombed and, by his personal influence and leadership, kept his hospital functioning at full strength and dealt with, in addition to bomb casualties, a large number of evacuees and many Chinese military patients. Although heavy fighting was going on just south of the Lashio–Hsipaw road and it was not clear how long the road would remain intact, he managed to get medical supplies to the Chinese military hospital at Hsipaw, which had been bombed and had lost all its stores. He then successfully evacuated the remainder of his patients from Lashio and stayed well in the rear, giving what medical help he could to the stream of refugees. After reaching Myitkyina he attempted to get medical supplies for the hospital Although well aware that the Japanese Forces were advancing rapidly along the Bhamo road, he went back 20 miles to the Kasu River, but was cut off and machine-gunned by the Japanese advanced guard He managed, however, to escape into China. His devotion to duty, cool fortitude, and courage during the Shan States retreat from the Japanese were of the highest order."
>
> "Major McAdam was in charge of the medical arrangements in the Chindwin area during the period of evacuation, and he contributed largely to the success with which disease along this route was kept at a minimum Although gravely handicapped by the state of the road and the lack of adequate transport, he was constantly on the move between Kalewa and Tamu, encouraging the medical staff at each of the camps, remedying, as far as he was able, deficiencies in equipment and medical stores, and generally helping the refugees on their way. He also assisted the military in the treatment and evacuation of casualties. His work was characterized by a calm devotion to duty in all emergencies."

CASUALTIES IN THE MEDICAL SERVICES

Prisoners of War.—Major S. C. Colbeck, I.M.S., Acting Major D. P. Dewe, I.M.S., Capt. A. K. Eastwood, R.A.M.C., Capt. J. E. Ennis, I.M.S., Temp Major G. A Graham, I.M.S., Acting Lieut.-Col. W. J. Leslie-Neal, I.M.S., Major S. G. Nardell, I.M.S., Lieut.-Col. L. G. Pearson, I.M.S., Capt. R. de Soldenhoff, I.M.S., Capt E. H. Wallace, I.M.S., Lieut.-Col. R. A. Warters, I.M.S., Capt E D. H. Williams, R.A.M.C.

Missing—Surg. Lieut. J. Robertson, R N

Medical Notes in Parliament

Tuberculosis Mortality

On Jan. 26 Mr. ERNEST BROWN informed Dr. Russell Thomas that the death rates per 1,000 of the total population from non-pulmonary tuberculosis in 1938 and 1941 in the following areas were:

	1938	1941 (Civilians only)		1938	1941 (Civilians only)
Glasgow	0.24	0.33	Radnor	0.10	0.18
Birmingham	0.08	0.11	Rutland	0.002	0.10
Liverpool	0.13	0.24	Pembroke	0.13	0.15
Manchester	0.14	0.19	Devon	0.10	0.12
Sheffield	0.08	0.11	Somerset	0.08	0.08
Leeds	0.12	0.10	Westmorland	0.08	0.14
Edinburgh	0.16	0.18	Bucks	0.08	0.09
Bristol	0.10	0.15	Dorset	0.10	0.07
Huntingdon	0.14	0.10	Bedford	0.10	0.11

The rates shown for 1941 must be regarded as being subject to varying and unknown degrees of distortion, owing to the fact that deaths occurring in institutions would have been assigned to the former areas of residence while the populations of such areas might have been materially diminished or augmented through evacuation or other war conditions.

The numbers of deaths of children under 15 years of age from non-pulmonary tuberculosis in 1938 and 1941 in the following areas were:

	1938	1941		1938	1941
Birmingham	36	50	Rutland	—	1
Liverpool	58	103	Pembroke	4	6
Manchester	49	55	Montgomery	4	1
Sheffield	22	34	Devon	14	23
Leeds	35	33	Wiltshire	11	25
Bristol	11	21	Somerset	8	21
Edinburgh	29	38	Westmorland	2	4
Glasgow	154	181	Bucks	13	19
Huntingdon	2	3	Dorset	14	11
Radnor	—	2	Bedford	16	20

On Jan. 28 Mr. DOUGLAS asked Mr. Brown to give the death rates from tuberculosis in the county of London for the years 1938 and 1941 respectively. Mr. BROWN said the special war-time conditions affecting population movements in London rendered any tuberculosis death rates for 1941 entirely misleading. Mr. DOUGLAS said the figures he asked for had been compiled by the county medical officer of health and published in the *British Medical Journal.* Dr. RUSSELL THOMAS asked if the figures published in the *British Medical Journal* did not show that the tuberculosis death rate in London had increased by 67% since the war. No answer was returned.

In reply to Mr. Thorne, Mr. BROWN said that in 1938 the number of deaths from non-pulmonary tuberculosis in the towns of Essex was 136, yielding a death rate of 0.079 per 1,000 population. For 1941 the available record related to civilians only, deaths and death rate being 163 and 0.126 respectively. Comparison of the two years on the basis of these figures was misleading, partly on account of selective recruitment for the Forces and partly because these towns, while depleted by evacuation, had been charged with the deaths of previous residents who died in institutions elsewhere.

Potato Flour

Mr. MABANE, replying to Major Thornton-Kemsley on Jan. 26, said that there were various methods of producing a satisfactory potato flour. His Department had, however, been anxious to avoid the construction of extensive new plant, and to find ways of utilizing existing plant, designed for other purposes but having the requisite capacity. Preliminary experiments with this object were begun at the outbreak of war. A fair measure of success had now been attained in large-scale trials. It would be appreciated, however, that the production of a suitable flour was only one of the factors to be considered in deciding whether or not to include potato flour in bread.

Maternity Provision by Local Authorities

On Jan. 26 Miss HORSBRUGH informed Mr. Thorne that according to the returns for 1941, which were the latest in the Ministry of Health, the hospitals with maternity provision carried on by local authorities, or with which the authorities had arrangements, and the nursing homes registered with them in the following districts were:

	Maternity Hospitals	Nursing Homes		Maternity Hospitals	Nursing Homes
Hull	1	7	Sheffield	4	15
Lincolnshire	14	10	Bradford	1	8
Manchester	3	19	Essex	18	81
Cheshire	12	70			

The Ministry of Health had also set up emergency maternity homes in the rural areas for use in wartime. Of these there were three in Cheshire, one in Lincolnshire, and one in Sussex There were also eight maternity homes or hospitals in Glasgow and 27 nursing homes.

Parliamentary Social Services Committee

Sir FRANCIS FREMANTLE has resigned the chairmanship of the Conservative Parliamentary Health and Housing Committee, which he has held for 21 years. Mr. S. Storey has been elected as his successor and the title of the committee has been changed to the Social Services Committee.

Shortage of Midwives

Mr. BEVIN, answering Sir Francis Fremantle on Jan. 28, said he was consulting Mr. Brown and the nursing and midwifery organizations to secure a better supply and distribution both of midwives and of nurses. Sir FRANCIS said the appeal made by Mr. Brown to nursing associations for midwives to remain as midwives had been useless. Many young nurses, after being trained as midwives, volunteered for general military service or went into munitions. Mr. BEVIN replied that Mr. Brown and he were attempting to organize that matter.

Expectant Mothers in Factories

Mr. HOGG asked on Jan. 28 whether the Minister of Health was satisfied with the steps taken to protect pregnant women engaged in employment in factories; and whether he was prepared to extend the present period in which employment was prohibited from one month after delivery to one of one month before and six weeks after delivery. Mr. BROWN replied that medical supervision under the Factory Acts was a matter for the Minister of Labour and National Service. Prohibition of employment was a matter for legislation. He had no authority to extend the period determined by Parliament. An extension of the prohibition could not be suggested without examination of the financial provision to be made for the women in question. Recommendations on this point were contained in the Beveridge report.

Diphtheria Immunization

Mr. LEACH, on Jan. 28, asked whether Mr. Brown knew that a boy aged 11 years developed a rare form of encephalitis after inoculation against diphtheria; that this boy was perfectly healthy until his first inoculation on July 7, 1942; whether the symptoms of encephalitis that caused his death some six weeks later began to develop after the second inoculation on August 11, 1942; how long he remained paralysed; and why this boy's death was not attributed to antidiphtheria inoculation. Mr. BROWN said he knew of the facts. There was a varying state of paralysis during the six weeks before the boy died. The coroner, with post-mortem medical evidence before him, did not find that the very rare form of encephalitis to which death was attributable had any association with inoculation against diphtheria.

Assistant Director of Hygiene at War Office

Replying on Jan. 28 to Dr. Morgan, Sir JAMES GRIGG said the adviser on venereology to the War Office held the full-time appointment of Assistant Director of Hygiene at the War Office with the rank of lieutenant-colonel. His duties were to advise on the prevention, diagnosis, and treatment of venereal diseases in the Army. His pay and allowances totalled about £1,300 a year. This officer was a member of the Regular Army Reserve of Officers. He reported for service on Sept. 1, 1939, under the conditions of his Reserve liability, and was appointed to his present post on Nov. 25, 1939. The appointment was not advertised. Officers of the R.A.M.C. were not allowed to set up in practice in competition with civil medical practitioners, but might see patients in a consultative capacity provided that did not interfere with their military duties.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* the downward trend of measles continues, with 496 fewer notifications than in the previous week. There was a large rise in the incidence of the other infectious diseases of childhood: scarlet fever up by 246, whooping-cough by 337, and diphtheria by 234. These figures represent rises on the totals of the preceding week of 12.5%, 22.4%, and 30.6% respectively. A further substantial rise of 210 cases, 17.5%, occurred in the incidence of acute pneumonia.

The North and Wales were the most affected areas. The biggest rises were: scarlet fever—Lancashire 81, Yorks West Riding 64; diphtheria—Yorks West Riding 91, Wales 45; whooping-cough—Wales 70, Lancashire 50, Staffordshire 39, Yorks West Riding 30; acute pneumonia—Lancashire 82, Yorks West Riding 47. The rises were fairly generally distributed, but there were some large local outbreaks—of diphtheria in Yorks West Riding, Batley M.B. 53, and Denbigh, Wrexham M.B. 24; and of whooping-cough in Montgomery, Llanfyllin R.D. 31.

The decline in the incidence of measles was mainly in the North. The largest of the decreases were those of Yorks West Riding 223, Lancashire 214, Staffordshire 159, Leicestershire 153, Durham 98, Derbyshire 88, Lincolnshire 84, Hampshire 82, Cheshire 67, Warwickshire 56. A rise in the incidence was recorded in London 120, Hertfordshire 68, Middlesex 51, Bedfordshire 47, and in Wales 89.

Dysentery increased in incidence from 14 to 31 cases in Lancashire (Blackpool C.B. 11, Blackburn R.D. 11), from 4 to 11 in Surrey (Chertsey U.D. 8), and in Essex from 15 to 19 (Colchester M.B. 13). A drop was recorded in London from 18 to 11. The four counties accounted for over 63% of the total cases in the country. There was a rise of 17 on the previous week's figure.

In *Scotland* the only changes of note were a fall of 78 in the notifications of scarlet fever and a rise of 40 in the incidence of acute primary pneumonia.

In *Eire* the large increase in the total of whooping-cough was due to delayed notifications: 75 cases occurring in November and December in a Dublin institution were included in this week's returns.

Influenza

A seasonal rise in the mortality from influenza occurs during the first months of the year, and following the expected trend the deaths from this disease have risen during the past few weeks. In the great towns 100 deaths were recorded during the week. It is nearly two years (March, 1941) since the mortality in a single week reached this level. Almost one-third more deaths have been reported in the first three weeks of this year than in the corresponding period of last year, but the number is only half of the total recorded in the same period of 1940 and 1939 and less than one-tenth of the 1937 level.

Returns for the Week Ending January 30

The notifications of infectious diseases in England and Wales during the week included the following: scarlet fever 2,272, whooping-cough 1,790, diphtheria 809, measles 12,601, acute pneumonia 1,528, cerebrospinal fever 113, dysentery 178, paratyphoid 33, typhoid 6. In the great towns 125 deaths were attributed to influenza.

No.3

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Jan. 23.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London) (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	92	8	27	1	4	136	6	25	3	6
Deaths		2	—				3	2		
Diphtheria	998	58	233	99	24	905	21	211	30	35
Deaths	19	1	6	4	1	31	2	4	4	2
Dysentery	113	11	25		—	103	4	37		—
Deaths			—	—	—			—	—	—
Encephalitis lethargica, acute	2	—	1		—	3	—	1		—
Deaths		—	—				—	—		
Erysipelas			60	16	2			58	7	1
Deaths		—	—				1	—		
Infective enteritis or diarrhoea under 2 years				18						
Deaths	37	—	8	6	2	42	9	5	—	1
Measles	11,827	750	375	6	38	969	143	96	86	5
Deaths	16	—	1	1	—	—	—	—	—	—
Ophthalmia neonatorum	69	4	24		2	83	7	11	1	—
Deaths										
Paratyphoid fever ..	1	—	2	—		9	—	1	—	
Deaths		—	—	—	—	—	—		—	
Pneumonia, influenzal*	1,404	86	22	5	6	1,158	71	18	1	14
Deaths (from influenza)	100	13	6	2	1	74	10	5	1	3
Pneumonia, primary .			316	22				371	22	
Deaths		—		23	12		94		11	17
Polio-encephalitis, acute	—	—				2	—			
Deaths		—					—			
Poliomyelitis, acute ..	3	—	3	8	—	7	—	1	2	1
Deaths		—	—				—	—		
Puerperal fever ..	—	2	12	3	—	—	—	14	—	—
Deaths		—					—			
Puerperal pyrexia ..	187	16	19		3	145	14	25		8
Deaths										
Relapsing fever ..	—	—			—	—	—			—
Deaths ..										
Scarlet fever	2,203	158	361	38	57	1,076	33	216	35	16
Deaths	1	—	2	—	—	—	—	—	—	—
Small-pox	—	—	—		—	—	—	—		—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever† ..	7	1	2	3	1	9	2	2	10	1
Deaths	—	—	—	—	—	—	—	2		
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths			—	—	—			—	—	—
Whooping-cough ..	1,841	133	129	120	8	1,512	176	60	54	25
Deaths	12	1	2	6	—	10	2	3	—	
Deaths (0-1 year) ..	440	51	80	66	30	416	51	77	29	36
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	5,832	1,046	730	280	150	6,075	1,003	763	251	170
Annual death rate per 1,000 persons living)			16·5	18·4	‡			17·2	16 7	‡
Live births	6,251	797	949	383	286	4,423	455	687	287	198
Annual rate per 1,000 persons living ..			19·4	25·2	‡			14 2	19 1	‡
Stillbirths	249	17	46			190	14	44		
Rate per 1,000 total births (including stillborn)			46					60		

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes paratyphoid A and B for Northern Ireland.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available

Medical News

A meeting of the Tuberculosis Association will be held at 26, Portland Place, W, on Friday, Feb 19, at 2.45 p.m., when a colour film on "The Treatment of Pneumonia" will be shown, and there will be a discussion on the report of the M.R.C Committee on Tuberculosis in Wartime.

A lecture entitled "Belief," arranged by the British Institute of Philosophy, will be given by Prof. H. H. Price, Wykeham Professor of Logic in the University of Oxford, at University Hall, 14, Gordon Square, London, W.C.1, on Feb. 19 at 5 p.m. Cards of admission may be obtained free of charge from the Director of Studies at University Hall.

A meeting of the Middlesex County Medical Society will be held at Hillingdon County Hospital, Uxbridge, on Saturday, Feb. 20, at 3.30 p.m. The programme is as follows: Mr. L. Fatti: "Extra-pulmonary Bronchial Cysts"; Dr. E. B. Jackson: "Schaumann-Boeck's Sarcoidosis," discussion to be introduced by Dr. C. Alan Birch and Dr. A. C. Counsell; Mr. H. Hanley: "Stress Incontinence in Women." Visitors, especially members of the American and Canadian Forces at present in this country, will be welcome.

A meeting of the Diagnosis Section of the Faculty of Radiologists will be held at 32, Welbeck Street, W., on Saturday, Feb. 20, at 10.30 a.m., when Dr. J. Blair Hartley and Major Eric Samuel will open discussions on "Stress Fractures" and "The Significance of Some Developmental Abnormalities of the Hip-joint" respectively.

A London Conference on Health, arranged by the London Trade Union and Labour Movement, will be held on Sunday, Feb. 21, at Conway Hall, Red Lion Square, London, W.C.1, from 2.30 to 7.30 p.m. At the first session Dr. T. O. Garland will speak on health in industry, and at the second Dr. Joan McMichael will open a discussion on health in the boroughs. The conference fee is 1s.

The Charter Centenary meeting of the Pharmaceutical Society of Great Britain will be held at 17, Bloomsbury Square, W.C., on Thursday, Feb. 18, at 7 p.m., when the president, Mr. W. Spencer Howells, will give an address.

A demonstration of postural and remedial exercises, including the showing of the R.A.F. film "Fighting Unarmed," has been arranged by kind permission of the Air Ministry, at the Seymour Hall, Seymour Place, Bryanston Square, London, W.1, on Wednesday, March 3, beginning at 6 p.m. All registered medical practitioners are cordially invited to attend. Admission is free by ticket, obtained on application to the Acting Secretary, Board of Registration of Medical Auxiliaries, B.M.A. House, Tavistock Square, London, W.C.1.

Tuberculosis officers of local authorities are to be asked to furnish reports on the condition of ex-soldiers who are in receipt of a disability award for pulmonary tuberculosis contracted during peace-time service, and who are at present periodically examined by a medical board. A Ministry of Health circular (No. 2757) states that it is hoped thus to obviate the need for regular attendance of these men at medical boards. The report, for which 5s. will be paid, will be made, in response to a request from the Army medical authorities, on Form 228 and should be returned as directed together with a claim on Army Form P.1922 for the fee.

The publication of several reports which have attracted wide attention (including a memorandum summarizing official policy on A.R.P., and an address by Prof. J. A. Ryle on "Hospitals and Air Raids"), the issue of Press announcements, and monthly committee meetings addressed by invited speakers were a few of the many activities during 1942 of the National A.R.P. Co-ordinating Committee. The committee has also stimulated local conferences on Civil Defence all over the country, and has carried out an investigation into the state of the "public knowledge of A.R.P." which, in the committee's view, is regrettably low.

Application is invited for Leverhulme Research Fellowships and grants in aid of research. They are intended for senior workers who are prevented by routine duties or pressure of other work from carrying out research. They are limited to British-born subjects normally resident in Great Britain. In exceptional circumstances the condition as to residence may be waived. The trustees will also consider applications from groups of workers engaged upon co-operative programmes of research, particularly from those engaged upon long-distance programmes or in institutions in which the normal facilities for research have been curtailed by the war. The duration of the awards will not normally extend over more than two years or less than three months, and the amount will depend on the nature of the research and the circumstances of the applicant. Forms of application may be had from the secretary, Dr. L. Haden Guest, M.P., Leverhulme Research Fellowships, Unilever House, Blackfriars, London, E.C.4. Applications must be received by March 1.

There is an acute shortage of accommodation for maternity cases in several areas in Yorkshire in both private and municipal institutions. Leeds Maternity Home has had to refuse bookings for 400 cases during the last 3 months; and all its beds are taken for 2 or 3 months ahead. Among the steps being taken to meet the situation are the opening of 50 to 80 beds at St. Mary's Infirmary, Leeds, the adaptation of three wards at the Staincliffe County Hospital, and the establishment of a maternity unit at Otley County Hospital. The reasons for the shortage are given as the increased population of the cities, the greater demand for institutional confinement (Halifax General Hospital had 1,200 maternity cases last year), and the fact that beds are still kept for air-raid casualties.

An Association for the Advancement of Psychoanalysis has recently been founded in New York.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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LETTERS, NOTES, ETC.

Control of Venereal Disease

Dr. LENNOX JOHNSTON writes: The suggestion implicit in Dr Margaret Rorke's letter (Jan. 9, p. 53) of the desirability of re-educating the public about venereal disease and sex is, I think, supported by a case which has come to my notice. The patient, a man of about 35 who had contracted syphilis, committed suicide. Patients at the treatment centre became aware of his complaint, and in this way his fellow-workmen also knew what was wrong with him, and accordingly their attitude underwent a change which hurt him deeply. This, I believe, was largely responsible for his suicide. I think that education on sex and venereal disease would best be carried out over the wireless. Weekly talks by medical psychologists on the many practical problems connected with sex, and occasional talks on venereal disease, would quickly take from sexuality the shame and guilt with which, owing principally to the taboo, it is so often associated, and which are the underlying psychological barriers to the adequate control and treatment of venereal disease.

Medical Aspects of Workmen's Compensation

Dr. G. F. WALKER (Peterborough) writes: The review of Dr. Jordan's book (Jan. 2, p. 13) contains two statements which cannot be allowed to pass without comment. Your reviewer states that no volume similar to this has yet been written or published in the United Kingdom. May I draw attention to the fact that my own book, *The Injured Workman*, was published in Bristol in 1933. There are, of course, several other books quite well known to those familiar with workmen's compensation and all written and published in the United Kingdom. Your reviewer's second proposition that the medical profession have not hitherto regarded workmen's compensation as important is almost too naive to be dealt with.

Safe Milk and Milk Products

Dr. WILLIAM HUNTER (Newcastle-upon-Tyne) writes: Following the plea of Dr. Arthur G. Watkins (Jan. 30, p. 140) for a safe milk supply, and looking ahead, may I suggest that steps should also be taken to ensure that milk products, such as butter, cream, ice cream, and cheese, will also be made to conform with reasonable standards of cleanliness and safety.

Disclaimer

Dr. A. KERR CLARKSON wishes to emphasize that the statement attributed to him in press reports of a lecture he gave on accident prevention to the Industrial Welfare Society recently is entirely incorrect.

BRITISH MEDICAL JOURNAL

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HAEMOGLOBINOMETRY AND THE USE OF THE HAEMATOCRIT

A REPORT TO THE TRAUMATIC SHOCK COMMITTEE OF THE MEDICAL RESEARCH COUNCIL

[The Committee on Traumatic Shock, appointed by the Medical Research Council, recently nominated a Subcommittee on Analytical Methods to advise, among other things, on methods for estimating haemoglobin and on the use of the haematocrit. The Subcommittee was asked to consider the estimation of haemoglobin both from the point of view of accurate haemoglobinometry, and from that of the standardization of one of the rapid methods commonly employed for clinical use. In the report which follows these two aspects of the problem are dealt with under separate headings.]

I. THE PRESENT STATE OF UNCERTAINTY IN ACCURATE HAEMOGLOBINOMETRY

A. Haemoglobin Chemistry

To make clear the difficulties of accurate haemoglobin estimation a short statement of what is at present known about haemoglobin chemistry is necessary.

In the venous blood of normal men haemoglobin exists mainly in two forms—oxyhaemoglobin (O_2-Hb) and reduced haemoglobin (Hb). The ferrous iron of Hb and O_2-Hb may be oxidized *in vivo* and *in vitro* to ferric iron, to form methaemoglobin (met-Hb) (Conant and Pappenheimer, 1932; Conant, 1933). It is probable that small quantities of met-Hb (not infrequently 2 to 3% and occasionally as much as 10% of the total haemoglobin) also exist in the blood of some normal persons (Ammundsen, 1941). Carbon monoxide forms an additive compound with haemoglobin, for which it has about 210 times the affinity of oxygen. Small quantities (e.g., 1 to 3%) of carboxyhaemoglobin (CO-Hb) may be formed in the bloods of normal men exposed to very small concentrations of CO—e.g., city dwellers and smokers. CO-Hb and met-Hb cannot carry oxygen to the tissues, but can be transformed relatively easily into Hb in the body. It is possible that small quantities of other forms of "inactive" haemoglobin (i.e., haemoglobin which does not transport oxygen) exist in normal blood.

In the blood of men suffering from certain poisons and intoxications larger amounts of "inactive" haemoglobin may be present. For instance, in those poisoned with CO 20 to 50% of the total haemoglobin may be CO-Hb (Peters and van Slyke, 1931a). During treatment with certain drugs (e.g., phenacetin, sulphanilamide) appreciable quantities of met-Hb and sulphaemoglobin (S-Hb) may be formed. The bloods of patients given large doses of sulphanilamide not uncommonly show 10% met-Hb, rarely 10% of S-Hb (Harris and Michel, 1939). Very occasionally as much as 30% of the total haemoglobin may be met-Hb. S-Hb, once formed, apparently cannot be changed into "active" haemoglobin *in vivo*; its constitution is unknown. When red cells are ruptured and haemoglobin spills into the plasma methaemalbumin is formed (e.g., in blackwater fever and occasionally after sulphonamide treatment) (Fairley, 1941). It is possible that other forms of "inactive" haemoglobin exist in the bloods of patients.

If haemoglobin is treated with acid or alkali it is split into a brown pigment, haematin, and the protein globin. This brown pigment can be obtained crystalline in the form of its chloride, haemin, and is an iron porphyrin complex (Peters and van Slyke, 1931b). If dissolved in N/10 NaOH and treated with a strong reducing agent it combines with various organic bases to form a series of compounds, haemochromogens, with characteristic absorption spectra. These compounds are unstable, and exist only so long as the action of the reducing agent persists.

B. Methods Employed for Haemoglobin Estimation

(*a*) *Methods Involving Gas Analysis.*—In these the capacities of whole blood for various gases are taken as a measure of haemoglobin. Since methods of purifying, particularly drying, cause a progressive diminution in the gas capacity of haemoglobin, the true gas capacity of unit weight of pure haemoglobin has never been determined, only inferred.

1. The oxygen capacity of the blood may be determined with considerable accuracy by van Slyke's manometric method (Peters and van Slyke, 1932b) and with less accuracy by Haldane's method (Haldane, 1899). This measures only haemoglobin that combines loosely with oxygen.

2. By the former method the CO capacity of blood may be determined with accuracy (Peters and van Slyke, 1932c). This is a measure of Hb, O_2-Hb, and CO-Hb. If the blood is first reduced with sodium hydrosulphite ($Na_2S_2O_4$) and then immediately gassed with CO, met-Hb is transformed into CO-Hb, and is thus also estimated (Peters and van Slyke, 1932d). S-Hb cannot, however, be turned into CO-Hb.

The manometric methods in experienced hands give accurate highly reproducible results, but are not suitable for general use.

(*b*) *Colorimetric Methods.*—All accurate chemical colorimetric estimations are based on matching by eye the colours of sample and standard solutions viewed simultaneously on a photometer head. Errors may arise from inaccurate preparation of solutions, faulty design or use of instrument, or an unsuitable condition of the analyst's eye (Walsh, 1926; Guild, 1932). If such errors are controlled the limit of accuracy depends on the goodness of match of sample and standard colours. All colorimetric estimations need careful checking by some other method of estimation.

In colorimetric estimation of haemoglobin uncertainty arises, first, because it is difficult to be sure that the colours of either sample or standard solutions are those of one form of haemoglobin only. This is best illustrated by an example. In Palmer's method (Palmer, 1918) the colour of a standard solution of CO-Hb is matched with that of a standard dilution of whole blood gassed with CO. If either standard or sample solution contains appreciable quantities of met- or S-Hb uncertainty arises. For the presence of these compounds may alter the colours of such solutions, the matching of such colours may become less certain, and the significance of the match requires to be assessed before accuracy of estimation can be derived from it. Any substances other than haemoglobin which add colour to the dilutions of whole blood used in colorimetric haemoglobin estimations similarly cause uncertainty. For instance, it is claimed that substances in plasma add to the brown colour obtained when sheep's blood is diluted with N/10 HCl (Wu, 1922; Conant and Pappenheimer, 1932).

The second cause of uncertainty in colorimetric estimations of haemoglobin is the difficulty of obtaining standard solutions of sufficient permanence. Because of the complexity of the absorption spectra of haemoglobin and its derivatives (Newcomer, 1919; Drabkin and Austin, 1935) no artificial standard is satisfactory for accurate matching. The most satisfactory form of standard so far described is a dilution of whole blood thoroughly-gassed with CO. (See Section II B.)

The following haemoglobin compounds and derivatives have been used in the "accurate" colorimetric estimation of haemoglobin.

Hb Compound Used	Authors	Comment
Carboxy-haemoglobin	Haldane (1901) Palmer (1918)	Good colour. Most permanent of known Hb compounds, hence good standard 100% for Haldane's haemoglobinometer, recently standardized. Hb, O_2-Hb, and CO-Hb of blood all changed to CO-Hb. If blood first reduced with $Na_2S_2O_4$, met-Hb also to CO-Hb Requires CO gas
Cyan-methaemoglobin	Stadie (1920)	Fairly good colour. Standards keep fairly well but require standardizing by some other method. Hb, O_2-Hb, CO-Hb, and met-Hb all transformed to cyan-met-Hb Requires KCN solution
Acid haematin	Sahli (1931) Newcomer (1919)	Poor colour, taking some hours to develop fully. Standards usually artificial, often unsatisfactory, and require independent standardization. Simplest of methods Substances in plasma may add to colour. Colour probably related to total haemoglobin
Alkali haematin	Wu (1922) Clegg and King (1942)	Poor colour, better by photometric match. Permanent standard of haemin crystals. All Hb compounds, including S-Hb, are turned into alkali haematin. Simple Recent work (Clegg and King, 1942) has shown this method to have considerable promise; it may eventually prove more satisfactory than the Sahli method
Pyridine haemochromogen	Rimington (1942)	Fairly good colour, better by photometric match. Permanent standard of haemin crystals. All haemoglobin compounds changed to haemochromogens Smell of pyridine very unpleasant. All methods require solid $Na_2S_2O_4$, and difficult to be certain if this is effecting complete reduction of haematin
Other haemochromogens	Deutsch (1934)	

As noted above, all colorimetric estimations need careful checking by some other method. Because of the complexity of haemoglobin chemistry, colorimetric estimations of haemoglobin need doubly careful checking.

(c) *Photometric Estimations.*—The basis of all chemical photometric estimation is the matching by the eye of the brightness of two nearly identically coloured fields on a photometer head (Walsh, 1926; Guild, 1932). From this matching the quantity of light of a narrow spectral band that is highly absorbed by the sample solution is estimated. By an independent method of estimation this quantity is related to the concentration of the substance in the sample solution. This method is capable of giving results of a higher reproducibility than many colorimetric estimations. Once checked by an independent method it does not require a standard solution of the sample substance. A high reproducibility of result must not, however, be confused with a high accuracy of result.

In photometric estimations of haemoglobin compounds, apart from errors in solutions, instrument, and in the eye of the analyst, there are two sources of uncertainty. First, there is the difficulty of relating the light absorptions of solutions of whole blood to absolute quantities of haemoglobin. For, supposing the latter be determined (some of the difficulties in this determination have been outlined), unless the whole-blood solutions contain only one form of haemoglobin error may arise. Different haemoglobin compounds have different absorption spectra (Drabkin and Austin, 1935), and thus if there is more than one form of haemoglobin present the total light absorption may not be directly related either to total haemoglobin present or to the amount of the predominant form of haemoglobin. Secondly, any substance that absorbs light of the spectral band used (e.g., other pigments, slight turbidity, slight dirtiness of glass cells) will be estimated as haemoglobin. It may be noted that colorimetric estimations, though often less reproducible than photometric estimations, have the advantage that the eye sees changes of colour from the presence of other pigments and haze from the presence of turbidity.

Hence photometric measurements require considerable care and very careful independent checking to yield accurate results. All the haemoglobin compounds listed under colorimetric methods may be estimated photometrically.

(d) *Photo-electric Methods.*—These again measure or attempt to measure the amount of light of a narrow spectral band absorbed by solutions of pigment, and are subject to the same difficulties as are inherent in photometric measurements. Furthermore, these measurements are dependent on the electrical properties of the photo-electric cells, the design of the electrical circuit of the photo-electric photometer, and the constancy of the light source (Muller, 1939). Precautions must therefore be taken to limit uncertainties from these causes. Again the only certain way is accurate checking by some independent method.

(e) *Iron Estimations.*—In the opinion of this Subcommittee the best available form of check on methods of total haemoglobin estimations is the determination of the iron content of centrifuged solutions of well-washed lysed red cells from defibrinated normal human blood and the relation of this to values obtained by colorimetric or photometric methods. Because of the progressive loss of gas capacity with purification it is difficult to relate this latter or the colour of gas-Hb compounds to the iron content of purified haemoglobin. The Subcommittee prefers the method of titration of ferric iron with titanous sulphate (Klumpp, 1934) to any of the micro-colorimetric methods which have been proposed. Estimations of haemoglobin iron are not without difficulty. Scrupulous precautions to avoid iron contamination from reagents and apparatus must be taken. Since plasma contains small amounts of iron the removal of this must be as complete as possible.

C. Summary

From the foregoing discussion it can be seen that in some of the most commonly used methods of haemoglobin estimation there is uncertainty in what is accurately measured.

Clinically it may be held desirable to know in a patient: (1) the oxygen capacity, (2) the potential oxygen capacity, or (3) the total haemoglobin. The first can only be determined by oxygen capacity estimations. The second at present can only be determined with certainty by the CO capacity of blood first reduced with $Na_2S_2O_4$. The third can only be determined by careful iron estimations. Often there may be little difference between (1), (2), and (3). It is considered that an accurate estimation of (3) would be most practicable and useful in haematology.

II. RECOMMENDATIONS OF STANDARD METHODS FOR CLINICAL DETERMINATION OF HAEMOGLOBIN

Although the conclusion of the preceding section of this report is that there remain fundamental uncertainties which make the accurate determination of haemoglobin impossible at the present time, it is nevertheless thought desirable to suggest certain simple measures of standardization which can be applied to the clinical methods in common use. If the suggestions contained in this section of the report were generally adopted it would at least be possible to compare the results obtained by different workers with a degree of confidence which is certainly not felt at present.

A. Site and Method for obtaining Blood Samples for Estimation

In the opinion of the Subcommittee the best site for taking blood for haemoglobin or R.B.C. volume estimation is a vein, preferably of a warm arm. It is known that blood taken simultaneously from two arm veins may not always have the same haemoglobin content. Therefore, where possible, repeated samples should be taken from the same vein under the same conditions. Blood should be withdrawn with no more than momentary stasis. If skin-prick blood must be used, ear puncture is recommended. The skin of the ear must be perfectly clean and dry. Minute quantities of fluid—e.g., sweat—may cause serious error when 0.02 ml. of blood is pipetted.

B. The Haldane-Gowers Haemoglobinometer

The Subcommittee recommends the Haldane-Gowers haemoglobinometer (Haldane, 1901) for routine haemoglobin measurements. In this instrument 0.02 ml. of blood is gassed with CO and diluted with 0.4% ammonia solution (0.4 ml. liq. ammon. fort. per 100 ml.) (Krogh: Newcomer, 1919) in a standard form of dilution tube till its colour matches that of a standard CO-Hb solution. The amount of dilution is directly proportional to the haemoglobin content.

This instrument has recently been investigated and standardized by a committee formed by the British Standards Institution in conjunction with this Subcommittee, and it is this standard form, B.S. No. 1079–1942 haemoglobinometers (Haldane type), that is recommended. The forms of pipette, dilution tube, and colour tube have been accurately defined. The permissible tolerances on 0.02-ml. pipettes are ±1.5% of marked capacity, on dilution tubes a maximum volumetric error not greater than 1.5% of haemoglobin, on colour standards not more than ±2% about the defined 100% colour. These limits ensure very much greater uniformity than has previously been attained in commercial instruments. The National Physical Laboratory will test pipettes, dilution tubes, and colour standards for conformity with this specification, and will measure the volumes of 0.02-ml. pipettes and the percentage value of the colour standards to the nearest 1%.

Any colour can be matched by mixing varying quantities of red, green, and blue. With suitable precautions it is possible, therefore, to define any colour on a trichromatic scale. The 100% CO-Hb colour accepted for the standard form of instrument has been so defined. The definition was based on measurements made by the N.P.L. on 6 standard glass tubes containing 1 in 100 dilutions of "normal" blood gassed with CO, the oxygen capacity of which before dilution was found by Haldane's method (Haldane, 1899) to be 18.5 volumes %. These standard tubes were prepared by Prof. G. P. Wright. Two ml. of blood freshly drawn from a fasting man was diluted approximately 1 in 100 with distilled water, placed in a 500-ml. glass-stoppered bottle, and copiously gassed with CO prepared from sulphuric and formic acids. A few hours later the haemoglobin solution was again copiously gassed, the object being to displace from the bottle all gases other than CO. The bottle was tightly stoppered and kept in a refrigerator for several weeks. During this time a deposit slowly formed. Two-ml. quantities of the clear supernatant solution were then transferred to standard glass tubes, and again thoroughly gassed with CO. The tubes were immediately sealed. Measurements made by the N.P.L. on these standard solutions show that they suffered a change equivalent to less than 2% of Hb in the last 4 years. Thus weak solutions of CO-Hb can be prepared that are relatively permanent (Donaldson, Harding, and Wright, 1943).

With the usual form of Haldane-Gowers haemoglobinometer a colour difference of 2% haemoglobin on the Haldane scale is just appreciable. This may be taken to be the limit of the method's "accuracy." The Subcommittee recommends this method for the reasons given above and because it finds that the colour of CO-Hb is easier to match accurately than the colour of any other form of haemoglobin used in routine clinical haemoglobinometry. Moreover, the N.P.L. has computed from spectrophotometric data that a mixture of 90% CO-Hb and 10% met-Hb in weak ammonia is closely matched by a standard of 100% CO-Hb in spite of the difference in tint.

For further information on this method and a statement of the uncertainties in it, see Section I.

C. The Present Supply of Apparatus

Accurate 0.02-ml. pipettes and dilution tubes conforming to the specifications of the British Standards Institution* can now be obtained commercially. The supply of commercial CO-Hb standards is less satisfactory, owing to lack of conformity with the defined colour tolerance and the impermanence. The reasons for these defects are being studied, and it is hoped that means for correcting them may be found. It is therefore recommended that when standard colour tubes are purchased it should always be stipulated that the tubes supplied must have been tested at the National Physical Laboratory and found to be in satisfactory agreement with the colour standard. This will ensure initial conformity with the standard. Tubes should be kept in the dark when not in use, and several tubes, preferably of different ages, should be kept and compared with each other from time to time. Should any noticeable differences in colour develop, the tubes should be submitted to the N.P.L. for re-examination; in any event it is desirable that they should be rechecked after six weeks and rejected if substantial change has occurred. Some workers may find it convenient to prepare their own standards according to the method given in the preceding subsection of this report. Such tubes should also be submitted to the N.P.L. for checking before being put into use.

The saturation of the solution of haemoglobin with carbon monoxide may be carried out with ordinary coal-gas; it is preferable, however, to use pure carbon monoxide, which is available in cylinders or can be easily prepared (Peters and van Slyke, 1932a).

D. Note on the Definition of the 100% Haemoglobin Standard

Many definitions have been made in the past, some related to oxygen capacity measurements by Haldane's or van Slyke's methods, others related to the colours developed by standard dilutions of whole blood. There has been no uniformity in the definitions (see table in Clegg and Macfarlane, 1941), and in the past no insistence on uniformity. As a result the 100% reading of one commercial haemoglobinometer may be equivalent to 80% on a second or 120% on a third. It is hoped that the standard defined in the B.S.I.'s specification for Haldane-Gowers haemoglobinometers may lead to uniformity, which is essential if haematological results are to be compared. It is emphasized that the standard now proposed is only an *interim* standard. In the opinion of the Subcommittee a satisfactory 100% standard must be related to total haemoglobin in normal human blood. (See Section I.)

E. Method of Relating Other Standards to the Defined Interim Colour Standard

It is proposed for the present to take the colour standard defined for the Haldane-Gowers haemoglobinometer as an interim basis of standardization of other apparatus and methods. Thus the standard of any other method may be fairly closely related to this standard by comparing it with a calibrated form of the Haldane-Gowers haemoglobinometer specified above. Failing this, O_2 or CO capacities of *normal* bloods may be used as a rough basis of standardization.

F. Recommendation of the Sahli Method where CO Gas is not Available: Criticisms of the Method

Where CO gas is unobtainable the Subcommittee considers that some form of the acid haematin method must be used. Where possible it should be carefully standardized as suggested above and used always in the same way. The colour of acid haematin is known to develop over many hours. Newcomer (1919) has published a simple equation relating the amount of colour developed to the time the blood has been diluted with N/10 HCl. The members of the Subcommittee find the colour of acid haematin difficult to match and the colour wedges and artificial standards supplied with some forms of Sahli instrument often unsatisfactory. The most satisfactory form of artificial standard is thought to be a piece of Newcomer's glass. It has been claimed that substances in whole blood other than haemoglobin can contribute to the colour developed by N/10 HCl from whole blood (Wu, 1922). The B.S.I. Committee which standardized the Haldane-Gowers haemoglobinometer proposes to standardize this instrument also.

III. THE USE OF THE HAEMATOCRIT

The haematocrit is used for two purposes: (1) to determine the relative proportion of cells (red and white) to plasma in a given sample of blood; (2) to determine the total volume of red cells in a given sample of blood so that an estimation may be made, knowing the total red cell count, of the mean corpuscular volume of the red cells in the sample.

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* B.S. 797–1938 one-mark capillary pipettes. B.S. 1079–1942 haemoglobinometers (Haldane type).

Anticoagulant.—A mixture of ammonium and potassium oxalates causes no shrinkage of the red cells, and must be used if heparin is not available (Wintrobe and Landsberg, 1935). A 2% solution containing 4 parts of potassium oxalate and 6 parts of ammonium oxalate is made up: 0.5 ml. of the solution is added to a series of test-tubes; the tubes are then dried in the oven, and can be stored ready for use.

Blood.—5 ml. of blood taken from a vein with a dry syringe, and without compression, is added to a test-tube containing the dried oxalate and immediately mixed by inversion to ensure solution.

Haematocrit Tube.—The Wintrobe tube is 11 cm. long, with 2.5 mm. bore, and is graduated with a centimetre and millimetre scale 10 cm. in length. The closed end of the tube has a flat bottom. The tube is filled with blood to the 10-cm. mark by means of a capillary pipette. The Wintrobe tube is then centrifuged for half an hour at 3,000 revolutions a minute if the usual clinical centrifuge available in this country is used. The degree of packing is controlled by the centrifugal force, which is dependent upon the velocity and the radius. The majority of clinical centrifuges in this country do not have a speed greater than 3,000 revolutions a minute, and most have a radius of 4.5 in. It is wise, where possible, to check the speed with a revolution counter. Experiment has shown that no further packing occurs if the time of swinging in such a standard centrifuge is increased beyond half an hour. Admittedly, a greater degree of packing occurs if a more powerful centrifuge is employed, but it may result in some deformation of the red cells. A centrifuge that is used for the first time should always be tested to determine that no further packing occurs if the tubes are swung for longer than half an hour. All determinations should be made in duplicate.

1. To determine the volume of packed cells, both red and white, the upper level of the whole cell column is read. It has been shown (Gregerson and Schiro, 1938) that after centrifuging normal blood approximately 4% of plasma still remains among the packed red cells, which means that of the packed-cell volume about 5% is plasma. This observation was, however, made only upon normal blood. It does not appear justifiable to apply such a correction automatically to all blood samples until further data are available. It is therefore suggested that at present no correction in the volume of packed cells be made to allow for retained plasma.

2. To estimate the total volume of red cells, in order to determine the mean corpuscular volume, the lower level of the white cell layer is read. Again for reasons given above, it is probably wiser at present to ignore the plasma retained in the packed cells. If the correction were introduced it would alter all values at present accepted for the normal mean corpuscular volume.

SUMMARY OF THE RECOMMENDATIONS OF THE SUBCOMMITTEE

The Subcommittee is unable to recommend any colorimetric or photometric method for accurate haemoglobin estimation. It finds that there is need for an accurate colorimetric or photometric method that measures total haemoglobin. Iron estimations on washed red cells are recommended as the best available check on total haemoglobin estimation.

Venous blood drawn without stasis is preferred for haemoglobin and haematocrit estimations.

The form of Haldane-Gowers haemoglobinometer recently standardized by the British Standards Institution (B.S. No. 1079–1942) is recommended for clinical haemoglobinometry. All colour standards, whether obtained commercially or specially prepared (see II B and C), should be checked by the N.P.L. Care should be taken to discard any standards that fade or show alteration of tint.

The standard colour defined by the N.P.L. in B.S. No. 1079–1942 is recommended as an *interim* basis of standardization. The Subcommittee finds none of the proposed 100% standards acceptable. It considers that the most satisfactory basis of standardization would be a knowledge of the total haemoglobin content of the bloods of normal men.

Where CO gas is unobtainable the Sahli haemoglobinometer must be used. It should be standardized as suggested.

Red cell volume estimations should be made in Wintrobe's haematocrit tubes spun at 3,000 r.p.m., in the Hearson's centrifuges available in this country, till no further packing occurs. The lower level of the white cell layer is read. As anticoagulant, heparin or a mixture of ammonium and potassium oxalates is used.

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* These are references on the physical aspects of colorimetry and photometry
† These references are extensively quoted in the section on haemoglobinometry in Peters and van Slyke's *Quantitative Clinical Chemistry*, **2**, 661.

CAESAREAN SECTION IN DYSTOCIA

BY

L. G. HIGGINS, F.R.C.S.

The object of this paper is to suggest that the operation of Caesarean section involves less risk than difficult vaginal delivery, and that the indications for abdominal delivery may be considerably extended with advantage to mother and child.

Personal Series

My personal experience is derived from the series of 220 cases briefly analysed below. These include all operations performed since 1931. Before that date records are incomplete, and early cases cannot be included except to remark that there has been no maternal death among them. The later cases fall into two groups, as follows:

GROUP 1—*157 Elective Operations; 4 Notifiable Pyrexia* (2.5%); *Foetal Mortality 5%; No Maternal Mortality*

Indication	Cases	Maternal Morbidity	Infant Mortality
Placenta praevia ..	20	0	2
Grave toxaemia	12	1 Pleurisy and bronchitis	3
Breech ..	21	1 Pyelitis on 12th day	0
Disproportion ..	88	1 Pyelitis on 9th day	1 prem. (error of date) 1 anencephalic
Repeat C.S. ..	16	1 uterine sepsis on 16th day (haem. strep. present)	1 died in 24 hours

A patient is classed as morbid if the temperature rises to 100.4° F. on two occasions in one day of the puerperium.

In all these cases the operation was performed before the onset of labour or when pains had been present for less than six hours. In a large number of such patients the lower uterine segment is imperfectly developed, and in a majority of these cases a vertical "low classic" incision was used, which is truly cervico-isthmial. As a rule the incision just encroaches upon the isthmus, and up to one inch of active muscle is divided. The scar is almost entirely in inactive muscle, well away from the bowels and omentum, and in my experience it heals cleanly without the formation of adhesions.

GROUP 2.—*63 Operations Late in Labour; 8 Notifiable Pyrexia (13%); Foetal Mortality 4.7%; No Maternal Mortality*

Maternal Morbidity	Infant Deaths
Not morbid, 55	2 (failed forceps)
Morbid, 8 (3 chest, 5 genital infections)	1 premature

All the pyrexial cases settled quickly with sulphonamides, and in no case was a positive blood culture demonstrated.

This group may be analysed slightly differently, as follows:

48 failed trial of labour: 3 pyrexial, no foetal death.
15 emergency cases: 5 pyrexial and 2 slightly morbid but not notifiable; 3 babies died.

Nearly all these were cases of disproportion without other disability. In all instances labour had been in progress for longer than six hours. In such cases the lower uterine segment is well developed, and a transverse retroperitoneal incision can be and was employed.

In order to assess the value of Caesarean section it is necessary to estimate the risk to mother and baby. Crude maternal mortality figures are of little value. Many authors have pointed out that the mother is often suffering from some grave complication, by which the outlook is already prejudiced. It is therefore equally meaningless and misleading to quote any mortality rate for "Caesarean section" without the most careful analysis. In a healthy mother the risk is affected chiefly by the operative technique and by the influence of labour. These factors may be considered separately.

Operative Technique

This is of the utmost importance. There is now a great body of statistics which go to prove that the lower uterine segment operation is relatively free from some of the most serious risks associated with the earlier high "classic" incision. The following examples may be quoted:

	Type of Section	No. of Cases	Maternal Mortality
Matthews and Acken (1939) ..	Classic	743	3·9%
	Lower	264	1·9%
Barrett (1939)	Classic	235	4·6%
	Lower	620	2·1%

The former authors report no deaths from sepsis following their 264 "low-flap" operations at the Methodist Hospital, Brooklyn, although many patients were potentially infected. The remarkable control over sepsis achieved by the low cervical technique is now well known. In spite of the fact that this method is usually employed after several hours of labour, with possibility of infection, the incidence of subsequent uterine rupture is greatly diminished, and post-operative obstruction is probably less common. Matthews and Acken concluded that "in the low-flap operations the fatal cases were attributable to the operator." The advantages of this method were stressed by Munro Kerr and Eardley Holland in 1921, and since then many analyses of series of cases have been reported from continental Europe and from America. Among recent authors who have investigated this point may be mentioned Arnot (1936); Quigley (1940); Phaneuf (various articles); King (1940); Feiner (1936); Campbell (1938); and DeLee (various articles). In all these articles the superiority of the low cervical approach is emphasized, and there is now an overwhelming mass of evidence in favour of a low operation. In the following remarks the high classic operation is not considered further, and the low cervical incision is always implied unless the opposite is expressly stated.

The conclusion is that it is no longer possible to justify the general use of the high classic incision, and statistics based upon this operation do not represent the best results obtainable.

Elective Operations

In cases of dystocia the outlook after Caesarean section is profoundly influenced by the onset of labour. It is convenient to consider, first, elective operations upon healthy mothers, performed before the onset of contractions or very early in labour; and, secondly, those cases in which the operation is performed after many hours of labour, when signs of obstruction are more or less well marked.

In practice the coexistence of a healthy baby and a healthy mother who requires Caesarean section occurs principally in those cases showing such marked disproportion that trial of labour is not considered worth while. Cases also come into this group in which the presence of a breech presentation is the main indication. In patients who have had previous Caesarean section the risks may be somewhat increased by the presence of adhesions, but in such secondary elective sections there should be no risk of previous infection, so I have included these cases in the series below, to show the minimal maternal mortality rate under favourable conditions.

	Total Cases	Maternal Deaths	Cause of Death
Individual series:			
Evers (1934)	27	0	
Bailey (1934)	65	0	
Marshall (1939)	101	0	
Higgins (now reported)	125	0	
Hospital series:			
Glasgow Maternity Hospital, 1934–40	279	1	Shock following spinal anaesthetic
Queen Charlotte's Hospital, 1934–9	48	0	
Matthews and Acken (1939) ..	77	0	
St. Mary's, Manchester, 1934–8 ..	105	1	Second operation. Haemorrhage from adhesion
Croydon, 1937–8	41	1	Pulmonary embolus
	868	3	

The only cases included in this table are those in which the operation was performed before the onset of labour or after not more than six hours of labour. It is unfortunate that the total number of cases is so small, but few series are sufficiently well analysed to be included. On the results given, the maternal mortality rate is just over 1 in 300. In each fatal case the cause of death bears little relation to the type of operation. In my opinion Schumann (1939) was justified in concluding that "the elective operation carries with it a fairly negligible risk." He suggests that the maternal death rate in elective cases should be comparable to that of interval appendicectomy. The evidence I have been able to collect and my own experience both support this view.

The conclusion reached is that Caesarean section at the time of election is associated with a much lower maternal death rate than is usually supposed. Probably the risk should not be greater than that associated with any simple laparotomy.

Potentially Infected Cases

The effect of labour upon the incidence of sepsis has been investigated by many authors. Although some confusing results are reported there seems to be little doubt that the maternal morbidity rate begins to rise when labour has been several hours in progress. In this respect the bacteriological investigations reported by Harris and Brown (1927) are most interesting. These authors made cultures of the freshly opened uterus in a series of 50 sections. Their results suggest that in most cases the uterus is no longer sterile after six hours of labour, and that infection is not prevented by intact membranes. The duration of labour pains seems to be of greater importance than the condition of the membranes, and several authors have referred to this. The difference in outlook before and after the onset of labour is well revealed by the figures of Marshall and of my own series analysed below:

Clean Cases. (In Labour for Less than 6 Hours)

	No.	Morbidity	Infant Mortality
Marshall	101	14%	2·0% (2 cases)
Higgins	125	1·8%	2·4% (3 cases; 1 anencephalic)

Doubtful and Contaminated Cases. (In Labour Longer than 6 Hours)

	No.	Failed Forceps	Inductions	Over 40 hrs. in Labour	Maternal Morbidity	Infant Mortality
Marshall ..	70	5	15	18	30%	4·2%
Higgins ..	63	4	7	19	13%	5·0%

Cases with minor infections—offensive lochia, etc.—are not included. There was no maternal death in either series.

These figures, and the many similar series now published, show clearly the rise in the maternal morbidity rate and in the infant death rate that is associated with prolonged labour. In practice, with reasonable care, quite extended labour can be allowed, and I have dealt with cases in which pains had been present and the membranes ruptured up to 5 days. The danger of Caesarean section under these conditions is often exaggerated. On the other hand, when the patient is exhausted, when the vagina is dry and the uterus irritable, and when the position is prejudiced by repeated vaginal examinations, attempted forceps delivery, and vaginal lacerations, a stormy puerperium is likely. Even in such cases delivery can often be completed by section with less trauma than by any other method, and the scope of the operation is not always realized. In an early paper Green-Armytage (1931) has drawn attention to the value of the lower-segment section in place of difficult destructive operations.

The conclusion here is that, when labour becomes obstructed, Caesarean section may be employed as a rescue operation with brilliant success. Nevertheless every effort must be made to prevent a clean case drifting into the potentially infected category by not deferring intervention too long.

Forceps Delivery

In many doubtful cases the attendant will have to decide between the alternative of delivery by forceps or by Caesarean section. In moderate dystocia the conditions under which forceps delivery is thought to be indicated vary rather widely in different schools, as does also the individual outlook. The following tables, compiled from the published records of large maternity hospitals, may be taken to represent the average risk to mother and child of delivery in this manner under good conditions.

Maternal Mortality (Forceps' Delivery), 1931–9

Hospital	Booked Cases		Emergency Cases	
	Total	Deaths	Total	Deaths
A	674	10 (1·5%)	559	22 (3·9%)
B	968	5* (0·5%)	182	4 (2·2%)

* This figure does not include 3 booked cases submitted to craniotomy, in two of which forceps were tried; in one of these the mother died.

It appears that the average maternal mortality rate may be taken as about 1%. Since the mortality associated with low forceps is very small, most of the fatal cases must occur after the relatively uncommon and more difficult operations of high forceps and mid-forceps, in which, therefore, the mortality must be high.

Persistent Occipito-posterior Positions (Forceps Delivery), 1931–40

Hospital	Total Cases	Maternal Deaths	Foetal Deaths
A	177	3 (1·7%)	22 (12·4%)
B	325	2 (0·6%)	47 (14·5%)
C	375	9 (2·4%)	72 (19·2%)

This table is compiled from "booked" cases only, and emergency admissions are not included. The figures serve to show the risks of the more difficult forceps operations. Delivery by forceps may be possible, but unless the foetal head descends below the level of the ischial spines there will be a high maternal and foetal mortality rate. This point has been emphasized by Dodek (1931); and if the foetal head is in an unfavourable position vaginal delivery is a serious undertaking. The average maternal death rate of over 1% for difficult forceps deliveries does not compare at all favourably with the "operative maternal death rate" of about 0.4% for Caesarean section, which represents an alternative method of delivery for this type of case. The high foetal mortality rate after difficult forceps delivery is very striking.

Infant Mortality (Forceps Delivery), Booked Cases only, 1931–9

Hospital	Total Forceps Deliveries	Associated Infant Deaths
A	674	89 (13·2%)
B	968	133 (13·7%)

In *emergency* cases with obstructed labour the foetal mortality rate is very high. In hospital A, among 559 such cases delivered by forceps, the foetal mortality was 145 (26%).

These results cannot be considered satisfactory. It must be remembered that Caesarean section was introduced to save the child, and the operation should be considered in all cases where delivery by the vagina is likely to be hazardous. If this is kept in mind the mother will benefit, as it is scarcely possible to damage the baby seriously without causing injury to the mother at the same time.

The Elderly Primipara and Forceps Delivery

These patients constitute a special category of dystocia for which forceps are often required. In such cases vaginal delivery is an anxious procedure, and the risks for mother and child are certainly increased. Nixon (1931) has shown the high incidence of breech and persistent occipito-posterior positions after the age of 40, and in his series he found the incidence of forceps deliveries to be at least twice as common as in younger women. In another series, analysed by Lossel and quoted by Munro Kerr (1937), the forceps rate rose to 33%. The influence of these conditions upon the infant mortality rate has been carefully studied by the latter author, who gives the following table, with 185 patients in each group.

	Age 20–30	Age 30–35	Age over 40
Forceps rate	4·3%	26·0%	33·5%
Foetal mortality	2·7%	9·5%	13·0%

In the presence of apparent disproportion a trial of labour becomes less and less likely to end successfully as the age increases after 30. This procedure is not really suitable for elderly patients, and most obstetricians would agree that elective Caesarean section should be employed with much greater freedom than in the case of younger women. Attention must be focused not upon the occasional patient who delivers herself with ease but rather upon the greater number in whom labour will be unexpectedly slow and difficult. Unless the presentation is really favourable, few would encourage the middle-aged primipara to attempt vaginal delivery. An occasional unnecessary section does little harm, but one too few will mean a disaster.

The conclusion is that in the presence of dystocia, when vaginal delivery is possible but difficult, the use of forceps is associated with definite risk to the mother, and the outlook for the child is bad. Delivery by Caesarean section should be more often used in these cases.

Discussion

The figures given above for forceps delivery go to prove that even slight disproportion has a very serious effect upon the outlook for both mother and child. In the presence of dystocia, when labour is often prolonged, the use of forceps carries an obvious practical and theoretical drawback, because delivery cannot be completed until the cervix is fully dilated. When the head ceases to advance, this may never occur, and in other cases the first stage may be prolonged and the mother may develop fatigue before dilatation is complete. With fatigue will come increased possibility of infection and all the dangers of retained placenta and post-partum haemorrhage, while the baby may not survive. It cannot be disputed that a healthy woman is sometimes allowed to drift into a dangerous condition in this way while actually under the observation of her medical attendant. All such cases demand immediate delivery, without aggravation of the tendency to shock which is so often present. Under such conditions it is difficult to see the object of waiting until vaginal delivery by forceps is possible. Even if the infant is born alive the dystocia must be overcome by stretching or tearing of the maternal soft parts. The birth of a second child may be easier, but the mother has paid the price in her damaged pelvic floor. It is better to realize that when labour departs from the normal pattern the process becomes pathological, and delivery is not necessarily normal because it is vaginal. Indeed, it may be easier to repair a cut in the abdominal wall than a laceration of the pelvic floor. In all such cases it seems to me that the trauma to the mother is less and the outlook for the child is much improved if delivery is accomplished by Caesarean section.

Late Maternal Morbidity

Although the immediate maternal morbidity associated with forceps delivery is appreciable, it is probable that the late sequels are of even greater social importance. A difficult vaginal delivery produces great trauma, and it is easy to damage the mother's pelvic floor to a degree which can never be repaired. I have painful recollections of cases, thought at the time to be quite successful, in which difficult vaginal delivery was effected. Three months later the mother was still tired, listless, and drooping, with backache, leucorrhoea, and a dribbling bladder, spoilt as a wife and as a mother, and unable to enjoy the child fortunately born alive. It is scarcely possible to assess the frequency of sequels of this kind, but undoubtedly they are common. The late Prof. Blair Bell (1931) estimated that each year 60,000 women are more or less seriously crippled by childbirth, and a large proportion of the graver damage must occur at difficult forceps extraction. Such cases show a strong contrast with those delivered by Caesarean section, who are remarkably free from late morbidity. Indeed, it is encouraging to see how quickly the latter regain their original figure and carriage.

Rupture of the uterine scar at a subsequent pregnancy or labour may be classed with late maternal morbidity. In a recent textbook (Browne, 1939) the incidence of this accident is estimated at 4% in the case of high classic operations. There is little doubt that this figure is based upon old statistics, and at the present day the accident appears to be less frequent. As a sequel to lower-segment operations, subsequent rupture of the scar is certainly most exceptional. Discussing this point, Marshall (1939) stated that 50 cases had been recorded at that time, of which only 5 followed the transverse incision. It seems probable that, with modern technique, the possibility of rupture of the scar may be almost ignored. Marshall remarked that no case had occurred in the practice of the Liverpool Maternity Hospital or in DeLee's clinic at Chicago, and I have been unable to discover a record of such a case in a long series of clinical reports recently examined.

The Sterile Labour

Consideration of the infant morbidity will introduce the important psychological effects of the fruitless labour. The mental shock of losing an infant, especially if it is the first one, may remain throughout life. It is often a factor in causing dread of childbirth, with nervous tension and thwarted ambition, drifting steadily towards a childless and hypochondriac middle-age. It is impossible to gauge the incidence of this unfortunate sequel, but I am sure that it is far more common than many suppose. In my opinion it is of the greatest importance, if only for psychological reasons, that the first baby should be born strong and healthy. The prospective patient attends the maternity hospital in order to have a healthy infant, and she expects difficulties to be overcome, so that she will survive her confinement with full vigour for her maternal responsibilities. The loss of a healthy baby in a healthy mother must mean a serious breakdown in obstetrical care.

The presence of dystocia, therefore, should no longer be accepted as a legitimate reason for a raised infant mortality rate.

Trial of Labour and Obstruction

In normal patients a spontaneous delivery under good conditions is associated with a minimal maternal mortality rate of considerably less than 1 in 1,000, and it is probable that really low forceps, with the foetal head below the level of the ischial spines, may almost be classed with this group. Before the onset of labour there can be no absolute distinction between normal and abnormal cases, and in spite of the assistance given by radiography the available methods for the detection of dystocia are notoriously unreliable. In a series of 6,500 deliveries analysed by Alice Maxwell (1927) dystocia occurred in less than half the cases with recognizable pelvic contraction, while more than half the total cases of dystocia appeared when no pelvic abnormality could be detected. A small experience will show that in every woman the first labour is always a trial, and it is surprising how often difficulties arise when they are not expected. On the other hand, it is well known that many young patients with slight disproportion will achieve an easy spontaneous delivery. In such cases the maternal risks are not increased and the infant mortality rate shows only a slight rise, an extra risk which must be taken. In an average series showing clinical disproportion, it may be supposed that a spontaneous delivery will occur in about half the patients. Bailey and Williamson (1927) analysed such a series of 676 cases with great care, and recorded a spontaneous delivery in 66%. No method of operative delivery could give results comparable with those obtained by normal labour, and it is therefore of the greatest importance to refrain from interfering unless this is really necessary for the safety of the mother or child. The object of a trial is to encourage a normal spontaneous or low forceps delivery, in which cases the results are good. A difficult vaginal delivery is not worth while, and the results for both mother and baby are inferior to those of Caesarean section. Excluding purely technical faults, a damaged baby following a forceps extraction is usually evidence of an error of judgment in choosing vaginal delivery. The dangers of unexpected dystocia may be illustrated by the following series of 16 cases of disproportion taken from a clinical report for 1938 of a well-known teaching hospital. All these occurred in booked cases which showed no evidence of pelvic contraction.

8 cases of spontaneous delivery, including one case with P.P.H. which required manual removal of the placenta and two blood transfusions.
1 case of forceps delivery.
1 case of delivery by forceps after perforation.
3 cases of craniotomy.
3 cases of Caesarean section after many hours of labour. One of these went septic. One baby was stillborn and another died.

Altogether 6 babies were stillborn or died, while of the mothers 2 developed puerperal pyrexia and 3 puerperal sepsis. Clearly the results would have been better if every woman in this series had had a Caesarean section before the onset of labour.

In managing a test of labour it is important to avoid allowing the condition of the mother or baby to deteriorate before making the decision to perform section. The investigations of Harris and Brown, referred to above, suggest that labour for six hours is relatively harmless, and, in practice, awaiting the onset of labour will help to exclude the possibility of premature delivery. At the end of this time it is usually possible to decide whether a normal vaginal delivery can be expected. In longer trials which end in Caesarean section the morbidity rate will tend to rise. Arnot (1936) found the test of labour the biggest causative factor in producing serious pyrexia, and there is little doubt that there is a strong temptation to allow the test to continue too long. In certain cases it is only too easy to allow the patient's outlook to become prejudiced. This must be avoided, although the introduction of the sulphonamides has done so much to improve the treatment of pyrexia. It is an unfortunate drawback to delivery by section that the operation is safest before the onset of contractions or very early in labour, at a time in some cases when the necessity for section cannot be foretold with certainty. It would be of very doubtful benefit to the patient to deal with every potential difficulty by Caesarean section, and in order to avoid this the attendant must feel a challenge implied to achieve normal delivery in every doubtful case. In proportion as the operation becomes safer, the tendency to employ it more freely must increase. Indications may be extended in scope, but they remain fundamentally the same, including only those cases in which delivery by any other method would involve increased danger to the mother or child. At the same time, the results of elective section are now so good that only the smallest margin of error can be allowed in trial of labour, and no bad effects for mother or baby must occur or the whole object of the procedure will be frustrated.

Summary and Conclusions

A personal series of 220 cases of Caesarean section by the lower-segment technique is reported and briefly analysed. A consideration of this and other reported series suggests that the maternal mortality rate in this operation should not exceed 1 in 300.

The consequences of forceps delivery are considered and the unsatisfactory results for mother and baby are pointed out. In view of the encouraging results of Caesarean section, the legitimate indications for forceps delivery require careful review.

The outlook towards Caesarean section should be completely readjusted, and the operation must be used much more freely in serious dystocia to avoid the maternal and foetal morbidity often reported.

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SOCIAL ASPECTS OF ALLERGY

BY

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Only very recently has proper attention been paid to the environmental factors, in occupations and in home surroundings, which are concerned in the onset and course of disease. Apart from the so-called occupational diseases, the environmental factor is more or less in the foreground in a number of conditions—e.g., certain groups of malignant growth or infections like pulmonary tuberculosis—and it is particularly evident in the group of conditions now classified as allergic diseases. My own observations are based on the examination of more than 1,000 cases of bronchial asthma and other allergic complaints during the last 14 years. Of these, 522 are asthmatics observed in Germany from 1928 to 1932, 365 of them employees seen under the German national insurance scheme; and 489 were cases observed in England since 1934. Of the latter 268 were hospital patients—103 seen at the Westminster Hospital up to 1938, and 165 examined since 1938 at various (17) L.C.C. hospitals.*

Asthma and Other Allergic Conditions in Occupations and Military Service

Most frequent, and of the greatest clinical and social importance, are the allergic complaints of the respiratory tract (bronchial asthma, rhinitis including certain forms of sinusitis, and polypi) and those of the skin (eczema, dermatitis, urticaria, and Quincke's oedema). Rarer and perhaps less well studied are alimentary diseases such as spastic colitis and other spastic conditions of the digestive tract or bile ducts, migraine, and a number of others. In the Services serum sickness and allergy to prophylactic or therapeutic inoculations have to be considered as possible complications.

In all allergic conditions intrinsic (often constitutional) and extrinsic (mostly allergic) factors play their part. Their role is of varying importance not only in each of the conditions and in every patient but also because they change in the same patient at various periods of life.

As the *intrinsic*, predisposing, constitutional factor—endocrine, metabolic, or anatomical—is often inherited, allergic complaints run in families in more than 50% of the cases, according to my observations, and frequently follow the patient during a long period of his life. He may suffer either from one or from more than one of these conditions at varying periods. Allergy is itself a normal body reaction and defence mechanism like immunity, and actually represents the state short of and antecedent to immunity in which increased sensitivity precedes the greater resistance provided by the immunity. Only when this sensitivity remains and becomes a feature of definite clinical illness are we entitled to speak of the condition as "allergic disease."

The *extrinsic* factors—the allergic irritants—are incorporated (1) by inhalation (aerogenous), (2) by ingestion (enterogenous), (3) by touch through the skin (dermatogenous), or (4) by parenteral inoculation. Intrinsic allergic irritation may be caused by resorption of bacterial proteins from focal infections, bronchiectasis, or tuberculous infections. On the other hand, there are definite extrinsic irritations which do not act as allergens but as auxiliary predisposing factors—e.g., SO_2 gases in the air in certain industrial areas. It is still doubtful whether ursol acts as an allergen or in the same way as the SO_2, preparing the mucous membranes for an irritability to allergens.

Allergens are mostly of protein nature, but definite chemical compounds are known to become allergens through the formation of protein compounds in the body, as in the case of group-specific chemical antigens (Landsteiner). The allergen does not always produce clinical signs at the place of entry (reflex or trigger area)—e.g., it may be ingested and cause urticaria in the skin or asthma in the respiratory tract. The allergy often starts with a sensitivity to *one* allergen or to a few allergens that spreads to others if not treated. A patient may have a seasonal hay-fever at first and then become sensitive to moulds or dust: the monovalent allergy becomes polyvalent.

Sutherland (1942a, 1942b) recently stated that the "extrinsic" cases of asthma are suitable for military service and can be easily cured by desensitization. These were obviously cases in the monovalent phase of the condition. The "intrinsic" cases are in his opinion not fit for military service. These are the cases in which the threshold of parasympathetic irritability has been lowered by a longer duration of the allergic condition or in which constitutional factors or focal infections are in the foreground. I (Fraenkel, 1934a, 1934b) have reported that, contrary to an old belief, asthma and tuberculosis of the lungs do not exclude each other: a form of active tuberculosis appeared "masked as asthma" in 4% of my asthma cases. In 16% of my asthma cases an old or productive pulmonary lesion was found.

I have stated previously (Fraenkel, 1937a, 1940) that *prognosis* in asthma depends on the following factors: (1) whether organic changes complicate the condition as a contributing cause of or as a sequel to the asthma—e.g., bronchiectasis, chest deformity, pulmonary tuberculosis or other infections, emphysema, or heart failure; (2) whether the family or personal history reveals a preponderance of constitutional factors; and (3) whether the allergen is easily avoidable or can be immunized against by a course of desensitization. *Mutatis mutandis*, this applies to prognosis in other allergic conditions. House allergens are the most common, but in England the damp climate is responsible for sensitivity to moulds in more than 50% of asthmatics (Fraenkel, 1938, 1939), and, by infection of the respiratory tract, for frequent bacterial sensitivity to the germs of the common cold. In many instances I have isolated the same types of mould from the patient's house allergens and from his sputum and used them for skin tests and desensitization. The moulds most often found positive in skin tests were sporotrichum, cladosporium, penicillium, aspergillus, mucor, and monilia types, and they are probably responsible for the intolerance to certain rooms, houses, or localities experienced by many asthmatics.

Clinical Investigation

This conception makes it necessary in every case to take a very careful history, which comprises a special inquiry into family and personal allergy, and also into occupational and personal aspects of the patient's life apart from the ordinary medical history. Investigation into all signs of parasympathetic irritability, local and blood eosinophilia (polyps, nasal secretion, sputum, or mucus in stools), and a full clinical examination including radiographs of chest, nasal sinus, and antrum, are preliminaries to the specific examination for allergy by exposure and elimination tests. These include scratch, intracutaneous, or mucous membrane tests for the allergens as suggested by the history, or the use of allergen-free rooms, a diet, or filter apparatus (allergen-free bags or masks) (Fraenkel, 1937b, 1937c). These methods can be employed for diagnostic, prophylactic, and therapeutic purposes.

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Certification of Cases for Fitness in Occupations or Services

It is evident that cases without organic complications and without a family or personal history of other allergic complaints are the most readily adjusted to industry, particularly those in which one or only a few easily avoidable allergic factors can be established, and eliminated—e.g., urticaria after strawberries or lobster, or rhinitis caused by a fur coat or collar. Next come those in which definite allergy is established by history and specific tests and is improved or "cured" by desensitization—e.g., pollen rhinitis or asthma. Where the allergen is difficult to avoid, as in common food (egg, milk, wheat), climatic or house allergens, moulds, etc., this is the method of choice. These subjects are probably fit for most occupations and for the Services. On the other hand a man with fur sensitivity should not work as a furrier, or a man with sensitivity to wool in the tailoring trade. A man with pollen allergy may be well or be cured in the Navy and yet be unfit for the Army. Patients sensitive to horse-hair or horse dandruff would be unfit for the old cavalry but not for the mechanized tank regiment. Organic complications such as bronchiectasis or heart failure in asthma or the asthma type of tuberculosis make the patients unfit for all but light occupations. Pollen allergy or the mould allergy in tomato-growers due to *Cladosporium fulvum* Coke may be a contraindication to gardening. Sensitivity to certain drugs like salicylates or ipecacuanha contraindicates a job as a chemist. A person who has shown signs of allergy should be tested before being taken into trades in which the danger of allergic irritation exists. This can be done by skin-scratch or intracutaneous tests in such instances as fur sensitivity or allergy to wool in the tailoring trade, or by Jadassohn's patch test in cases of skin sensitivity to chemical irritants occurring in many industries Allergy to grain dust, to feathers, or to horse dandruff may be a contraindication to employment on farms, and allergy to flour for millers and bakers. The same person may remain well and fit in another occupation.

These *occupational factors in allergy* are definitely of less influence than house allergens, house dust, feathers, or mattress contents, or moulds cultured from them, because of our closer and longer contact with the latter; they, however, are by no means unimportant. Ancona and Frugoni have reported a type of asthma observed in all farmers, millers, or bakers who came into contact with grain infested by a tinea-producing species of an acarus type—*Pediculoides ventricosus*. The allergen worked like an obligate contaminating germ in 100% of those exposed, and the asthma cases would certainly be "accidents" of occupation in the proper sense of the term. The same applies, in my opinion, to a great number of allergic cases in which the occupational exposure is responsible for the onset of an allergic complaint as proved by the history and by specific tests. I have mentioned such instances in millers, bakers, and farmers who are sensitive to flour, in farriers, farmers, and horsemen who are allergic to horse-hair or horse dandruff, and in gardeners or fruiterers with allergy to the cladosporium mould on decaying tomato plants. There are, further, furriers or tailors or carpet-makers with allergy to fur or wool or to the dyestuff ursol used in the trade. Lead asthma is well known, as is the asthma due to salicylates or ipecacuanha occurring in chemists. There are also skin irritations, eczema, and dermatitis due to certain types of wood.

The degree of sensitivity of the patient is often decisive. Mayer reported a case of eczema in a workman who got it by contact with a friend who had worked with phenylhydrazine; and another case in which a man became sensitive to ursol when, on the way to his work, he passed by a workshop where this was used. Sometimes a solvent is responsible for a substance becoming allergenic that was innocuous in a different medium.

Compensation Claims

Under the law compensation is paid to workmen only when the occupation and the substance come under the Workmen's Compensation Act, and this applies to but a small number of the actual occupational allergic diseases. A workman in a chemical factory may be entitled to compensation in case of lead asthma or toluidine dermatitis. A tailor with asthma due to wool or fur would not obtain compensation, but he might in case of ursol dermatitis or asthma. A chemist would not be entitled to claim for ipecacuanha asthma or asthma due to salicylates, which I have observed to develop into pulmonary tuberculosis in one case under constant medical supervision. Sometimes a small impurity or a change of a manufacturing process is responsible for the allergy. The present law allows compensation claims for ladies who are allergic and get an eczema from a fur coat or collar dyed with ursol, which I think rather unfair to the salesman.

These examples show that both jurisdiction and legislation are not abreast of present-day knowledge of allergic diseases. In many trades, too, protective measures could be improved, thus providing greater safety for the working population and avoiding considerable expense.

Suggested Protective Measures

1. Allergic diseases are of essential social importance owing to their long duration, especially in the most active periods of life, and to their connexion with the environmental factors in home surroundings and in occupations. In many cases they are responsible for recurring inability to work, leading often to invalidity or, as with the complications of bronchial asthma, even to death.

2. Legislation, jurisdiction, and public welfare should be adapted to our present-day knowledge of allergic diseases, and many more centres for diagnosis, prevention, and treatment should be provided, with staffs trained in the clinical and laboratory side of the problem, and with all the necessary equipment, as in the U.S.A.

3. These centres should be available to doctors for the investigation of their private and panel patients, to the military and civil authorities, and to the industrial and health organizations.

4. They should deal with examinations for certificates for fitness in certain occupations or for the Services, with compensation claims, and with cases in which legal expert advice is required.

5. Their investigations must be based on a careful history which takes into account the constitutional and environmental factors, and on an examination which includes *x*-ray findings, eosinophil counts, and the specific methods of elimination and exposure tests, apart from the routine examination.

6. These methods must include skin and mucous membrane tests, elimination by diet or allergen-free rooms or apparatus, etc., and the use of preventive or curative desensitization, besides treatment of dispositional or auxiliary factors.

7. The centres could protect a great number of patients from premature invalidity or even death, and in other cases considerably shorten the periods of actual illness and thus save man- and woman-power and expense. They would also greatly contribute to teaching and research in allergy.

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L. Stein and E. Wertheimer (*J. Endocrinol.*, 1941, **2**, 418) state that adrenalectomy causes an intense though transient increase in the rate of loss of hair in rats. Along with this there are secondary symptoms ranging in severity from dandruff to extensive ulcer formations. Similar symptoms were observed in medullectomized rats. It was found that an acid extract of adrenal medulla could inhibit this loss of hair, which could also be brought about by a synthetic *l*-adrenaline

MENINGEAL REACTION IN A CASE OF GLANDULAR FEVER

BY

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During the last six months numerous examples of a clinical syndrome which is characterized by enlargement of the lymphatic glands have been observed among members of the Senior Service. The groups of glands in the posterior triangles of the neck and in the axillae have been typically involved in a discrete, painless, and only slightly, if at all, tender swelling; the axillary masses attained the size of a small tangerine, whereas the glands in the neck remained relatively small, being palpable as numerous shotty lumps. The usual presenting features were headache of a persistent and severe type, stiffness of the back of the neck, and general malaise. Epistaxis was a not infrequent accompaniment. More recently, abdominal symptoms consisting of nausea, vomiting, and abdominal pain have predominated; the abdominal pain had led to a mistaken diagnosis of subacute appendicitis on several occasions by the medical officer submitting the case, a diagnosis which seemed further supported by the marked tenderness over the right iliac fossa. Distinguishing signs in such instances were the presence of a mass of enlarged glands in both iliac fossae and tenderness in these areas. The other sets of glands involved in the malady were the mediastinal and inguinal groups. The former did not produce any specific symptoms, but were demonstrable by radiography.

The disorder has a benign course, and, apart from perhaps a mild pyrexia in the early stages of the condition, no upset of the temperature or pulse rate occurred. Within one to four weeks the patient was free of symptoms, although the glandular swellings required a much longer period before disappearing. Splenomegaly was rarely encountered. The infectiousness of the disorder was made apparent by the incidence of new cases in the same ward and by its development among a number of the medical and nursing attendants.

Differential counts of the white cells of the blood were carried out, and in practically all a deviation from the normal was demonstrable. The polymorphs totalled some 50%, the remainder being made up of small and large lymphocytes and an average of 10% of monocytes. The Paul-Bunnell reaction was negative with but few exceptions.

The relation of the disorder to glandular fever (infective mononucleosis) requires consideration. The general behaviour of the condition would well fit in with such a diagnosis, but the exceptional exhibition of heterophile antibodies must occasion some doubt. Prof. Paul (1941) draws attention to the discrepancies of this reaction. In his own series of 50 cases he obtained 90% positives, whereas he quotes Erf (1936-7), who found that not more than 40% of cases yielded a positive result. Paul rightly argues that the percentage must be influenced by the diagnostic criteria and by the frequency with which the serological tests are made during the disease. The latter surmise is borne out by the example reported by Himsworth (1940), in which the reaction was negative in the early stages of the illness but subsequently became positive 11 weeks after the onset of symptoms. Further observations are necessary before it can be asserted whether distinct categories can be segregated from infectious mononucleosis on the basis of the presence of agglutinins in the patient's serum to the red blood corpuscles of the sheep, or their absence. What has been convincing, however, is the clear-cut clinical picture and course presented by our cases, which now number almost 200. The similarities to infectious mononucleosis are so many that until further evidence is forthcoming regarding the existence of separate and distinct varieties of "glandular fever" we feel justified in including our cases under this diagnostic title.

Complications have been very few. Jaundice was seen on three occasions. Since it was of an obstructive type, and since catarrhal jaundice had been so prevalent in the wards, the coexistence of these two maladies could not be excluded. A mild bronchitis and nasopharyngitis were not uncommon. A skin rash was seen in 4 instances; but it differed individually in appearance, and in all cases was evanescent.

The case presented here is the sole example of a neurological disorder encountered in the series.

Case Report

The patient, a man aged 28, was admitted to hospital on June 17, 1942, with generalized body pains, malaise, and sore throat of a month's duration. His only significant illness in the past was an attack of pneumonia 11 years ago; he was subject to recurrent attacks of tonsillitis.

Examination showed an unhealthy and congested state of the tonsils and nasopharynx, enlarged discrete and painless lymphatic glands in the neck, axillae, and inguinal regions; and scattered rhonchi in the chest. No clinical evidence of disease was discovered in the other systems. The temperature and pulse rate were normal. There was little alteration in his condition until June 22, when he then complained of severe frontal headache, and in the early hours of the next morning became delirious and restless. Examination revealed rigidity of the neck, photophobia, generalized hyperaesthesia, and a positive Kernig sign. No other objective abnormal signs were found in the central nervous system or in the optic fundi. The temperature had risen to 101° F. and the pulse rate to 100 Chloral and bromide were administered with good effect. In the afternoon of June 23 the above findings were more pronounced and the temperature had risen to 103° F Lumbar puncture was performed, milky fluid being obtained. On analysis this showed a centrifugalized purulent deposit, gross increase in cellular content, and Pandy test + +; there were no organisms in the direct smear or on culture. A differential count of the cells of the C.S.F. showed: polymorphs 87%, large lymphocytes 3%, small lymphocytes 6%, monocytes 1%, endothelial cells 3%. He was placed on sulphapyridine, which was discontinued after four days. On the day after the lumbar puncture a marked improvement in his condition was observed His pulse and temperature were at normal levels and his delirium and incoherence had disappeared; the frontal headache and the nuchal rigidity were, however, still present. A further lumbar puncture was carried out on June 24; the fluid on this occasion was opalescent and contained a slight purulent deposit. The Pandy test was positive, the Wassermann reaction negative, and a large excess of cells were found (polymorphs 70%, large lymphocytes 4%, small lymphocytes 6%, monocytes 11%, endothelial cells 9%); again organisms were not demonstrable.

The patient continued to improve, and three days from the onset of his meningeal reaction his condition was most satisfactory: the nuchal rigidity and headaches were gone and his temperature had remained normal. The C.S.F. at this date showed a fibrinous pellicle, but was otherwise gin-clear; the Pandy test gave a very faint positive reaction, and the cells were few in number and mainly lymphocytic in type. Culture of the fluid failed to grow any organisms. The results of an examination of the C.S.F. on June 27 were: fluid clear, no pellicle on standing, Pandy test ∓, W.R. negative, and but a few cells of the large lymphocytic class. On the 30th C.S.F analysis gave a result identical with that obtained on the 27th. The patient's progress was satisfactory and he was symptom-free—although the lymphatic glands were still palpable, but smaller—until July 1, when he developed a fresh tonsillitis with secondary enlargement of the draining lymph glands in the neck and a pyrexia of 101° F. A throat swab showed diplococci in short chains, while Vincent's or Klebs-Loeffler's organisms were not found. The inflammatory reaction of the throat cleared up in three days. No further developments occurred and, apart from the persisting but steadily diminishing enlargement of the glands, the patient appeared to have made a complete recovery. He was discharged for a period of convalescence, following which tonsillectomy was recommended.

Differential white cell counts of the blood gave the following results:

	June 18	July 27
Polymorphs %	79.1	51
Large lymphocytes %	12.7	28
Small lymphocytes %	0.8	11
Monocytes %	6.8	7
Eosinophils %	0.5	3

A blood count (July 3) showed: red cells 5,200,000, Hb 90% white cells 14,500. The blood W.R. (June 27) was negative. Two Paul-Bunnell reactions (June 19 and July 7) were negative.

A guinea-pig was inoculated with C.S.F. on June 24 and suffered no ill effects; necropsy performed on July 28 showed no evidence of disease.

Discussion

Uncomplicated infectious mononucleosis invariably has a benign outcome, and sequelae of any significance are rare. Nephritis is not an uncommon event in the course of the disorder, but the renal function remains unimpaired and rapid recovery ensues. Haemorrhagic phenomena, pulmonary features, and jaundice are other complications, and attention has recently been attracted to involvement of the nervous system. Bernstein (1940) details the neurological manifestations encountered prior to the date of his monograph. Peripheral cranial nerves are rarely affected, but persistent anosmia and facial palsy have been recorded. Paresis of the extra-ocular muscles (Fledelius, 1935) and photophobia and nystagmus associated with poor articulation (Marshall, 1939) have also been reported. An extraordinary example of glandular fever with a strongly positive Paul-Bunnell reaction, in which a paralysis of the serratus magnus muscle developed during the third week of the illness and which cleared up in about four months, is described by Richardson (1942). The meninges appear to be the commonest site of affection, and Bernstein states that in at least 12 cases of glandular fever the clinical picture of serous meningitis has been found. Often the meningeal features antedate other manifestations of the disease. Nuchal rigidity, positive Kernig and Babinski signs, convulsions, and mental changes have been present in certain of such instances. Bilateral optic neuritis (Gsell, 1937) appeared in one case. The cerebrospinal fluid in the meningeal syndromes accompanying infective mononucleosis usually contains an increased protein and cellular content (chiefly lymphocytic in type), but examples have been reported in which the fluid has been normal in spite of unmistakable clinical signs of meningeal irritation (Huber, 1938). Huber also mentions a case in which the pleocytosis attained a level of 1,000 cells per c.mm. The condition of the spinal fluid in uncomplicated glandular fever is of some interest, but is neither constant nor characteristic. Excess of cells and positive Pandy reactions have been mentioned, but the sugar content and colloidal gold curves remain normal, and the Wassermann reaction is negative even in the presence of a false positive in the blood. Culture of the fluid has proved negative except on four occasions when Listerella were isolated (Schmidt and Nyfeldt, 1938).

A recent communication (Landes, Reich, and Perlow, 1941) deals with a case of infectious mononucleosis the early symptoms of which simulated those of encephalitis. Of particular importance with regard to our own case is the report by Thelander and Shaw (1941). They described 3 cases of neurological complications. The first was that of a meningitic picture in the course of infective mononucleosis; the peculiarity noted here was the fact that the cerebrospinal fluid, which at the onset contained 630 cells per c.mm., at the end of four months continued to demonstrate a pleocytosis consisting of 82 cells per c.mm. The Paul-Bunnell reaction was strongly positive. The two other cases occurred in sisters, one of whom, aged 3½, was suddenly affected by fever, pain in the back of the neck, and a convulsion. No glandular or splenic enlargement appeared during the illness. The C.S.F. contained 40 lymphocytes per c.mm., and the blood showed a white cell count of 17,000 per c.mm., with the polymorphs accounting for 69% of the total. Encephalitis of unknown aetiology was diagnosed. Four days later the other sister, 2½ years of age, became ill with similar symptoms. The cells in the C.S.F. amounted to 70 per c.mm., and were chiefly lymphocytic in type. The total leucocyte count of the blood was 45,700 per c.mm., and a differential count revealed that 81% of these were lymphocytes. Again no enlarged glands or spleen could be found, and the Paul-Bunnell reaction was negative. The authors consider that the findings in the last two cases point either to a diagnosis of infectious mononucleosis or to a hitherto undescribed pathological syndrome, and refer to their large experience with benign lymphocytic meningitis and encephalitis, in neither of which conditions had they seen cases in which the blood picture or the results of serological tests suggested mononucleosis. The third of Thelander and Shaw's cases and the case reported here present many features in common. The large numbers of cases in our series, referred to above, showing similar signs and symptoms and running a similar course, would appear to support our contention that the group, if not glandular fever (as manifested by the demonstration of heterophile antibodies), has a common aetiology and forms a clinical syndrome, of which the present case is unique in the manifestation of a meningeal reaction.

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THE RADIOGRAPHIC POSTERO-MEDIAL BORDER OF THE LUNG

OR THE LINEAR THORACIC PARASPINAL SHADOW

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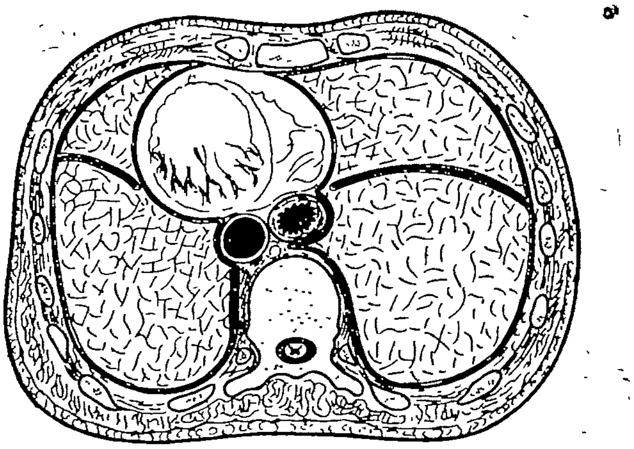
Under the latter title an editorial in *Radiology*, Aug., 1942, p. 229, draws attention to "a slender line of demarcation which is often seen in antero-posterior or sagittal roentgenograms of the bony thorax and upper abdomen. This line lies on the left side of the lower two-thirds of the thoracic spine and sometimes continues as far down as the plane of the first two lumbar segments. The shadow is frequently an enigma to radiologists and other clinicians viewing such roentgenograms. It is not visible on all films or projections of this portion of the body, but is observed with such frequency that it must be the result of variation in the course and position of a normal structure situated therein." Then follows a discussion in which it is inferred that it is not bony, not due to unilateral spinal ligaments, descending aorta, or inferior vena cava, "but it might be an enlarged and elongated hemiazygos vein." "This editorial is written with the suggestion that this finding be referred to as the left thoracic paraspinal shadow and that its frequency be noted by various radiological observers. In this manner its true incidence may be ascertained and its apparent nature confirmed."

An Important Diagnostic Sign

This radiographic line of demarcation is of great importance in the diagnosis of lesions involving the lower dorsal and upper lumbar spine. It is often seen on the antero-posterior radiographs of the dorso-lumbar area on the left side, but it is seen, though less often, on the right side as well. It extends upwards sometimes to the level of the 4th dorsal vertebra, but only as far as the reflection of the pleura on to the diaphragm, for *it marks the postero-medial border of the lung*. As will be seen from the accompanying sketch of a cross-section of the body at the 9th dorsal level, the postero-medial border of the left lung, which has been more thickly outlined for emphasis, lies in a direct sagittal line for two or more inches. For the whole of this distance it is separated from the vertebral body by the pleura, fascia, and some areolar tissue. On a plane with the anterior surface of the body it is displaced laterally by the descending aorta and more anteriorly by the heart. On the right side the medial border of the lung extends partly over the anterior surface of the vertebral body and is displaced laterally by the oesophagus and the heart. Antero-posterior radiographs of this area will therefore show the postero-medial boundary of the lung as a straight line lateral to the outline of the vertebra, because on the lung side of the boundary the tissue is relatively radiotransparent, whereas on the vertebral side the tissue is much more radio-opaque. The descending aorta, being more opaque than the lung, will also be seen as a linear shadow lateral to the postero-medial border of the lung where it is superimposed over the postero-medial aspect of that organ. On the right side, because of the shelving margin of the postero-medial aspect of the right lung, there is usually no sharp line of demarcation between it and the denser medial structures; consequently the border cannot be seen. It is for the same reason that the more anterior of the medial borders of the lung are not shown.

A glance at the sketch will reveal at once why this line has great diagnostic significance, for it shows the close relation of the medial border of the lung to the lateral surface of the vertebral body. If the latter is crushed its transverse diameter will be increased and the medial border of the lung will be displaced to that extent laterally. If the fracture is associated with a paravertebral haematoma this will show as an added expansion and further lateral displacement of the medial border of the lung. The antero-posterior radiographs show this as a fusiform expansion of the medial opacity, for the postero-medial border of the right lung will be similarly displaced. In a case which came to court the existence of a crush fracture of the vertebral body was disputed until the presence of a paravertebral haematoma was demonstrated to the judge on the radiograph taken immediately after the accident and its absence from radiographs taken a fortnight later. But the commonest demonstration of lateral displacement of the postero-medial border of the lung is due to the paravertebral tuberculous abscess. It is important because it may be detected before any change in the bone has become apparent. The abscess may extend the whole length of the dorsal spine, is usually fusiform in shape, and is sometimes of the width of the heart shadow; indeed, it has occasionally been missed because it was mistaken for the latter. It may show progressive expansion from the time it is first detected. Because from the level of the reflection of the pleura on to the diaphragm there is below no contrast in the densities of the adjacent tissues, the outline of the abscess cannot be traced in the abdomen—i.e., we are dependent upon the lateral displacement of the postero-medial border of the radiotransparent lung for visualization of the abscess. Consequently, though the abscess may have arisen from caries of one of the lumbar vertebrae, if no bone changes are yet recognizable its origin may not be apparent.



Transverse section of body at 9th dorsal level. The thickened lines are of the postero-medial border of the pleura.

Incidentally, it may be stated that in the abdomen a lateral deviation of the line of the psoas muscle may help us to detect the site of an acute abscess, or a chronic abscess before calcium has been deposited within it. For anatomical reasons this line of the psoas may appear to be continuous with that of the postero-medial border of the lung.

Points in Differential Diagnosis

Because of this common appearance of the dorsal tuberculous paravertebral abscess there is a tendency to diagnose all fusiform deviations of the postero-medial border of the lung as tuberculous in origin, but appreciation of the anatomical features I have described which give rise to these shadows induces further discrimination. Thus neoplasm, both primary and secondary, may cause collapse and an increase in the transverse diameter of the diseased vertebral body: this will cause a lateral deviation of the postero-medial border of the lung, which will be increased, if there is proliferation of neoplastic cells or if associated with haemorrhage, to such an extent that it may resemble a paravertebral abscess. It should be remembered, however, as a feature in differential diagnosis, that neoplasm appears to spare the disks even though all the vertebral body is destroyed.

Fusiform paravertebral expansions have been seen at the site of pneumococcal, typhoid, and paratyphoid abscesses. In these the destructive changes are more frequently present in the disk, which appears to collapse, and within a few weeks the postero-medial border of the lung is straightened out again. The vertebral bodies ultimately fuse. In the acute phase of vertebra plana the involved body is surrounded by fusiform expansion, which within a few weeks gradually disappears, leaving the disk apparently intact but the elements of the vertebral body compressed to a quarter or a third of the normal depth. In Paget's disease that is localized to one or more dorsal vertebral bodies the postero-medial border of the lung is deviated laterally by the expansion of the bodies. In osteochondritis of the spine in infants and adolescents some degree of thickening of the tissues adjacent to the vertebral bodies occurs, and the medial border of both lungs may become apparent just lateral to the border of those bodies; but in this there is no localized fusiform expansion.

In one case rupture of the posterior wall of the aorta was associated with haemorrhage into the areolar tissue surrounding the vertebral bodies: an appearance simulating a paravertebral abscess was produced. Any inflammatory or neoplastic proliferation within the vertebral body or the areolar tissue surrounding it may produce changes such as have been described, and it may be necessary to seek elsewhere for a clue to the identity of the organisms and cells producing the displacement of the lung. Empyema localized to this site would also push the lung laterally.

Summary

The line of demarcation formed at the flattened postero-medial border of the lung by the sharp contrast between the relative radiotransparency of the lung and the radio-opacity of the vertebral tissues is of valuable diagnostic significance in cases of backache.

The anatomical investigations which contributed to the discovery of the cause of this radiographic sign were carried out in the anatomy department of the University of Birmingham with the kind permission and assistance of Prof. C. V. Smout.

Medical Memoranda

A Case of Bilateral Bell's Palsy

Double Bell's palsy has always been looked upon as an uncommon phenomenon. Jellife and White (1935) consider it rare, as do Osler and McCrae (1935), Price (1941), Savill (1939), and Walshe (1941). Numerous cases of facial diplegia have been quoted, but the majority of them have been due to some condition such as epidemic encephalitis, trauma, or a lesion at the base of the brain. Bashford and Wilson (1918), Holmes (1917), and Viets (1927) have recorded numerous cases of facial diplegia due to other causes. Currier (1928) discusses facial diplegia and records two cases, but these are not of the type commonly called bilateral Bell's palsy. Most authorities now agree with Patrick (1916) that Bell's palsy is due to an infection elsewhere plus exposure to cold, although the infection is not always apparent.

CASE HISTORY

An electrician aged 17 was seen at the out-patient department of the Royal Infirmary, Sunderland, on Dec. 9, 1940. About a fortnight previously he was unable to whistle; food had a tendency to drop out of his mouth; and when he washed himself the soap got into his eyes. He stated that he had suffered from a catarrhal "cold" about a week previously. There was no history of ear trouble, whether deafness, pain, or discharge.

On examination both sides of the mouth were drooped, furrows of the brow were indefinite, naso-labial folds on both sides tended to be obliterated, and there was a general loss of expression in the face Both eyes could be opened against the patient's efforts to keep them closed, the left side perhaps more so than the right. He was unable to close both eyes completely, and wrinkling of his brow was poor. He was unable to whistle or blow out either cheek Attempts to show his teeth were poor, and the mouth tended to be drawn to the right side to a slight degree. No loss of sensation was detected over the face. Taste on the anterior two-thirds of the tongue was normal. There was no marked sensitivity to loud noises. The other cranial nerves were normal, as were the fundi. The central nervous system showed no other abnormality, and the circulatory, respiratory, alimentary, and urinary systems were normal. Radiographs of the skull revealed nothing unusual.

Examination of the cerebrospinal fluid showed: No cellular increase; protein 50 mg. per 100 c.cm.; negative Wassermann reaction; Lange curve, 0123444421. A blood count gave Hb 84%; R.B.C. 4,300,000; C.I. 1; W.B.C. 7,200—polymorphs 52%, lymphocytes 35%, eosinophils 6%, large mononuclears 7%, basophils 0. The red blood cells were normal in size. The electrical reactions were as follows: Brisk faradic response in both sides of the face; galvanic response normal; slightly sluggish on right side of face. Mr. Jowett of the E.N.T. department reported that no abnormality was detected in the ears and that hearing was normal.

The patient's condition improved gradually, and by Dec. 21 it had practically cleared up. The fact that his electrical reactions remained normal, the paralysis was not complete, and sensation in the tongue was normal bears out the usually accepted idea that recovery will occur rapidly. This was so in the present case.

Re-examination, March 21, 1942.—During the past year he has felt well and has noted no abnormality with regard to his face. He has continued at work without a day's absence. The pupils are equal, the eye movements full, and the power in both eyelids normal. He can wrinkle his brows normally, and the lines of his face on both sides are well marked. He can whistle, and the sensation of his face and tongue is normal.

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X-ray Investigation of Stridor in a Child

Histories of illness in childhood are of necessity obtained second-hand. Although parents are keen observers, it is inevitable that vital facts in a story may be omitted simply because the child was alone when some particular episode occurred. This applies particularly to the habit children have of inserting all sorts of objects into their various orifices. Then it is that *x*-ray examination may reveal an unsuspected foreign body, and provide the answer to a puzzling train of symptoms and signs. The following case shows how radiographs revealed the cause of a tracheal stridor which had been present in a child for a period of over one year.

CASE HISTORY

A boy of 2½ years was brought to the Princess Elizabeth of York Hospital for Children on account of stridor. The history was that he was well until 13 months before admission, when he had choked over the first mouthful of his afternoon meal and had vomited it. Immediately following this he had been unable to swallow anything but fluids for the ensuing 10 days, after which the power to swallow solids had gradually returned, accompanied by the development of a stridor. He had had the stridor constantly since then, and the mother had noticed that it had been more marked for the last two months. There had been no dysphagia after the initial 10 days, and in all other respects he seemed well.

Ten months after this episode the child was admitted to another hospital for radical cure of a hydrocele. Whilst awaiting operation he had developed otitis media, so the operation was postponed. Later his tonsils and adenoids were removed, and he was finally discharged after a total of 11 weeks, without operation having been performed. Radiological investigation of the stridor was not carried out, although its presence at that time was noted, and was, in part, the reason for postponing operation.

On investigation, 13 months after its onset, the stridor was found to be constant, chiefly inspiratory, and increased by activity. The child was well nourished, and no abnormality was to be seen in the pharynx. The chest was clear. There were a bilateral chronic otitis media and a right hydrocele. Radiographs showed a cog-wheel 3/4 in. in diameter lying in the coronal plane at the level of the sterno-clavicular joint and posterior to the trachea, which was narrowed to a slit at this point. The supposition that the wheel was in the lumen of the oesophagus was confirmed by a barium swallow, which showed the barium stream being divided into two by the hub of the wheel. Under general anaesthesia the wheel was successfully removed by grasping it in crocodile forceps passed down an oesophagoscope. Its removal was followed by the discharge of a few c.cm. of foul-smelling pus and some fresh blood.

Post-operative progress was satisfactory. The child was given no fluid by mouth for 24 hours, an intravenous drip glucose-saline being maintained for this time. Thereafter fluids by mouth were started in small quantities and rapidly increased. There was no dysphagia, and no pyrexia after the first 24 hours. The stridor gradually decreased, and was practically absent when the patient was discharged three weeks later. A barium swallow given two weeks post-operatively showed considerable residual deformity of the oesophagus, but no obstruction. A follow-up is to be carried out to detect the possible onset of a stricture.

I am much indebted to Mr. C. P. Malley for permission to report this case, and to Dr. C. Hilliard of Hertford County Hospital for the radiographs taken.

RUTH M. STEVENSON, M.B., B.Ch.

Reviews

ANAESTHETICS AFLOAT

Anaesthetics Afloat. By Surg. Lieut.-Commander Ronald Woolmer, R.N.V.R., B.M., B.Ch., D.A. With an introduction by Surg. Capt. H. D. Drennan, D.S.O., R.N. (Pp. 120; illustrated. 6s.) London: H. K. Lewis. 1942.

A surprising amount of sound and useful information is collected here. The author has a pleasant style and gives essential information without weighing this down with unnecessary details. From his own experience of anaesthesia at sea he deals clearly with special problems that may be met with there, and this practical teaching is invaluable to those who must work under emergency conditions. The chapters on "Mishaps and Difficulties in Anaesthesia," on "Anaesthesia in Relation to War Wounds, Injuries, and Shock," and on "Mode of Anaesthesia for Various Operations" are especially good. Full details of the preparation of patients for general anaesthesia are given, and the chief methods of spinal analgesia and the most useful types of local analgesia are described and illustrated.

Among the few controversial points are these: Many anaesthetists would consider that this author's advice that morphine for premedication be given three-quarters of an hour before operation would lead to respiratory depression during the induction, in cases where ether is used, and it is now more commonly taught that morphine should be given one and a half hours before operation. The instruction that a patient who has developed ether convulsions should be placed in the Trendelenburg position is contrary to the usual teaching, which advises the head-up (anti-Trendelenburg) position. Then, whereas the correct warning is given not to use general anaesthesia for operation for peritonsillar abscess, yet it is surprising to read that local anaesthesia should be achieved with the ethyl chloride jet. One wonders why a cocaine spray is not advised, since the average patient would inhale enough ethyl chloride to become unconscious.

The usefulness of intravenous barbiturates is rightly stressed, but the statement about evipan and pentothal, that "both drugs, however, have a very high margin of safety," true though it is for the experienced person, may give an inexperienced anaesthetist undue confidence with them. Very sound advice is included as to the care with which endotracheal intubation should be performed. The instructions on the treatment of a patient during operation under spinal analgesia are excellent, and could be read with great advantage by those anaesthetists, and also surgeons, who habitually disturb the patient by asking him if he is feeling pain.

This book will really fit into the pocket; it has a special usefulness in time of war, and the author is to be congratulated on this valuable addition to the literature.

PROBLEMS OF BLOOD TRANSFUSION

Blood Substitutes and Blood Transfusion. Edited by Stuart Mudd, M.A., M.D., and William Thalhimer, M.D. (Pp. 407. $5.00 post paid or 27s. 6d.) Springfield and Baltimore: Charles C. Thomas; London: Baillière, Tindall and Cox. 1942.

This "symposium monograph," edited by Stuart Mudd and William Thalhimer, is based on papers read at the annual meeting of the American Human Serum Association held in 1941 and revised and brought up to date in the spring of 1942. The subjects discussed include aetiology and mechanisms of secondary shock; methods of preservation of plasma and serum; haemoglobin, serum albumin, and casein digests as blood substitutes; storage, transportation, and administration of whole blood with special reference to iso-agglutinins and group-specific substances; and therapeutic experiences with serum and plasma. There is little reference to work carried out in England in both the preparation and use of blood derivatives. In the last two years literally thousands of litres of both serum and plasma have been prepared and administered in this country. It is odd, therefore, to read papers devoted to an account of the administration of 250 c.cm. of concentrated serum to one patient.

In spite of the extensive experiences of observers here showing that haemoconcentration does not occur to any marked degree in traumatic shock, Virgil Moon still insists on its significance in this condition. It is of interest to find several groups of investigators emphasizing that serum appears to be of equal value to and no more toxic than plasma, a point of view which, though held here by many workers, has not hitherto been accepted in the U.S.A. Elliott and Marsh, as the result of clinical trial, conclude that "the clotting of blood does not impart toxic properties to its serum"; while Self and Scudder state: "We favour the use of liquid pooled human serum over liquid plasma . . . the increase in the incidence of reaction to serum is not severe enough to warrant withholding serum for this reason. We feel that just as patients with leukaemia or aplastic anaemia are prone to react to blood transfusions, so are patients suffering from hypoproteinaemia or having abnormal protein patterns particularly liable to reaction from serum or plasma infusion. . . . Our experience suggests that if a patient reacts to serum he is likely to react also to any blood substitute. . . . It is our feeling that patients in shock are much less prone to react to serum or plasma than other patients." This latter point has often been noted by English observers, but there is at present no explanation of it.

Witebsky and his colleagues contribute an interesting paper on the neutralization of iso-agglutinins anti-A and anti-B in O (IV) blood by means of the addition of the isolated group-specific substances. These substances were isolated either from the saliva or hog tissue in the case of A, or from gastric juices or horse tissue in the case of B. Those workers have given 100 transfusions of O blood to which these group-specific substances were added to reduce the titre of the normally occurring iso-agglutinins. It is clearly too soon to evaluate the practical significance of these observations. A discussion on the bacteriological control of the preparation of plasma by workers at Columbia University will be of particular value to those who have been concerned with similar problems elsewhere. The authors conclude that "at present to the best of our knowledge there is no preservative which when added to human plasma or serum will ensure sterility of the final product. The best safeguard for the sterility of these blood substitutes is filtration through bacterial filters."

Though this symposium contains much that will stimulate and interest specialists, it is not recommended to the general and uncritical reader who wishes to gain up-to-date knowledge of transfusion problems.

A MEDICAL PSYCHOLOGIST UNBENDS

Out of Working Hours: Medical Psychology on Special Occasions. By Henry Yellowlees, M.D., F.R.F.P.S., F.R.C.P., D.P.M. (Pp. 152. 8s. 6d.) London: J. and A. Churchill. 1943.

Dr. Henry Yellowlees once remarked that he was brought up on the Bible, Shakespeare, and *The Pilgrim's Progress*—no bad foundation. In his *Out of Working Hours* there is ample evidence of that upbringing. Thus in his Morison Lectures on "The Problem of Adolescence" he makes effective use of the third chapter of Genesis as a parable of that problem. The "return to the garden" as the symbol of a craving for regression is beautifully expressed by H. G. Wells in his story *The Door in the Wall*, and the two provide an interesting scientific and artistic parallel on the same theme. These lectures were given before various audiences, usually non-medical, and are designed to explain what medical psychology is aiming at. The author quotes with approbation Dr. Bernard Hart's remark that "nothing but hopeless confusion can result when one mixes the language of brain cells and nerve fibres with that of thought and conduct"—a warning too often disregarded. In his entertaining lecture to masseuses entitled "Word and Action" Dr. Yellowlees gives an imposing list of things "thou shalt not" talk to the patient about, but his positive recommendations are less precise. His lecture to sister-tutors on "A Little Brief Authority" contains admirable hints how not to treat their probationers. This little volume is brought pleasantly to a conclusion by an oration before the Harveian Society of Edinburgh. Doubtless the truth about Harvey lies somewhere between Aubrey's picture of the "cholerick little man" and the orator's idealized portrait, but we are satisfied that the latter is nearer the mark. Common sense, good humour, and pungent wit characterize all these confessedly lighter efforts of the author.

Notes on Books

The third edition of Mr. G. F. Gibberd's excellent *Short Textbook of Midwifery* is now available. The author has deliberately avoided new material of doubtful value and has concentrated on that concise presentation of sound orthodox obstetric practice which has already made this little book most popular with students and practitioners. Its popularity is well deserved. It is published by J. and A. Churchill at 21s.

Preparations and Appliances

A NEW FORM OF SIGMOIDOSCOPE

Surgeon Rear-Admiral Cecil P. G. Wakeley, C.B., D.Sc., F.R.C.S., writes:

Since first using "Colite" instruments some four years ago considerable improvements in design, construction, and power of illumination have been achieved. Hitherto these instruments have been made in solid form only as retractors, tongue depressors, speculae, etc. Vann Brothers have now produced tubular instruments such as sigmoidoscopes, proctoscopes, and direct-vision cystoscopes.

The main features of the sigmoidoscopes (Fig. 1) are that the source of light is placed outside the tube, allowing an unobstructed view, freedom of operation, and safe use of diathermy instruments, as the material is a perfect non-conductor of heat and electricity. The cold light travels along the wall of the instrument and escapes at the distal end, showing the object under examination in a plastic form and natural colouring. For use with the sigmoidoscope I have had made a stainless-steel inspection mirror (Fig. 2) with a graduated stem. This mirror is of great practical utility, for it enables ulcers, fissures, polypi, and carcinomata to be detected at an early stage. These various conditions can be clearly seen through the wall of the sigmoidoscope, thereby greatly facilitating an early and accurate diagnosis. A further advantage is that once the instrument is introduced the complete examination can be made by moving the mirror inside the tube, thus eliminating discomfort to the patient.

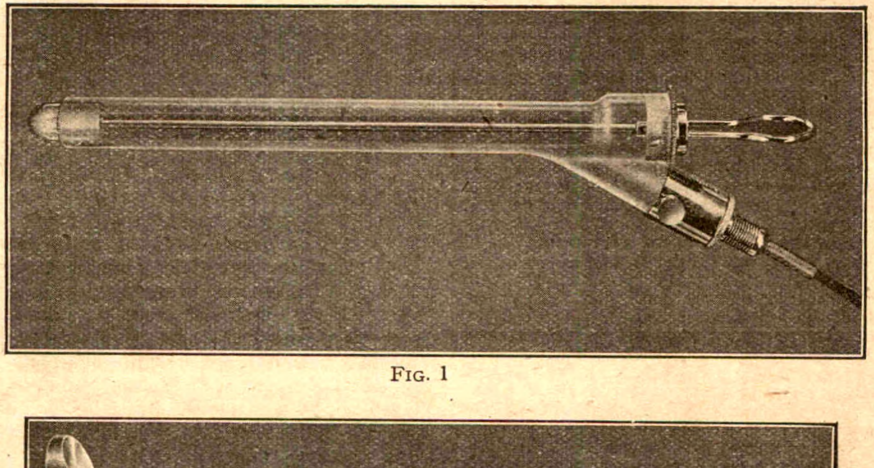

Fig. 1

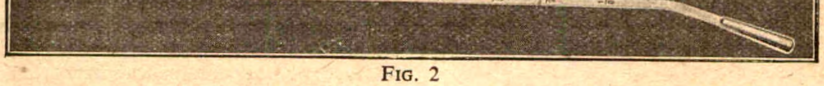

Fig. 2

For all practical purposes this apparatus is unbreakable and can be sterilized by boiling. It should prove to be a valuable addition to the surgeon's equipment of really "worth-while" instruments. It is made in two sizes—13/16 in. and 15/16 in. external diameter—by Messrs. Vann Brothers, 63, Weymouth Street, London, W.1.

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ACCURATE HAEMOGLOBINOMETRY

Until now clinicians and pathologists alike have viewed with some justifiable suspicion reports on such common and apparently simple investigations as haemoglobin determinations and red cell counts when the signature to the report was unfamiliar. This suspicion was justified because of the lack of standardization of the methods employed and the uncertain calibration of the commercial standards available. Thus one worker may use a Haldane instrument in which 100% = 18.5 vols.% O_2 = 13.8 g. Hb per 100 c.cm. of blood; a second might use one of the modified Sahli methods with 100% = 19.4 vols. % O_2 = 14.5 g. Hb per 100 c.cm. of blood; a third a Newcomer, with 100% = 21.4 vols. % O_2 = 16 g. Hb per 100 c.cm. of blood; and a fourth the original Sahli of 100% = 23.2 vols. % O_2 = 17.3 g. Hb per 100 c.cm. of blood. Each of these might have been accurately standardized or not, and in the latter case the error might easily reach 20%. The habit of reporting haemoglobin estimations in terms of grammes Hb per 100 c.cm. as well as in percentages has become more usual during the last few years, and this provides a most valuable check on the meaning of the term "100% Hb." Nevertheless many workers, especially those in small laboratories, and even in the larger ones since the war, have available neither the apparatus nor the technical skill required accurately to determine the haemoglobin content of blood either by the oxygen capacity or by the blood-iron method, so they are forced to rely on the colour standards commercially available. It is well known that these "standards" are reliable neither for accuracy of calibration nor for long life.

The British Standards Institution and the Analytical Methods Subcommittee of the Traumatic Shock Committee of the Medical Research Council—whose report on haemoglobinometry appears in the opening pages of this issue—therefore deserve the thanks of all practitioners for their attempt to end this unsatisfactory state of affairs by issuing a specification for a British standard clinical haemoglobinometer,[1] and arranging with the National Physical Laboratory (Teddington, Middlesex) for accurate calibration of the instrument. The pattern chosen is the original Haldane instrument, still used by most clinical pathologists in this country and capable of an "accuracy" of ± 2% on the Haldane scale. The 100% of this instrument corresponds to an oxygen capacity of 18.5 vols. % or to 13.8 g. Hb per 100 c.cm. The N.P.L. is prepared to accept colour tubes, dilution tubes, and 0.02-ml. pipettes for testing for conformity with specification or to provide a detailed statement of errors. It is suggested that colour tubes should be checked by the N.P.L. every six months. The cost of certification is not excessive—£1 for the colour tube and a few shillings for dilution tubes and pipettes.

Some five years ago the B.S.I. issued a specification (No. 748/1937) for haemocytometer counting chambers with Neubauer and Bürker rulings, cover glasses, and pipettes, the permissible error being ± 5% for the counting chamber and ± 3% for the pipettes. These also can be checked by the N.P.L. for conformity with specification or to provide a detailed statement of errors, the cost in the latter case being £1 7s. 6d. per chamber and a few shillings for the pipettes. If instruments certified to conform with specification are used the possible variation between reports is still considerable. If the errors were cumulative, but of opposite sign, a blood which truly had Hb = 100% and R.B.C. 5,000,000 may be reported by one laboratory as "Hb 95%, R.B.C. 5,400,000 per c.mm., colour index 0.88," and by a second as "Hb 105%, R.B.C. 4,600,000 per c.mm., colour index 1.14." Usually, of course, errors tend to cancel each other, but it is obvious that a detailed statement of errors for each haemocytometer chamber, for each haemoglobinometer, and for the accompanying pipettes should be obtained and the necessary correcting factor be applied. Even then the significance of differences of cell count must not be exaggerated, for the coefficient of variation of sampling is of the order of 5%, and counts differing by less than 7% or 300,000 for counts in the range 4,000,000 to 5,000,000 cannot be regarded as significantly different. Higher accuracy can be obtained only by increasing the number of cells counted in several different preparations, and for general clinical use this would require labour excessive in comparison with the results achieved. The general adoption of instruments certified by the N.P.L. for determining blood counts should, however, make it possible to accept blood counts from different institutions without suspicion. This is of great importance when patients are transferred from one hospital to another some distance away.

Now that reasonably accurate instruments are available it is surely desirable that those indices introduced by Wintrobe—the mean corpuscular volume and the mean corpuscular haemoglobin concentration—should come into general use to amplify the colour index. Considerably greater certainty in classifying obscure anaemias can be attained by their use, particularly in the anaemias associated with pregnancy and the puerperium, where true megaloblastic reactions with a raised mean corpuscular volume may accompany a normal or subnormal colour index. The M.R.C. Subcommittee recommends the general adoption of Wintrobe's technique for determination of red cell volume, using either heparin or Wintrobe's anticoagulant. Screw-capped 1/4-oz. bottles (bijou bottles) with a capacity of 6 c.cm. are now in general use, and these can be heparinized to contain 50 Toronto units to prevent the coagulation of 5 c.cm. blood (for about a farthing), so that the question of cost should not in future deter pathologists from using heparin for most haematological work; the need to measure with some accuracy 5 c.cm. of blood into tubes prepared with Wintrobe's anticoagulant is thus avoided.

The British Standards Institution proposes to place the medical practitioner still further in its debt by standardizing an acid haematin (Sahli) instrument in the same way, so that those who determine haemoglobin values in their patients' homes, or for other reasons have no coal gas or carbon monoxide available, will be at no disadvantage compared with their better-equipped colleagues. It is much to be hoped that it will complete its work by issuing a specification for a haemoglobinometer of the Wintrobe-Hellige (Hellige "Neoplan") type, using a glass wedge, for in the experience of many this is far the most satisfactory instrument for general clinical work.

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[1] B.S.S. No. 1079/1942. Copies can be obtained from British Standards Institution, Publications Department, 28, Victoria Street, London, S.W.1. (2s., or 2s. 3d. post free.)

PHYSIOLOGY OF CLOTHING

A century and a half ago Count Rumford suggested that the hygienic properties of clothing merited serious scientific study. Included in the aims of the Royal Institution was the instruction of the public in the proper practice of the domestic arts, particularly those relating to "the management of heat and the saving of fuel." Among these the application of the laws of heat to clothing and fuel economy was specially mentioned.[1] That these very subjects have now become the everyday practical concern of every citizen hardly needs emphasizing; and besides these topics there are in modern war, as Sir Leonard Hill has graphically described in his recent article,[2] a considerable number of situations which call for the provision of highly specialized clothing. Wearing apparel for fighting personnel must be planned as protection against a variety of external agencies—wind, water, dust, ice, gas, and fire, as well as the climatic extremes of heat and humidity—and, withal, the garments have to be reasonably light, comfortable, strong, and serviceable. As Sir Leonard Hill says, on all these occasions the provision of the appropriate clothing requires as a basis the application of "physiological common-sense." This means particularly an appreciation of the facts of heat regulation in the human subject. But, while it is largely true that specialized protective garments have still to be devised and developed empirically, nevertheless since Count Rumford's day there has been a steady progress in the scientific study of clothing. The most notable contribution came from Max Rubner and his school some thirty years ago.[3] The Munich workers systematized those clothing properties having physiological and hygienic significance and made many observations on the comparative value of different fabrics under a variety of conditions. But for the most part these valuable studies were concerned with clothing materials off rather than on the human subject. Here it may be of interest to note that the most remarkable nonsense written under the guise of science has come in this field from Nazi Germany, where the study of textiles has been pursued by interested parties as a racial issue—thus wool is said to be "superior" to synthetic fabrics because the ancient Teutons were a "wool-people."[4]

After Rubner an advance was made by Hill, who was able to assess the value of garments for particular purposes (e.g., for shipwrecked sailors) without recourse in the first instance to prolonged testing on the human subject[5]; his katathermometer could be provided with a wet or a dry clothing surface, and its rate of heat loss was easily measurable. Rubner, who combined so well the pursuit of pure and applied science, was also a pioneer in the study of heat regulation of the human subject. It is this branch of physiology which of recent years has undergone a notable advance, due mainly to refinements in technique in the laboratories of du Bois, Bazett, and specially of Winslow and his colleagues.[6] The latter have established not only the principles but many of the quantitative data of heat regulation in relation to a wide range of environmental conditions. With their data, and particularly their methods, the thermo-regulatory role of clothing can be understood in a fairly exact way. It is now possible also to formulate the insulation requirements of clothing for a vari
external air and radiant temperatures, taking into ac
also the level of heat production due to work.[7] S
on the physiology of clothing have also been proc
in the London School of Hygiene.[8] Such studi
making practicable the establishment of rational sta
of clothing at least as regards thermal properties.
far more than is the case with nutrition, thermal ins
standards can be only a rough guide when applied t
vidual requirements. As a basis for clothes rationin
standards would have to be greatly modified by h
considerations—necessity for changes of clothing for
liness, durability, special clothing for work, etc.—a
as by social factors which affect the range and
of clothing. Nevertheless, the need to take clothin
account (e.g., in budgetary surveys) is well apprecia
social investigators, although this has to be done
quite arbitrary basis.[9] The objective evaluation of cl
might well prove of value also in connexion with
surveys of such diseases as rheumatism and tuberc
As in the case of food, income level has a definite inf
on the amount and type of clothing bought.[10] E
it were desired to use as a reference line the warm
quirement with regard to, say, the coldest prevaili
temperature and wind of particular localities, in p
a further problem would still face the field worker
is the actual assessment of the probable insulating
of the garments when worn. The value of easy me
ments such as thickness, or weight per unit of s
area, as guides in this direction requires careful
sideration.

In the laboratory the assessment and comparis
fabrics on a physiological or near-physiological bas
more practicable proposition, particularly with the
provided by the newer studies of thermal regulation
human subject. Such investigations have of course
pursued by a large number of workers, particularly
Rubner's time,[11] and they are to-day assuming a
importance. The introduction of many new and
synthetic textile fibres demands that comparisons wi
time-honoured fibres be conducted largely on a more
physiological and hygienic basis. For the comparis
fabrics much attention has of course to be focused o
heat-retaining properties; but the reactions of the fib
the fabric to moisture are also of importance, no
with regard to manufacture but physiologically as we
the latter field a number of questions remain large
answered. There is the question of the moisture di
permeability of clothing since evaporative cooling
important channel of heat dissipation. Of more i
perhaps, is the old-standing problem of the moistu
gain properties of different fibres. The heat of "sor
in relation to, say, resting heat production is a signifi
large amount when garments are transferred from
spheres of a low to one of high humidity[12] and th
relations are of the right order.[13] But these are stud
the isolated materials. On the human subject there i
doubt that these effects would be significantly altered
humidity levels and gradients prevailing in the garme
worn. This stresses again the primacy of physiol
investigation for providing a sure basis for the sci
study of clothing.

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[1] Wolf, A.: *A History of Science and Technology and Philosophy in the Eighteenth Century*, p. 42. London: George Allen and Unwin Ltd., 1938.

[2] Hill, L.: *British Medical Journal*, 1942, **2**, 524.

[3] *Handbuch der Hygiene*, 1911.

[4] Kroner, W.: *Warum Wolle ?* Berlin, 1937.

[5] Hill, L., and Campbell, J. A.: "The Katathermometer in Studies of Body Heat and Efficiency," M.R.C. Report, H.M.S.O., 1923, p. 179.

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[7] Gagge, A. P., Burton, A. C., and Bazett, H. C.: *Science*, 1941,

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[10] Nystrom: *Economics of Consumption*, Chap. XIV.

[11] Black, C. P., and Matthew, J. A.: *J. textile Inst.*, 1937, **1**, 197.

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THE NUFFIELD FOUNDATION

Lord Nuffield has intimated his intention to hand over to trustees his shareholdings in the Nuffield organization to the value of £10,000,000 as a capital fund for the founding of a charitable trust to be known as "The Nuffield Foundation." He has appointed the following managing trustees to administer the income from the fund: Sir William M. Goodenough, Bt. (chairman); Sir John S. B. Stopford, M.B.E., F.R.S. (vice-chairman); Prof. F. L. Engledow, C.M.G., M.A., B.Sc.; the Hon. Geoffrey C. Gibbs; Sir Hector Hetherington, M.A., LL.D.; Sir Henry T. Tizard, K.C.B., F.R.S.; Miss Janet Vaughan, D.M., F.R.C.P. The objects of the Trust have been given as follows: (1) Medical research and teaching; (2) the organization and development of medical and health services; (3) scientific research and teaching in the interests of trade and industry; (4) the pursuit of social studies; (5) the care and comfort of aged persons. Great Britain and Northern Ireland will be the terrain normally covered by the Trust's activities, but provision is made for any projects that may especially affect the Empire, and in connexion with the first and third items above scholarships and other assistance will be available for Empire students. Another provision is that those of Lord Nuffield's trusts already in being may benefit from the income of the new foundation.

British medicine may indeed count itself fortunate that at this moment in its history, when so many new projects of science and of administration are in the air, it has at its elbow a man who is able to bestow on it such princely benefactions with such a sure vision of what the needs of medicine are. The endowments at Oxford, with the recent establishment there of an Institute of Social Medicine, the Nuffield Provincial Hospitals Trust, and now this new great gift, put this country, and more especially the doctors of this country, profoundly in Lord Nuffield's debt and secure for his name a perpetual place on the roll of the great benefactors of medicine.

PRIMARY ATYPICAL PNEUMONIA, AETIOLOGY UNKNOWN

During recent years much interest has been shown in acute respiratory infections associated with atypical pulmonary lesions and apparently not due to the common respiratory organisms. Numerous authors in a steadily increasing literature have described the condition under the names of "virus pneumonia," "acute pneumonitis," "atypical bronchopneumonia," etc. The Director of the Commission on Pneumonia (Board for the Investigation and Control of Influenza and Other Epidemic Diseases)[1] in the U.S. Army has suggested that these cases now be separated in their classification from other pneumonias and be called "primary atypical pneumonia, aetiology unknown." In a recent article Dingle and Finland[2] ably review the whole subject and append some sixty references.

In this country the condition has been recognized for some years, but particular interest is focused on it at present owing to its occurrence among troops. It is difficult to say whether the disease is actually on the increase here or whether the more frequent and liberal use of *x*-ray diagnosis is disclosing cases which were previously passing unrecognized. An outbreak of atypical "influenzal pneumonia," described by Herxheimer and McMillan,[3] in a boys' school in Devon appears to be a similar condition. In America the disease has been reported mainly by military and student health doctors, who deal with groups of young adults and adolescents, among whom it is prevalent. An account of an outbreak in Cornell University is given by Smiley and others,[4] who draw attention to the ease of transmission of the disease. Young doctors and nurses in contact with cases in hospital have also figured prominently in the records. It seems possible, however, that the condition is not limited to this age group, and cases have been described from infancy to old age. Ramsay and Scadding[5] in 1939 reported apparently similar attacks in children, and more recently two epidemics among young infants have been recorded by Adams, Green, Evans, and Beach.[6]

Diagnosis may not be easy, particularly on clinical evidence alone, for the pulmonary changes revealed by *x* rays are often far more extensive than would be supposed from the clinical findings. The onset is insidious with fever, cough, malaise, headache, and chilliness, which may be preceded or accompanied by sore throat or nasal discharge. The degree of prostration is variable; so also is the temperature, which may be between 99° and 105° F. The pulse rate is ordinarily within normal limits, but may be low. The respiration rate is commonly unchanged. Pulmonary signs, if present at all, are slight, and may be limited to fine moist rales or adjacent areas of resonance and dullness. Such chest signs as are found may change daily or even hourly. The white cell count is normal in most cases. Sputum is scanty at first, but later becomes more productive and mucopurulent. Usually the course of the illness is mild and lasts 2 to 3 weeks, but it may be 8 weeks or even longer before complete recovery occurs and the chest is clear by physical and *x*-ray examination. Severe and, more rarely, fatal cases do occur. Complications include cerebral disturbances, depression, mild encephalitis, meningismus, thrombophlebitis of limbs, and pulmonary infarction. Treatment is symptomatic, and sulphonamide drugs have no beneficial effect. Definite evidence of pulmonary involvement is usually discovered by *x*-ray examination of the chest. Lesions are often found within the first few days, and the first change is an increase in the size of both hilar shadows, which is later followed by an infiltration extending outwards towards the periphery of the lung fields. The infiltration usually appears as patchy densities, mottling, or fine hazing. Such lesions commonly occur in the lower lobes, but may be found anywhere in either lung. In about 20% of the cases they are bilateral. Though the radiographic picture is fairly characteristic, it may be confused with that of pneumococcal pneumonia, bronchopneumonia, acute bronchitis, tuberculosis, pulmonary abscess, metastatic infiltration, and known virus and rickettsial diseases—e.g., Q fever, psittacosis, or influenza.

The aetiology of the disease has not been established. The usual laboratory procedures have yielded entirely negative results, and organisms isolated from the nose, throat, and sputum are generally those found in the respiratory tracts of normal individuals. This, together with the fact that the disease is communicable and that it is unaffected by sulphonamides, has led to the belief that it is due to a non-bacterial infection. Numerous attempts have been made to isolate rickettsias or viruses from the patients. The only workers to meet with much success have been Weir and Horsfall,[7] who reported the isolation in chick embryos and in the mongoose of a filterable virus obtained from each of four patients with the disease. They also found that this agent was neutralized by convalescent serum. Evidently further work is required to determine the aetiological agent, and a number of investigations are being carried on at the present time.

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[1] *War Med.*, 1942, **2**, 330.
[2] *New Engl. J. Med.*, 1942, **227**, 378.
[3] *British Medical Journal*, 1942, **2**, 513.
[4] *J. Amer. med. Ass.*, 1939, **112**, 1901.
[5] *Quart. J. Med.*, 1939, n.s., **8**, 79.
[6] *J. Pediat.*, 1942, **20**, 405.
[7] *J. exp. Med.*, 1940, **72**, 595.

INFLUENCE OF DIET ON RENAL VOLUME

Despite the classical experiments of Barcroft on the explanted spleen, little use has been made of this experimental method in the study of other organs. Allen and Cope[1] have recently been experimenting on dogs with explanted kidneys, and were able to observe several facts which may have a bearing on the question of hypertension and its treatment. Their main conclusions are as follows. The ingestion of salt and water causes an acute increase in kidney size and rise of blood pressure. These effects may be sustained so long as the high salt diet is continued, but return to normal when an ordinary diet is resumed. The increase in kidney size is therefore thought to be due to hyperaemia. In protein feeding experiments there is little immediate increase in size of the kidney, and the usual effect on blood pressure is to reduce it. Prolonged protein feeding, however, gives rise to enlargement of the kidneys which tends to remain and appears to be a true hypertrophy. It is not clear from the paper referred to what was the effect of prolonged protein feeding on the blood pressure. A further outcome of the experiments is that variations in blood pressure may occur independently of any change in the size of the kidney. The reverse may also be the case. Administration of ether caused a sharp reduction in kidney volume, again emphasizing the possible inaccuracies of experiments made under anaesthesia. These experiments show, therefore, that the kidneys, like the spleen, undergo daily and hourly variations of size during their normal activity. The kidneys of hypertensive dogs were in general more sensitive to changes of diet than those of animals with normal blood pressure. The results also seem to give point to salt restriction in the treatment of hypertension.

"ANY QUESTIONS ?"

General practitioners are exceptionally busy people and are confronted daily with questions of health and ill-health that demand immediate answers. Even when there is time for reflection and opportunity to postpone the answer, it is not always easy to find it ready made in one of the books on the consulting-room shelves. In any event, each case of ill-health presents an individual problem in which the stock answer and the stock mixture are not always the most satisfactory. It is natural, therefore, that the practising doctor should look to his weekly medical journals for help in the day-to-day conduct of his work, with, perhaps, expectations that are unduly sanguine. One result is that many do not read their weekly medical journals with as much interest as they read their daily and Sunday newspapers. The overworked practitioner might well retort that the latter are written in a simple and attractive way, so as to lighten the task of acquiring knowledge. There is no disputing this, but news and views in the popular press are treated only on the most superficial plane, and rarely in a way to provide solid information. Medicine is an exacting profession, if for no other reason than that the sciences on which it is founded are growing rapidly and providing the practising doctor with new technical equipment and knowledge. One of the disadvantages of general practice as it is conducted to-day is that it leaves the practitioner with very little time to spare and, indeed, very little energy to make use of that spare time in a way profitable to himself. Let us hope that in the medical world which so many people are now busily planning for the future the planners will not for-
get this all-important question of leisure. We fully sy
thize, therefore, with the feelings of the tired doctor f
with the toil of reading an article three or four p
long, packed with close argument, when what he r
wants to know is how to get rid of that troublesome
complained of by Mrs. X, and what advice he sh
give to Mr. Y for his pruritus. Before the war, as rea
may remember, we tried to meet this difficulty by pub
ing every week specially commissioned articles under
heading of "Treatment in General Practice." That
met a demand was made clear by appreciative corres
dence that reached this office, and by the successful
of the four volumes of collected articles published
by Messrs. H. K. Lewis. The war interrupted the l
term programme that had been planned, and progre
restriction on space since the war has not made easier
task of catering for the needs of the various grou
research workers, consultants, specialists of many ki
public health officers, as well as general practitione
who go to make up the readers of this *Journal*. It
be remembered that this is a scientific newspaper,
one of its duties is to offer a place for the publicatio
original scientific communications that form the gro
work for the practical advances of to-morrow.

For many years space has been provided at the en
the *Journal* for questions asked by doctors, in the h
that one or more readers will come forward with hel
answers. Occasionally the Editor has sought the view
an authority, and has published these with the ques
asked, as in the case of Income Tax queries. The la
method will be more widely used, and from now on
proposed to print, along with selected questions, ans
to them from selected experts. That part of the *Jou*
may occupy more and more space as time goes on,
for the duration of the war it will be at the mercy
the Paper Controller. It will also be limited by the n
ber and relevance of the questions submitted. But an e
will be made to turn the Queries and Answers colu
under another heading, into one of real help to the pra
ing doctor, especially the G.P.

SIR FARQUHAR BUZZARD

Sir Farquhar Buzzard will retire in April from the Re
Professorship of Medicine at Oxford, a chair he has oc
pied with great distinction since 1928. During that ti
largely through his vision and wise counsel, there has b
an unparalleled development of the Oxford Medi
School, notably in connexion with the Nuffield Instit
for Medical Research, the Provincial Hospitals Tr
and the wartime organization of clinical teaching at
Radcliffe Infirmary. Outside the University he has d
national work of the first importance in the promotion
schemes for co-ordinating and nationalizing hospital
medical services. Sir Farquhar Buzzard's activities h
not been restricted to purely medical work, for he has tal
a keen interest in all that pertains to the welfare of
University in various academic appointments. His frie
and colleagues feel that his great services should be co
memorated, in some permanent form, in Oxford. A rep
sentative committee has suggested as suitable memori
the painting of his portrait and, should sufficient additio
donations be received, the endowment of a Buzz
Scholarship or Prize in Medicine. This project will m
a wide appeal to members of the British Medical Assoc
tion, over which Sir Farquhar presided at the success
Annual Meeting in 1936. Donations may be sent to
Vice-Chancellor of the University, Oriel College, Oxford.

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[1] *J. Urol.*, 1942, **47**, 751.

SCIENTIFIC FREEDOM AND SOCIAL MEDICINE

BY

GEOFFREY BOURNE, M.D., F.R.C.P.

The Social Security plan proposed in the Beveridge report involves the assumption of "comprehensive health and rehabilitation services" (Part VI, para. 409). It is stated that "a comprehensive national health service will ensure that for every citizen there is available whatever medical treatment he requires, in whatever form he requires it, domiciliary or institutional, general, specialist, or consultant, and will ensure also the provision of dental, ophthalmic, and surgical appliances, nursing and midwifery, and rehabilitation after accidents" (para. 426).

The problems that arise in the organization of such a service are not dealt with in the Beveridge report. But, obviously, the implementing of the Beveridge plan, or some modification of it, after the war will entail the organization of a State Medical Service on a grand scale. The present voluntary hospitals will have to become a part of such an organization. Furthermore, even without a Social Security plan which involves a great number of monetary contributions from individuals, economic conditions after the war are likely to be such that it will be impossible to finance large hospitals by voluntary means. It is therefore highly probable that all hospitals will come under some form of State or local council control.

The medical profession welcomes the development of a comprehensive medical service. Measures for the promotion of maximum health in the country by the extension of preventive medicine and the easy availability of treatment are necessary steps in the advance of civilization, and are already overdue. The financing of such a medical service is a social and economic problem and not a medical one. But the *nature of the organization* of a State Medical Service is a matter which vitally concerns doctors in their professional capacity. It is the duty of practising medical men, and particularly the members of the staffs of the voluntary hospitals, to see to it that the socialization of medical services does not result in any loss or curtailment of their *scientific freedom* in the exercise of their profession.

If the planning of a State Medical Service is left in the hands of the politicians and the civil servants it will almost certainly be modelled according to the traditions of the Civil Service and along the lines of the already existing E.M.S. and L.C.C. hospitals. The defects of the Civil Service, particularly in regard to the stifling of initiative and the shunning of responsibility, are notorious (see *Passed to You, Please*, by J. P. W. Mallalieu).

Doctors have, or should have, as their only professional objects the provision of the best possible preventive measures against disease, the best possible administration of treatment, and the most rapid improvements possible in the technique of treatment. They are concerned greatly in the facilities given them for this purpose and demand that they shall be the best procurable, but care little by what machinery these facilities are paid for.

There are in existence at the present time two types of medical service—the autocratic, as typified by the L.C.C. and the E.M.S., and the democratic, as typified by the voluntary hospitals. In the autocratic services full power is in the hands of the chief medical officer; by him it is delegated to the medical superintendents, and by them it is wielded in individual institutions over their subordinate officers. In the democratic institutions full power over medical matters is entrusted to the democratic medical committees, composed of practising physicians and surgeons who are experts in their several lines and who meet and discuss medical matters on a footing of equality.

The Autocratic System

In this system the power over medical matters resides in one man, whether that man be the head of the service or the head of an institution. One man is incapable of having a good knowledge of all branches of medical science, and no human being exists who does not have personal predilections, sympathies, or antipathies, whether these refer to men or to things.

Promotion to the autocratic status goes by seniority and political and administrative acumen. Seniority in an autocratic service is likely to be assisted by a compliant attitude towards superiors, conformity with rules, and conservatism of outlook; it is likely to be impeded by a tendency to criticize and by liveliness or originality of outlook, and even by devoted application to medical practice. The former qualities are good in routine administrators but are fatal to research, for which the latter qualities are essential. Promotion removes the autocrat further from up-to-date medical care of patients and further from the scientific outlook, and brings him nearer to the day-to-day problems of administration and to the political point of view. The autocrat, being immune from the criticism of his juniors, and thus from criticism at all, is in danger of getting to believe that he has a universal knowledge of medicine, surgery, gynaecology, and all the ancillary sciences.

Science in the autocratic system is under several disadvantages. A medical superintendent can forbid the use, in his hospital, of a method of treatment in which he personally does not believe or of which he personally disapproves, however little he may know of the subject in question. This power has in such institutions been not infrequently exercised. Alternatively, should a method of diagnosis or of treatment be disapproved of by the chief medical officer, it can be effectually denied to the practising medical men by withholding the necessary funds. An institution of over 1,000 general beds was considered by the local physician to require an expensive instrument of routine diagnosis. The chief medical officer of the area refused to recommend its provision. When the machine was obtained independently from a voluntary organization, a bureaucratic official storm resulted. In some autocratically run hospital systems a medical officer may not publish a scientific article or paper unless permission has been obtained from his superiors. When it is remembered that the younger men are the initiators of new work, and the older men in such institutions are largely divorced from living medical science, the menace to vigorous scientific development is clear.

Free speech in medical matters is denied to those practising in an autocratic medical organization. A medical officer who criticized his medical superintendent would become unpopular, would jeopardize his future, and would do no good to his patients. Letters by medical officers in the medical papers criticizing the organization or the treatment of their superior colleagues are not seen. Anonymity does not provide an outlook for such criticism, since it is not encouraged by the editors of scientific papers, and rightly, for the principle is wrong. In an attempt to divert criticism certain autocratic institutions have allowed their medical staffs to meet—a generous concession—at regular intervals to discuss internal matters, scientific and otherwise. Such meetings are devoid of power, and have no official status and no power of initiation.

Discipline over the scientific thoughts and actions of medical men can thus be maintained by their more politically powerful senior colleagues by the means mentioned above: threat to promotion, influence of financial control, power over scientific and medical interests, veto of criticism. There is another and more pernicious handle. Should a medical officer be dismissed as a result of a quarrel because he is disgusted with some professional situation, he risks forfeiting part of the sum set aside annually for pension purposes, for the decision rests with his medical superior. This threat grows as years pass; for the sum is greater and his family obligations are increased.

Political pressure is applied with greater ease to the head of an autocratic unit, and this is, of course, the central feature of Nazism and Fascism. Thus in an autocratic system science is more at the mercy of the politicians. This fact constitutes a grave threat to medical research and even to medical education, for politicians have on the whole short-term minds, and are far more interested in the immediate application of available medical methods than in the discovery of newer and better ones. *In medicine the future is always greater than the present.*

A lay member of a certain autocratic committee remarked, "I will not have *my* people taught upon for the benefit of medical students." There is no guarantee that those with such an outlook may not be in a position to dictate to medical science in more ways than one.

In this connexion it is salutary to remember that nearly all advances in science are innovations that are made by persons whose characters are often coloured by outspokenness, independence of outlook, intolerance of mediocrity, dislike of fools, and love of liberalism. They will thus be the natural enemies of the safe man, the careerist, the respecter of forms and precedents, and the efficient administrator of set rules and regulations. History is full of examples proving that new scientific discoveries and advances are often strongly, even bitterly, opposed by the conservative and well-established elders of professions. Opposition is, *a fortiori*, stronger and more ignorant when it comes from the general public, whose point of view is mirrored more or less closely by politicians. In the past, in the absence of an autocratic medical system, this opposition has been stubborn enough. In the presence of such a system it would be hardly less strong. Anaesthesia for women in childbirth was stoutly condemned by certain religious bodies in the past. Lister's innovation of antisepsis met with scorn and obstruction on the part of his elder professional brethren. Pasteur, in his attack upon the theory of spontaneous generation, was bitterly opposed by his academic fellows for many years. Sir James Mackenzie's work, in its earlier years, was scarcely welcomed by the more conservative of his colleagues as it deserved. If these men had been faced with an autocratic power pyramid of senior medical officers and superintendents, it is legitimate to believe that their struggles would have been harder and their success problematical.

The lapse of time does not mitigate the case, for medical problems and ideas are as revolutionary and unexpected now as ever in the past. Nor is it safe to infer that politicians or the public are wiser, or that autocracy will always be benevolent. There is also the risk that the activities of research workers might be forcibly canalized along unprofitable channels to suit the publicity demands of some political campaign. Freedom of scientific action is above all things essential to research, whether this is clinical or laboratory in character.

The Democratic System

Most voluntary hospitals are managed, medically, by committees composed of the members of the medical staff on a footing of complete equality. They elect their own chairman, vice-chairman, and secretary, and these elections are for determinate periods only. They often appoint subcommittees from their members to inquire into and report back upon special points—medical, surgical, pathological, etc. Full medical responsibility is delegated to them by their lay boards. Their advice regarding the medical affairs of their hospitals is respected and nearly always taken by the lay boards. These medical affairs comprise matters of routine, research, equipment, and medical organization, and also the appointment both of house medical officers and of members to the ranks of the consulting staff. The standing and reputation of the great voluntary hospitals of Britain, internationally, in scientific circles, and in the eyes of the public generally, are sufficient proof of the medical adequacy of the system. Free speech, free criticism, free intellectual competition, and professional vigour are safeguarded and encouraged.

Promotion, or standing in the eyes of their colleagues and of the public, is the result of ability, not of seniority. Safe mediocrity, absence of initiative, and a reactionary outlook bring obscurity and not professional success. *Advances in treatment* are the direct responsibility of the individual expert in a particular branch. They cannot be inhibited by ignorant or unsympathetic seniors. *Criticism* thrives in the democratic atmosphere. Any innovation stands or falls by its intrinsic merits.

The lay board has the advantage of direct access to expert opinion in any one of many different branches of knowledge, instead of having to obtain this through an elderly and rather medically rusty autocrat, who may have become a political jack-of-all-trades.

The Two Systems and a State Medical Service

The designers of a State service will be either civil servants or medical politicians. The former are accustomed to ensuring the smooth running of an already existing and scientifically dead function, or a function so static that it bears no comparison with the live sciences of which clinical medicine is composed. Such static functions are the enactment of laws, the supply of transport, electricity, gas, and water, the carrying of the mails, etc. These activities can be efficiently run by autocratic boards. Delegation of responsibility is thus the antithesis of the Civil Service tradition, and the resulting system of control, checks, and counter-checks is the chief reason for the leisurely running and the wastage often seen. The medical politicians, seeking their opportunities as careerists, will not be unwilling to accept a system in which power is centralized *at the top* and *in their hands*, for few men can resist the desire for personal power.

The public must be warned that an autocratic system will impede the speed and the efficiency of medical services, and will be likely to hinder the proper development of medical science, both in the field of prevention and in that of treatment. If the public understands the case, proved already by the voluntary hospitals, neither the lay nor the medical politicians will be likely to obstruct a proper extension of the democratic system.

The public owes to the democratically run hospitals the education of its doctors, first-class treatment of generations of its sick, and research work which has resulted in the saving of millions of lives in the past and should result in the saving of more millions in the future. That these hospitals and their staffs should go cap in hand to the civil servants and the politicians, hoping that on the whole they will not be too severely dealt with or harshly regimented, is a ludicrous situation. They should, if necessary, go direct to the public, by all channels which are available, and should demand freedom to continue to develop democratically in any State service. They should further point out that it is a privilege and a duty of the nation that full and adequate means should be proffered for the furtherance of a freely developing and vigorous medical science. It is, furthermore, a magnificent financial investment.

The democratic system of medical service is entirely compatible with State control. The medical constitution of hospitals should remain as it is at present in the democratic institutions. It would be the privilege of the State to finance these institutions to the necessary extent, and to be represented adequately by financial, legal, or other representation upon the already existing lay boards. In addition a medical organizer should be a member, on an equal footing, of the medical committee, to specialize in and advise upon the minutiae of medical administration in contradistinction to practice.

The medical profession as a whole should also demand that the autocratic type of medical service should be abolished where possible, and should be replaced by a service of the democratic type. What is professionally and scientifically important for the voluntary hospitals is no less important, professionally and scientifically, for their less fortunate State-enslaved fellow institutions.

Conclusion

Hospital staffs should immediately pass resolutions, and, by combining and organizing, should see that these resolutions are implemented in the following senses:

1. No medical system is to be tolerated which is a reversion towards medical autocracy and away from medical democracy.

2. No system is to be tolerated in which free speech on medical matters, free criticism of medical affairs, and free publication of scientific work are discouraged or in the slightest way impeded.

3. The democratic system of hospital organization has proved its value to science, to medical education, and to the public. It is fully compatible, if this last is thought desirable, with State control and State finance of medicine.

4. Combined and comprehensive steps shall be taken, if necessary, by the democratically run hospitals to inform the general public in Parliament or in the Press as to the necessity for freedom for medical science and for a democratic basis for medicine.

TREATMENT OF PHOSPHORUS BURNS

The Ministry of Health has issued the following memorandum (E.M.S.I. 396) on the treatment of phosphorus burns. It should be substituted for the instruction contained in E.M.S./Gen./336 (revised).

At the Incident

1. Apply water immediately to the affected part to extinguish any burning phosphorus and to keep the area moist (water from the water-bottle may be used for this purpose).
2. Apply a clean mines dressing, or clean lint, or clean cloth soaked in water over the burn. Whatever dressing is used it *must* be kept wet, as otherwise it may burst into flame.
3. With the wet dressing in place, the casualty, if a sitting case or able to walk, should be conveyed or directed *at once* to the nearest first-aid post or hospital for further treatment.
4. Stretcher cases must be sent direct to a hospital with the least possible delay. To ensure immediate attention at the hospital these casualties must be labelled, and the label marked with a P. The attention of the ambulance attendant must be drawn to the case.

At the First-aid Post or Hospital

1. Immerse the affected part in water, or, if sufficient water is not available, apply a mines dressing soaked in water. Keep the dressing wet until the following treatment can be applied.
2. Thoroughly flood and wash the affected area with bicarbonate of soda solution (roughly two tablespoonfuls of the powder to a pint of cold tap water). Pick off with forceps any obvious particles of phosphorus, disclosed by examination *in the dark* (phosphorescence).
3. Swab the affected area with a 1% solution of copper sulphate, which will coat any remaining phosphorus particles with a dark deposit of copper phosphide. Remove with forceps or gauze as much of this as is possible without damaging the tissues.
4. Immerse the affected area in the bicarbonate of soda solution for a prolonged period. The duration of this soaking depends upon the size and depth of the burn—i.e., small burns 1/2 hour, large burns 1 to 2 hours. If immersion is impossible keep the sterile dressing repeatedly wetted with the bicarbonate solution.
5. Finally, re-examine the burn in the dark for phosphorescence. If this is not present, dress as for an ordinary burn. If there is still any doubt about the presence of phosphorus, dress the burn four-hourly with lint soaked in sodium bicarbonate solution (2 tablespoonfuls to the pint of water) and retain the patient (if at a first-aid post).

No oils or greasy dressings and no tannic acid, triple dye, or brilliant green must be used in the treatment of phosphorus burns *so long as any trace of phosphorus remains in the tissues.* Oils and greases are solvents of phosphorus, and their use while it is present will cause risk of poisoning from absorption.

Reports of Societies

PROPHYLAXIS OF ACUTE SPECIFIC FEVERS

At a meeting of the Section of Disease in Children of the Royal Society of Medicine on Jan. 22, with Dr. DONALD PATERSON in the chair, the subject of discussion was the prophylaxis of acute specific fevers.

Dr. E. H. R. HARRIES said that the fundamental prophylactic measure was the provision and maintenance of a satisfactory environment, which included not only housing, water supply, and sewage disposal but also attention to nutrition. To this must be added the education of parents and teachers. An important point was postponement of age of attack. The poorer the environment the greater the incidence of measles among children of pre-school age and the higher the proportion of cases complicated by bronchopneumonia. During the 1940-1 measles epidemic in London, thanks to evacuation, the ages of the children admitted to his hospital (North-Eastern) were higher and the mortality greatly reduced. From birth to school age the child's environment was that of its parents; later it became the environment of the school, which might be good, bad, or indifferent from a prophylactic standpoint. Early diagnosis of an acute specific fever might be impossible, or the phenomena might be too vague on a first visit to justify more than a suspicion, and he thought it should be allowable for the practitioner to communicate his suspicion to the medical officer of health, and request removal to hospital for confirmation, without being obliged to make formal notification. During recent years considerable modifications had been made in the matter of isolation. Shortened isolation was made possible in scarlet fever by the use of antitoxin, which was advantageous even in clinically mild cases. After isolation and the return of the child to his community, such measures of disinfection as stripping the paper, etc., were relatively unimportant; ordinary spring cleaning and the open window would suffice. As for contacts, with the aid of the Schick test in diphtheria and the Dick test in scarlet fever it was possible to divide a school community into the safe and the unsafe, and the latter into the susceptible and the dangerous. The safe individuals might be released, although kept under observation, and the unsafe should be immunized. In diphtheria it was desirable to combine passive and active immunization. Duration of passive immunity produced by scarlet fever antitoxin rarely exceeded 10 to 14 days. Active immunization against scarlet fever by multiple skin test doses of toxin was a lengthy and cumbersome process, and duration of active immunity was uncertain.

Dr. A. W. DOWNIE, discussing whooping-cough, said that in active immunization for pertussis the prophylactic vaccines generally used were simple preparations of the dead bacteria. General opinion seemed to be that vaccines were not of much value in the treatment of the disease once the clinical signs had appeared. In one of the first large-scale experiments made in the use of whooping-cough vaccines the vaccine was shown not to protect completely against infection, but the severity of the disease was very much less than in the uninoculated groups, and that had been the general experience. Recently the usual doses of pertussis vaccine were given to a group of children under 3 months of age and to a similar group from 3 to 6 months. There was no harmful effect, and antibody response was satisfactory, though not so good in these younger children as it was at a rather later age. In Denmark vaccine prophylaxis was practised from the age of 1 month. Dr. R. E. SMITH described the abandonment of mass quarantine at Rugby under certain precautions. No quarantine was observed in the case of a number of infections, including measles, rubella, mumps, whooping-cough, scarlet fever, and diphtheria. Of 128 boys who, over a period of seven years, had been in contact with cases, only two had contracted the disease to which they had been exposed, and in no case did any epidemic arise. One important prophylactic measure in individuals susceptible to bronchitis, who might go down with bronchopneumonia if they had measles, was breathing exercises. Another measure was the routine taking of temperatures of those who had been exposed. The greatest of all prophylactics was the fortification of the general health, attention to nutrition, and general environmental well-being.

During some further discussion Dr. A. I. SIMEY said that in scarlet fever immunization they were attacking only the erythrogenic toxin and were taking no account of the organism itself, but it should be realized that the scarlet fever was only one phase of the attack of the scarlet fever organism. Convalescent serum was probably the most valuable form of serum for measles. Dr. W. H. BRADLEY, speaking of tests for vaccines, proprietary and otherwise, said that these were always proceeding. A great deal of assistance would be given to the control of infections if there were closer co-operation—by which he meant intimate daily conversation—between the medical officer of health and the general practitioner, to whom the latest information regarding prophylactic methods was not always made available. Dr. R. A. O'BRIEN said that as long as the policy of decentralization went on co-operative research was made difficult. He hoped that a laboratory and information service would become a prominent feature of the public health service so that people in any one area would be acquainted with what was happening elsewhere.

PLACENTAL POLYPUS

At a recent meeting of the Section of Obstetrics of the Royal Academy of Medicine in Ireland there was a demonstration and discussion of cases of placental polypus.

Dr. BETHEL SOLOMONS showed a specimen of placental polypus in a patient, aged 36, who had had eleven children, the youngest eleven months previously. She was admitted to hospital in Sept., 1942. She had nursed her baby, and menstruation had started again four months earlier; since July bleeding had been more or less continuous. Examination revealed a rather soft, slightly enlarged uterus. The patient was in such a collapsed state on admission that she was given a blood transfusion; as a temporary measure intravenous saline was administered and the uterus plugged. In view of her condition it was decided that conservative measures would be dangerous, and total hysterectomy was performed. The pathological report by Dr. Bourke was as follows: "Tumour—this is a simple placental polypus with necrotic chorionic villi all through it. At one or two places on the surface the villi appear to be covered with living cells. The endometrium in the roughened area above the polypus shows much blood in the interstitial tissue, with large areas of hyaline degeneration around the blood vessels. There is also evidence of early adenomyosis." Dr. Solomons said he believed the condition was very rare; in fact, one of those that he had taught about but had seldom seen; he could find no records of its frequency. The appearance of the specimen was consistent with the description of Novak: he suggested that profuse haemorrhage might occur from rupture of the large venous sinuses at the base of the polypus, and recommended the pathologist to take care to make a differential diagnosis from chorion epithelioma. In this case no history could be obtained of a definite abortion or of retained placenta at the last birth.

Dr. D. J. Cannon showed a case of uterine placental polypus which was associated with bleeding so severe that a transfusion had to be given before operation. He said that curettage revealed a normal endometrium. When the uterus was split after a supravaginal hysterectomy the appearance of the polypus resembled so closely that of a malignant polypus that he decided to remove the cervix and both ovaries. The patient made an uneventful recovery. The polypus showed microscopical evidence of chorionic villi.

The President (Dr. Ninian Falkiner) said he thought a cause of placental polypi was retained placental tissue after confinement. It was fairly common for part of a placenta to remain *in utero* without this being recognized at the time. It might give rise to haemorrhage, and during treatment the placental tissue might be removed. A number of patients went through a period without undue loss and afterwards placental polypi developed. Chorionic tissue became absorbed, but the blood vessels at the base of the cotyledon seemed to remain in the same position. He asked Dr. Solomons how long after delivery his patient had come for treatment. Dr. Cannon had stressed that the condition was diagnosed at operation, but surely diagnosis in these cases should be made not when the abdomen was open but by curettage. It was quite easy as a rule to get a bit of the polypus, and the presence of villi would indicate the diagnosis at once. The pathologist would have no difficulty in stating if the villi were, microscopically, those which were found with chorion epithelioma. Dr. J. F. Cunningham said the reason for the lack of statistics for placental polypus was that it was such a rare condition. He thought he had seen one case 5 months after delivery, and described the symptoms and the treatment he had given for the severe bleeding. He performed a total hysterectomy and gave a blood transfusion. On examination the uterus was empty and there was a large sinus. Dr. J. O. E. Apthorp asked if Dr. Solomons and Dr. Cannon did not think the term "uterine polypus" was wrong and misleading. Both cases showed evidence of actively growing tissue. If a bit of placenta was left behind it was no different from any other foreign body; therefore it was not actively growing. The term should be changed.

In reply Dr. Bethel Solomons pointed out that if there was any doubt as to malignancy, a total hysterectomy should be done. "Polypus" was a better word than "polyp." Curettings might easily be negative, as they were in his case. The last baby was born eleven months previously; the patient lactated for seven months, and then the bleeding started and was nearly continuous. Dr. Cannon stated that his two cases were curetted and both were negative; it was, therefore, very difficult to make a diagnosis by curettage. He performed a supravaginal hysterectomy in the first case and a total in the second. There was, according to Dr. O'Kelly, no evidence of inflammation of the tubes in the second case.

Correspondence

Anaesthesia for Laryngofissure

Sir,—Dr. C. B. Lewis has described (Feb. 6, p. 162) a method of anaesthesia for laryngofissure. He says that the object of this technique is to provide safe anaesthesia for cases of laryngofissure without a tracheotomy and its accompanying disadvantages, and that in eight cases there have been no post-operative chest complications. It is difficult to conceive a more perilous procedure, which runs counter to all the teaching and experience of the late Sir StClair Thomson, and the series of eight cases shows how far it is possible to encroach on the margin of safety which Nature has provided without incurring a disaster. The prejudice against temporary tracheotomy, which isolates the field of operation from the lungs, provides a quiet anaesthesia with no possibility of respiratory obstruction, provides, too, a valuable safeguard in the uncommon but alarming event of post-operative haemorrhage, and is much less likely to cause bronchitis than the insult which Dr. Lewis offers to the trachea, is difficult to understand. It transforms a most dangerous operation into a safe one, and all these advantages Dr. Lewis is prepared to abandon in order to substitute the complicated procedure which he describes. A No. 14 catheter is passed through the larynx without touching the growth, a feat which calls for a dexterity which few laryngologists would claim but must excite their envy. The method of inducing and maintaining anaesthesia is the one most liable to provoke bleeding and thereby both hamper the operation and endanger the life of the patient, and explains why there is afterwards resort to the inflatable cuff which fills the larynx. This is only a modification of Hahn's tube, which was useful in its own day, but was tried, found wanting, and abandoned before the turn of the last century. In any case the control of haemorrhage is no part of the duties of the anaesthetist, but he may be expected to refrain from doing anything to excite it.

However, the least excusable part of the procedure is the administration of morphine or its derivatives both before and after the operation. The patient depends for his continued existence on his ability to cough as soon as the operation is completed, and both by his manipulations and administrations Dr. Lewis seeks to deprive him of this physiological need. This may be novel but it does not sound like progress, and it will be interesting to learn if Dr. Lewis proceeds from eight cases to twenty without reconsidering his methods.—I am, etc.,

London Lionel Colledge.

A Member Resigns

Sir,—Your very definite disclaimer (Jan. 30, p. 135) of any policy against publishing letters which conflict with "high British Medical Association policy" will no doubt clear the ground for a fresh discussion of the future of medical practice in this country. It has seemed strange to me that, at a time when, following Sir William Beveridge's remark in his recent report that it may not appear worth while to preserve private practice, there has been widespread discussion of the implications of that remark and of the implications of the interim report of the Medical Planning Commission, so little of this discussion has appeared in the correspondence columns of the *B.M.J.* As a result of contact with various doctors in this country I am able to testify that the belief that there is such a policy as your correspondent suggested is very widespread. It is a fact that numbers of doctors have refrained from writing to the *Journal* because of that belief; and that may explain the fact that your correspondence columns do not reflect the intense interest in, not to say anxiety about, the future of medical practice.

While you disclaim any considerable censorship of letters, you do not deny what I would consider the most important allegation made in your correspondent's letter—the existence of a "high British Medical Association policy." I think your correspondent was referring to another belief, which is also widely held, that a majority of higher or more central B.M.A. officials are themselves in favour of a planned medical service—"planned" being largely the present-day interpretation of socialized or nationalized medicine—and that such officials are more concerned with putting over their views than in ascertaining and making effective the wishes of the majority of members of the B.M.A. without coercing any dissentient minority. I do not think this suggestion is altogether disposed of by any of the specific answers made in your editorial.

However, proceeding on the assumption that the B.M.A. is a purely representative body, and that it has no vested interests in a profound modification of the organization and functioning of the profession such as is implied in planning, and that its officials are really concerned to discover the views of the members they represent and to give effect to those views, I may, perhaps, be permitted to initiate some further discussion on the future of medical practice by an endeavour briefly to clarify the situation, as I see it.

1. The basic assumption appears to be that the medical profession is not giving satisfaction to the public at the present time. If it were, of course, there would be no need or justification for any alteration. Let us see what this assumption amounts to. In the first place, as things are, a patient goes to a doctor because he is not satisfied with the state of his health. If the cause of this dissatisfaction is one of a large majority of conditions, any doctor will be able to tender the advice or administer the treatment appropriate to the condition. If, however, the condition is beyond the competence of this doctor, he may either refer the patient to a colleague, of whose ability to render the necessary service he is aware, or he may send him to a hospital. This procedure, so far as I am aware, is perfectly acceptable to the patient, but it is not available to everyone, because many patients cannot "afford" to go to a private doctor—that is to say, it is not to the service which they might obtain but to the cost of it that they object. The short approach to this problem is to ask whether the medical profession, as at present organized, is unable to supply a satisfactory service within the limits of present knowledge and technique to any patient to whom expense is no consideration. I think it is undeniable that the answer to this question shows that the cause of such dissatisfaction as exists is simply due to the fact that full medical attention is not available to everyone, because everyone is not in a position to meet the cost of it. It is the availability of medical attention and not the organization of the profession which underlies dissatisfaction.

2. This situation may mean (*a*) that the whole amount of money available for medical services is too little; or (*b*) that there is sufficient money but that it is maldistributed; or (*c*) that there is too much money, and that some of what goes at present to doctors should be diverted to some other purpose, such as paying the costs of administration of a "planned" service, or to creating "funds," or to reducing public indebtedness. An analysis of these questions cannot be undertaken here, but certain facts may be pointed out. One is that an average yearly contribution of £2 10s. per head of the population would provide doctors with an average income of approximately £1,700 per annum, and that the cost of smoking is at least £10 per annum to a moderate smoker. Another is that, despite the other demands of war, enormous sums of money have been spent on increased hospital accommodation. The war has shown that money can be provided at at least 30 times the rate at which it was provided during peace.

3. The proposal which is being pressed forward, from at first sight curiously diverse sources, with extraordinary resources of propaganda, is that to meet the lack of *availability* of medical services, which is due to a lack of money, the *organization* of the profession should be altered. This is just as if there were no organizations conducting car insurance, and because some owners of cars could not meet the cost of repairs the only suggestion put forward was that the Government should take over all motor mechanics and run them from Whitehall, the public, including the mechanics, being taxed to meet the general expense of paying both mechanics and the bureaucrats, and of printing and posting the plethora of forms and returns that seem to be an increasing accompaniment of Government activity.

4. A hierarchical and authoritarian organization of the profession seems to appeal to some members of it and to appal others. Now, whether the dissentients are in a minority, which I very much doubt, or otherwise, it is not very democratic to force them to subjection to a system which they feel stultifies personal initiative and responsibility. If the monetary difficulty of availability were solved first, as it ought to be, the authoritarians could get together and work any system they liked and elect or hire any "bosses" they liked; or else take jobs in the permanent armed Forces or public health departments or other Government-controlled organizations, while the individualists could continue with that private practice which Sir William Beveridge suggests may not be worth preserving, but which those who can afford it seem to prefer. In any case, I think it is incumbent on those advocating drastic change to show that the profession as at present organized is unable to provide full and adequate medical treatment where no question of payment obtrudes before the whole profession is handed over to a legalized system enforced with all the sanctions available to a Government.

To summarize the whole matter: it appears to be the case that a situation of some dissatisfaction arising from monetary difficulties of access to existing medical services is being utilized to create a demand for the "planning" or "socialization" of medicine to the practical exclusion of other methods of dealing with the difficulty. Other methods, which preserve the existing organization of the profession and leave intact personal initiative and responsibility, exist and are in operation in various parts of the world. In that connexion, I think a lead from the *B.M.J.* in publishing or republishing such schemes and possibly organizing small-scale experiments in suitable localities would be valuable before the profession is plunged wholesale into a system of which it has had no experience, which is only tenuously, if at all, related to the situation which causes the difficulty, and from which we would probably be unable to escape if the results were unsatisfactory.—I am, etc.,

London. BRYAN W. MONAHAN.

Dietetics of Pregnancy

SIR,—Mr. R. B. Fisher (Jan. 30, p. 144) purports to quote the conclusions we reached in a paper published in the *Journal* of May 16, 1942 (p. 605). He begins by grossly misquoting us. We found: (1) that in eclampsia the amount of vitamin B_1 excreted in the urine on admission to hospital is significantly lower than in normal pregnancy; and (2) that the concentration of vitamin B_1 in the placenta is also significantly below that of the placenta from normal cases. In our paper we were at particular pains to point out that none of the four other clinical subdivisions of toxaemia (hypertension, oedema, hyperemesis, pre-eclampsia) differed significantly from the normal group (who themselves were excreting abnormally little vitamin B_1). Notwithstanding this careful differentiation, Mr. Fisher refers to our findings as applying to toxaemic patients in general.

Having distorted the careful clinical and statistical differentiation we made between the eclamptic and the other toxaemic groups, he went on to question "the qualifications of your leader writer for the critical appraisal of quantitative data." He himself appears unable to appreciate the qualitative differences that we were at pains to stress. We have established a deficiency of vitamin B_1—to whatever cause it may be due—in the urine and placenta of eclamptic patients, and therefore suggested, as we still believe, that vitamin B_1 might be beneficial to such patients. Mr. Fisher, cloistered as he is in the home of lost causes, would delay any such treatment until all other biochemical abnormalities are identified and can be corrected.—We are, etc.,

W. C. W. NIXON.
M. D. WRIGHT.
London, W 1 E. C. FIELLER.

Phlyctenular Ophthalmia

SIR,—Mr. Arnold Sorsby's careful analysis of this condition, referred to in the annotation in the *Journal* of Sept. 26, 1942 (p. 373), is puzzling to Australians. Phlyctenular ophthalmia was a very common condition years ago, and met with almost entirely in girls who seemed to live largely on tea and bread-and-butter. Anyone now would be hard put to it to find a case. I regarded it as a deficiency disease and treated it with a full diet. Tubercle has greatly diminished, but is still far from absent. It is impossible to disregard the evidence Mr. Sorsby advances, but the facts in Australia are equally cogent.—I am, etc.,

Melbourne. JAMES W. BARRETT.

Weil's Disease

SIR,—With reference to the article by Capt. S. Varadi (Jan. 30, p. 126) I think it of some importance to point out that it is highly probable that more cases of this disease will be diagnosed shortly. In one patient with a mild form of Weil's disease in our hospital recently the diagnosis was proved by the agglutination test performed by Dr. Bedson in Epping Hospital.

The aetiology and epidemiology are well known, also the clinical symptoms, with fever, sleeplessness, stiff facial expression, icteric coloration of skin and sclerotics, somewhat resembling that in acute atrophy of the liver, pains and hypersensitivity of muscles, and irregular action of bowels. It should be noted that the jaundice does not appear immediately after the onset of the disease, but a few days later, sometimes after the temperature has become subfebrile or normal again, as in our case. Prophylaxis is of great importance, as it is known that in the last war an increase in the number of cases was noted (Uhlenhuth and Fromme), though contact infection was doubtless very rare. The saying "Where there are no rats there is no Weil's disease" is well known, but mice could also be responsible for spreading the disease. Water and stores contaminated with the urine of rats are infectious; therefore the fight against rats and mice is the most important point in prophylaxis. Whether ordinary infectious hepatitis in wartime is allied to morbus Weil cannot be proved, but should be borne in mind, and every case of illness with jaundice and high fever should be suspect and the agglutination test should be performed. Only in this way can the disease be diagnosed and cases properly looked after.—I am, etc.,

German Hospital, E 8 K. BLUM.

Spina Bifida

SIR,—In Dr. A. Fry's interesting account of a spina bifida in binovular twins (Jan. 30, p. 131) he refers to the familial incidence of this abnormality, and quotes instances by Butler-Smythe (1889), who reports three cases in the same family, and by Pybus (1921), where four children in a family were affected. The mother of a case I operated upon in 1938, unfortunately unsuccessfully, gave the following remarkable history: 1929, Female child born with spina bifida; lived 30 minutes. 1930, Male child with spina bifida; lived 36 hours. 1932, Male child with spina bifida and cleft palate; lived 3 days. 1933, Normal female child, alive and well. 1934, Male child with spina bifida; lived 7 weeks. 1936, Normal female child, alive and well. 1938, Female child with spina bifida; operated on; lived 2½ months. This is the child to which I referred.—I am, etc.,

London, E.3. J. R. M. WHIGHAM

CO_2 Absorption Technique

SIR,—The subject of CO_2 absorption technique is again brought up in the *Journal* of Jan. 30. Each time a new modification is introduced more elaborate and expensive than the last. I do not doubt the working efficiency of such machines, but from the practical side of administering gas–oxygen–ether certain difficulties invariably arise.

The crux of absorber technique is mentioned by Major J. Montgomerie on p. 130: "The composition of the gas mixture tends to change slowly during the course of the anaesthesia . . . a fine balance is struck between anoxia and the patient becoming 'lighter.'" These remarks, in my experience, are only too true. The absorber method tends to prevent a level plane of anaesthesia, which is important from the patient's point of view and the surgeon's. As Major Montgomerie says: "Owing to the diffusibility of N_2O . . . about 500 c.cm. a minute is required for maintenance." The basal oxygen flow is usually about 250 c.cm. per minute, so that the oxygen : nitrous oxide ratio is not that of surgical anaesthesia.

The well-known advantages of the CO_2 absorber remain with any efficient machine—namely, water-vapour retention and quiet respiration. The saving of gas is, of course, offset by the cost of the machine and soda-lime.—I am, etc.,

London, W 3 E. V. SLAUGHTER.

The Oxford Ether Vaporizer

SIR,—Through the generosity of Lord Nuffield and the kind recommendation of Prof. Macintosh I have had placed at my disposal at the Wellhouse Hospital, Barnet, the Oxford ether vaporizer. During the last few weeks I have anaesthetized patients by means of this apparatus for most of the ordinary operations of surgery (except intrathoracic operations), and have come to some very definite conclusions.

1. It is the first ether apparatus by means of which a really light ether anaesthesia can easily be administered.
2. There is no difficulty in giving a deep ether anaesthetic and obtaining perfect relaxation.
3. However deep or however light the anaesthetic, the patient always gets enough air and always remains a good colour.
4. Very small quantities of ether are used and there is no waste ether to make the atmosphere of the theatre unpleasant.
5. The constant unvarying percentage of ether given off at any given setting of the indicator presents great advantages.
6. Endotracheal or any type of inhalation anaesthesia can be administered.
7. Most important of all, the use of the machine is readily acquired by students after most brief instruction, and the unpractised anaesthetist can, with very little experience indeed, give a satisfactory anaesthetic.
8. The Oxford vaporizer appears to be the safest way of giving ether.

After twenty years as a general practitioner anaesthetist I can speak with some authority on anaesthesia in general practice, and I consider the Oxford vaporizer the apparatus of choice for the general practitioner anaesthetist. I note with some regret that this machine is not yet in use in many teaching hospitals, and I hope that no time will be lost in introducing it into all hospitals where students are taught or where the occasional anaesthetist has to practise. The expert professional anaesthetist can obtain excellent results by many techniques and from the use of many agents, but between him and the general practitioner anaesthetist, however gifted the latter may be, there is a great gulf fixed. This gulf can in nowise be crossed, and it would be very much in the public interest if this truth were to be understood and admitted, and if many of the newer methods of anaesthesia were to be confined exclusively to the full-time professional. The Oxford vaporizer, however, offers to the general practitioner an extremely safe and simple way of giving anaesthetics on those many occasions when he is called upon to do so.—I am, etc.,

New Barnet. JOHN ELAM.

Diphtheria during Immunization

SIR,—May I, as one concerned with diphtheria cases in hospital, comment on the medical memorandum under the above title submitted by Dr. G. A. Garrett (Jan. 23, p. 102).

The event recorded is not unusual; many similar cases could be cited from fever hospital records for the last year or two, and it is easy to see why. When prophylactic injections are given to large numbers of non-immune persons in a community wherein diphtheria is still endemic, the conjunction of the two events—viz., an injection and an attack of diphtheria—in the same person must inevitably occur sooner or later; it is particularly likely to occur if immunization is postponed until just after a child's first entry to school. The diphtheria may appear soon after the prophylactic injection, but it may equally well precede the date proposed for an injection. Of course, in the former order the double event is well remembered; in the latter, it is quickly forgotten.

A mild diphtheria, therefore, need not be styled a "phenomenon" merely because it occurs soon after a prophylactic injection, and it is equally unnecessary to postulate any causal connexion between one and the other. I firmly oppose the suggestion that the taking of "swabs" from healthy throats (or noses) should be a preliminary to immunization. The swabbing of healthy persons is rarely justifiable; certainly, the occurrence of "diphtheria during immunization" furnishes no indication for the practice; far from being "a valuable procedure," it would be utterly useless.

As for the recommendation to "administer antitoxin," I am not aware of any evidence to show that diphtheria antitoxin is of any help in ridding diphtheria carriers of their germs, and, presumably, antitoxin given shortly before the prophylactic substance would nullify the antigenic property of the latter and defeat the end in view. Let children be immunized at the proper time—namely, on completion of their first year—then we shall not hear much about "diphtheria during immunization."—I am, etc.,

Cottingham, E. Yorks. NIGEL W. ROBERTS.

SIR,—The lay press has quoted freely from Dr. G. A. Garrett's medical memorandum on diphtheria during immunization (Jan. 23, p. 102). This method, as one paper says, "of providing opponents of immunization with an unexpected argument in their favour" undoubtedly calls for more careful choice of articles for publication in the *B.M.J.* Was there any adequate justification for publishing such an article when there is a perfectly logical and simple explanation for the onset of non-clinical diphtheria (I should really diagnose the case described as tonsillitis) after one dose of A.P.T.?

The following facts appear worth recording in view of the wide publicity afforded Dr. Garrett's untimely communication.

1. It is now recognized that one dose of 0.2 c.cm. A.P.T. does not immunize a child against diphtheria.
2. One dose of 0.2 c.cm. A.P.T. has no influence or effect on a carrier of K.L.B.
3. Dr. Garrett does not state whether there was any contact or possible contact with diphtheria between the time of injection and the onset of symptoms of tonsillitis.
4. He does not state whether the child had been Schick-tested or swabbed before the single injection.
5. The symptoms (of tonsillitis) cleared up with the treatment for tonsillitis.
6. No information is given as to whether virulence tests were carried out.
7. No information is given about further swabs—i.e., to check up on the first (which might have been an error) and to establish whether the child was a carrier.
8. Finally, many of us have seen cases where all signs and symptoms have cleared up without antitoxin and the children were quite well by the time a positive swab was returned.

I have no doubt Dr. Garrett was well meaning in his communication and probably never foresaw what must now be to him most unwelcome publicity.—I am, etc.,

Ramsey, Isle of Man DANIEL ROBERTSON.

Pernicious Anaemia of Pregnancy

SIR,—In your excellent leading article on the above (Jan. 23, p. 105) you fail to find convincing evidence that whole liver by mouth is sometimes more effective in treatment than parenteral extracts. It was perhaps not made sufficiently clear in the study of 23 Newcastle cases which I made with Dr. T. C. Studdert (*Lancet*, 1942, **2**, 332) that five cases which responded to raw liver had already failed to show any significant response to normal diet plus marmite and refined and crude liver extracts. This finding was indeed our chief reason for publishing the series, and has since been confirmed in other cases by personal communications from other workers in this field.

It is unlikely that this response can be due to the amount of iron contained in the raw liver, and it would appear to be due to some additional haemopoietic factor. The same effect of whole liver is very occasionally seen in cases of otherwise typical true pernicious anaemia resistant to parenteral extracts.—I am, etc.,

H. G. MILLER,
Flight Lieutenant, R.A.F.V.R.

Military Psychiatry

SIR,—Dr. Richard Eager (Jan. 23, p. 111) writes, "My contention is that if more serious attention were given to nervous and mental manifestations before enlistment and more cases presenting these symptoms were rejected instead of being suspected of being malingerers, a great deal of time, trouble, and expense would be saved." I have had experience on a medical board during the first three years of its existence. A board of a chairman and three members has to examine 30 recruits in three hours, but this time is often exceeded. This does not give time for a lengthy inquiry into a man's mental condition, still less to solve the difficult problem of how he will react to the entirely different surroundings in the Services. Contrast this with the conditions in which the military psychiatrist works. The recruit has had weeks and often months in the ranks when he is under military and medical observation before he comes before the psychiatrist. This most important information is provided for the latter, but medical boards have to do without it. Even with this great advantage, does the psychiatrist decide the recruit's fitness at the end of, say, ten minutes, or does he keep him under observation for a few days?

Some neurotic cases are manufactured by the Services. In the last war I had charge of a number of semi-convalescents, among whom was a lad of about 20. The Army had sent him into hospital, obviously to get rid of him. He had been in other wards before reaching the semi-convalescents. Inquiry showed that he had been scolded and treated as an outcast in the other wards. Information of his treatment in the Army was lacking; asking the lad was obviously unwise. His history was that he was cantankerous, disobedient, and lazy. When I saw him he was dejected, sullen, and perverse. He was put in a section in charge of a V.A.D. of exceptional ability. She treated him as a human being, and soon transformed him into a bright cheerful lad willing to do any work which came along. His condition was clearly due to the badgering and bullying he had had. What subsequently became of him I do not know, as I was moved elsewhere. In the same war I was called to a Royal Naval establishment to see a sea-scout (employed as a messenger), aged about 16, reported "to have gone off his head." He was in a state of hysteria, severe enough to give colour to the non-medical diagnosis. I knew him and his family to be intelligent and free from any nervous instability. I diagnosed correctly that his condition was due to bullying by a naval officer. Had this bullying continued, the lad would have become a nervous wreck. The position was explained to the naval officer and the lad had no recurrence.

One hears that there is no harsh treatment in the Services now. One has had only to be where training is going on to know that this is not the universal rule. Discrimination is often wanting; some men do not understand anything but harsh treatment, but it is fatal for others. A sensitive lad who has led a sheltered life—some are very sheltered now—though perfectly fit at his medical examination, when pitchforked into the rough and tumble of the Services readily develops a neurosis unless carefully handled. Further, if a man wants to get out of the Service nowadays he has only to be sufficiently troublesome to get his discharge, and the medical board is blamed for passing him.

Nocturnal enuresis is a difficulty. There is no physical sign, and even if the recruit brought his wet bed with him it would not be proof of genuine enuresis. If a medical board began asking every recruit whether he wetted his bed it would not be long before every shirker came with that story. Reliance cannot be placed on parents' statements. In one instance a mother wrote to a medical board saying her son, due for examination, was a bed-wetter and asking that he should not be told. The son, however, stoutly denied the statement.

A problem which confronts a medical board occasionally is this. A man tries to get exemption as a conscientious objector and fails. He is determined not to go into the Service. At his medical board he is obstructive. Examination shows he is fit. (This is not an imaginary case.) Is the medical board to pass him fit when it is obvious he will make himself such a nuisance that he will be discharged from the Service, or to pass him as unfit and let him rejoice while other men fight for him and be an example of how to "work it" to other shirkers? It is likely that a few unsuitable cases are passed in fit, but to expect medical boards to exclude every recruit who may break down under Service conditions is to demand the impossible.—I am, etc.,

E. P. DICKIN.

Thread for Sutures in Tonsillectomy

SIR,—In the *Archives of Otolaryngology* for November, 1942, A. J. Podboy recommends the use of thread for sutures in tonsillectomy. I have been using this material in my tonsillectomy cases for the past two years, and I find that it has no disadvantages and is in fact easier to handle than catgut. It is readily sterilized by boiling for twenty minutes. A tube of catgut costs 1s. 6d. and provides material for four or five ligatures. A reel of thread costs 1s. and will make about 300 ligatures. General use of this suture material in tonsillectomies would result in great economy.—I am, etc.,

Torquay W. H. BRADBEER.

Radiological Diagnosis of Disproportion

SIR,—May I endorse all that Prof. J. Chassar Moir said in the discussion on the above subject at the meeting of the Section of Obstetrics and Gynaecology of the Royal Society of Medicine (Jan. 30, p. 142). It is now eight years since my original paper on cephalometry was read at the Royal Society of Medicine in March, 1935, and in that time most of the points made have passed from ridicule almost to the blessing of respectability. There are still two points, however, which in my view do not receive enough attention.

1. *The Plastic Head.*—Any foetal head with a biparietal diameter of 3.7 inches or less will be plastic and will mould easily and safely to conform to moderate degrees of contraction, whereas a head with a diameter of over 3.75 inches may be very rigid. There is positively no clinical means of recognizing this point at which certainty of safe delivery changes to dangerous uncertainty. Nothing has altered my conviction that induction of labour by rupture of membranes should be performed when the biparietal diameter reaches this point (3.65 inches) (*a*) in all cases of moderate contraction of inlet or outlet and (*b*) in breech cases when attempts at version have failed. This measurement will ensure (1) a plastic head; (2) a body which is not unduly large; (3) a baby which can be easily and safely reared.

2. *The Interischial Diameter.*—This measurement, between the tips of the ischial spines, shows at once if there be any contraction of the outlet. It is easily made with sufficient accuracy directly from a film taken for pelvimetry in the standard sitting position. With a focus-film distance of 30 inches, a deduction of half an inch should be made for correction of magnification. This measurement in a normal pelvis is about 4.5 inches, and anything below 4 inches gives warning of serious difficulties ahead, and full consideration should be given to this point when deciding in favour of Caesarean section or induction. All the necessary information can be obtained from two films by the technique described by me, whether the head be in the pelvis or in the fundus.—I am, etc.,

Totnes, Devon. NORMAN REECE.

Stilboestrol for Immature Infants

SIR,—Drs. W. R. F. Collis and M. A. Majekodunmi (Jan. 9, p. 31) recommend thyroid in the treatment of premature infants. About 2½ years ago I started using stilboestrol instead of thyroid and found that it maintained the body temperature quite as well as thyroid but had a much greater effect in stimulating growth. I have had few opportunities of using it on premature infants, but the results were so encouraging that I started giving it to full-time immature infants. The results were immediate, a gain of 6 oz. a week being often obtained where the previous rate had been 1 or 2 oz. a week.

The usual dose I used was 1/6 mg. once or twice daily, kept up for 2 or 3 weeks until the gain had been well established. No ill effects were seen except in one case, a mongol of about 3 months, where the weight had been stationary for some weeks. There was a gain of 8 oz. the first week, but after that the infant vomited with even the smallest dose.—I am, etc.,

London, W 14 F. N. HOLDEN

Treatment of Small-pox

SIR,—I was particularly interested in Dr. J. T. Neech's letter (Jan. 23, p. 113) regarding the above as in 1882 I had a severe attack of varicella and my father "painted" the worst of the spots, which gave me relief from itching. Years later he told me it was pure carbolic acid, and this we used successfully in an isolated case of modified small-pox 20 years afterwards. He had been told of this when house-surgeon to Prof. Spence in Edinburgh.—I am, etc.,

Hatfield. ARTHUR F. PERIGAL.

X-ray Apparatus at Health Centres

SIR,—We ought to determine what will be the function, size, and location of the health centres before we discuss whether *x*-ray apparatus ought to be located in them. Taking a realistic view of the matter, I believe that the present doctors' surgeries will be gradually transformed into health centres. About 5 or 6 such centres will be sufficient for a town of 50,000 persons. The centres will be placed in various parts of the town, so that the doctors may be near the homes of their patients.

I believe it would be disastrous to set up *x*-ray apparatus in these "district health centres." But in larger towns and cities it is probable that a central health diagnostic clinic or centre will be required. This central clinic will develop out of, and perhaps in relation to, existing hospital out-patient departments. Every branch of hygiene, medicine, and surgery will be represented on its specialist staff. It is in the central clinic and not in the peripheral health centres that mass radiography and all other forms of radiography should be carried out. If, however, no such central clinics are established, then it will be essential to place an *x*-ray apparatus and a radiographer in one or other of the primary health centres in every considerable town or country area.—I am, etc.,

Worcester HOWARD E. COLLIER.

Private Fees of Salaried Medical Officers

SIR,—Much attention is now being directed to the conditions of medical practice after the war. I venture, therefore, to raise a point which affects the conditions of employment of medical practitioners working in hospitals for a whole-time salary. It is the practice in hospitals administered by certain authorities that all fees paid to their whole-time salaried medical officers for incidental services are surrendered to the hospital authority. The services in question are the writing of reports for insurance companies or legal firms, the attendance at coroners' or other courts, and the signing of cremation certificates.

There are, however, other hospital authorities who lay no claim to these fees on the ground that they are fees paid to the medical practitioner as a reward for services which lie outside the scope of his routine medical duties, and which are frequently performed in his spare time. I believe that this latter attitude is the correct approach to the problem, and that it is a bad principle for a hospital authority to adopt the attitude that no man on a whole-time salary must in any circumstances take a fee, even though he has had to take on work outside that for which he receives his salary. In this belief I seem to be supported by the Ministry of Health, who apparently permits its whole-time E.M.S. officers who are examiners to the Conjoint Board and other examining bodies to retain their examining fees.

It is possible that this contention would be shared by a majority of the medical profession, and if put forward persuasively by the B.M.A. would be conceded by those hospital authorities who at present take the opposite view. If conceded, it would benefit principally the lower-salaried junior medical officers, who, in my opinion, have always done the bulk of the work in any hospital service, and who will probably continue to do so, even after the war.—I am, etc.,

London, S E 1 T. W. MIMPRISS.

"Calorie Control" Diabetic Diet

SIR,—The juxtaposition of Dr. A. C. Crooke's and my letters (Jan. 30, p. 143) emphasizes the complete divergence of our beliefs on the above subject. He answers some of my questions, avoids others, and asks some in return, so perhaps you will permit a reply, final so far as I am concerned.

I studied Prof. Ellis's article in 1934 which described temporary improvement in a few diabetics fed on 400 to 600 g glucose with *hourly* insulin injections, the timing of the latter I am sure producing the improvement. When this was stopped complete relapse ensued, and I can see no relevance between this experiment and the practical daily problems of diet and insulin, and would be surprised if Prof. Ellis sponsors his experiments as supporting the principle of the new diet. Does he?

We disagree fundamentally on the effect of C. or bacon and egg (I like both) for breakfast. Insulin lowers blood sugar; C. raises it and balances insulin action; protein and fat have no such action for hours, if at all. I and my patients would have (and some have had) intense hypoglycaemia if, omitting toast or porridge, we substituted equicalorie bacon and egg (pre-war). Dr. Crooke states that this does not happen to his patients, but publishes no detail to prove it, and I could certainly convince him should he agree to experiment on me or my patients. It appears I must challenge him, and I do, to give himself 20 to 30 units of insulin and to compare the effect of combating the resultant hypoglycaemia with bacon and eggs or sugar, porridge, or bread. I must conclude that, when his patients escape hypoglycaemia on omitting carbohydrate, they must be running such high blood sugars that this buffers the insulin when no C. is eaten—a common enough state in many patients, my own included.

It is no argument for the new diet to claim that 528 patients have done well on it, because, having no scales, they could not apply the dangerous principle to which I object. The cases I have seen supposedly on the diet were not, as Dr. Crooke suggests, long-standing confirmed high P. & F. addicts, but new cases. Furthermore, he contrasts the welfare of his patients on the typical new diet (260 C., 70 P., 80 F.) and the old (230 C., 90 P., 80 F.), both roughly 2,000 calories, and in these there is no practical difference. I cannot see any real change from the diets commonly used by the late Dr. Leyton at the London.

Dr. Crooke asks if I provide scales for my patients to weigh my diets—a sting in this! Unless I can, or know the patient has a scale, I never prescribe a weighed diet and consequently have for two years treated new patients almost entirely on my simple "unweighed" diet and bread measure, published by Messrs. H. K. Lewis and Co. in 1931. It takes no heed of calories, but regulates the C. to balance the insulin accurately enough, and, if Dr. Crooke does not know it, I shall gladly send him a copy.

I regret in some ways our public controversy, as it can interest only a few, may confuse many, and obscures the common interest Dr. Crooke and I have in running useful clinics for the benefit of diabetics. But I think the basal principle of his diet untrue and dangerous, and can ascribe the absence of hypoglycaemic disasters only to the fact that it has not been applied in practice by his patients.

If Dr. Crooke is unconvinced, let us have facts and arguments before experts, such as the "Carbohydrate Club," which exists and meets in London. If I am proved wrong, I am not too old to change my views, eat my diet cards, and start afresh, after public acknowledgment of my errors. I expect the same from him.—I am, etc.,

London, W.1. R. D. LAWRENCE.

Adoption of Children

SIR,—Among many other social workers we should like to endorse the views expressed in the letter from the chairman of the National Council for the Unmarried Mother and her Child (Jan. 23, p. 115) emphasizing the supreme importance of safeguarding the interests of unwanted children when arranging for their adoption, and to deprecate action being taken except through approved adoption societies. Fortunately, the Government's recent decision to put into force the Adoption of Children (Regulation) Act will go far in reducing the dangers referred to in Mrs. Fisher's letter.

We understand that the inclusion of personnel of Citizens' Advice Bureaux in the list of those who, without training and experience, have arranged adoptions is based on the action of one worker in one bureau, out of a total number of over 10,000 voluntary workers working in more than 1,000 bureaux. There is therefore no evidence, so far as these bureaux are concerned, to show that inquiries dealing with this subject are not passed on to be dealt with by experts, in accordance with one of the guiding principles of the service.—I am, etc.,

R. C. NORMAN,
Chairman, C.A.B. Central Committee,
Feb 6. National Council of Social Service.

Freedom and the Beveridge Report

SIR,—Dr. E. U. MacWilliam's remarks (Feb. 13, p. 200) with regard to Divisional meetings of the B.M.A. are timely, and the example given by him of a general statement of policy presented to one Divisional meeting for consideration is one with which, I feel sure, the majority of members of the B.M.A., both at home and in the Services, would be in entire agreement.

The main issue, at the present time, is whether we, as medical men, can prevail against outside pressure, and maintain our individual freedom and the liberty of the profession. It is up to all B.M.A. members to attend the meetings of their Divisions, and to make it perfectly clear to their representatives that they mean to place the freedom of doctors as individuals in the forefront of B.M.A. policy—and that these representatives have no mandate whatever for compromise on the lines of the motion printed in the *Supplement* of Feb. 13 (p. 25). To make the freedom of action of the profession dependent on whether the Government passes the Beveridge scheme *in toto* or not is monstrous. It is absolutely untrue to suggest, as some do, that a centrally controlled medical service is necessary to provide for the needs of the community. What appears to be true is that the medical profession, being independent, is looked upon with disfavour by those who are intent on liquidating free British institutions.

May we not look to the B.M.A. to uphold the freedom of medical men at this critical time?—I am, etc.,

London, N.W. BASIL L. STEELE.

Obituary

F. H. EDGEWORTH, D.Sc., M.D.

Emeritus Professor of Medicine, Bristol University

In the death of Emeritus Prof. F. H. Edgeworth, Bristol loses one of its most distinguished sons. His father was Dr. T. F. Edgeworth. Francis Henry Edgeworth was educated at Clifton College and Caius College, Cambridge. He secured a first in the Natural Sciences Tripos, and was Shuttleworth Scholar of Caius. He subsequently entered the Bristol Medical School and took his M.B., B.Ch.Cambridge in 1889. He also studied in Paris, Gottingen, London, and Dublin, taking the D.Sc.Lond. in 1903 and his M.D.Cantab. in 1908. Edgeworth was appointed assistant physician to the Bristol Royal Infirmary in 1893 and physician in 1906, holding this latter appointment until 1924, when he became an honorary consulting physician. In 1905 he was appointed professor of medicine in University College, Bristol, and later occupied the chair of medicine in the university. He was both an accomplished physician and an eminent research worker. In his clinical work he was particularly successful in the difficult art of differential diagnosis, especially in relation to diseases of the central nervous system. He was much beloved by his patients, whom he always treated with great kindness. It was a matter of supreme indifference to him whether a patient had arrived at the Royal Infirmary clothed in rags or was seen by him at his private residence arrayed in fine linen. Edgeworth was the author of numerous monographs on medicine and science, but his *magnum opus* was a volume on *The Cranial Muscles of Vertebrates*, published in 1935 by the Cambridge University Press. This book required a great deal of work, which he carried out with meticulous care.

In his relations with his fellow men he always adopted that line of conduct which appeared right to him, irrespective of whether it was to his own advantage or otherwise. He was devoted to his wife, whom he married in 1896. She became an invalid shortly after their marriage, and predeceased him in 1931. His affection for her is revealed in the words of the dedication of his great work to her: "*In memoriam uxoris meae quae mihi, ut in ceteris rebus, ita in hoc opere et socia erat et adiutrix.*" After his wife's death Edgeworth went to live at Bath, and during the "blitz" of last April was buried for some time under the ruins of his house. He bore this calamity with his usual fortitude, and referred to it as "just an incident." His death occurred at a nursing home in Bath following an operation. He leaves an only son.

O. C. M. D.

SIR STCLAIR THOMSON

Prof. GREY TURNER writes: The death of StClair Thomson leaves the profession bereft of a great personality. Of his contributions to the special branch of surgery to which he devoted himself I am not prepared to write. It was a devotion to medical history and especially the Listerian era that furnished a mutual bond. His presidential address to the Medical Society of London in 1917 dealt most delightfully with the life of its founder, John Coakley Lettsom, and was a very model of what such addresses should be. I have reread it several times and always with renewed enjoyment. But it was his association with Lord Lister, as his last house-surgeon at King's, that enabled him to speak with such great and sympathetic authority on everything that concerned that dear man. Thomson's address on his great master delivered at the Royal Society of Medicine on April 4, 1927, during the Lister Centenary celebrations, was a really wonderful occasion. It was universally applauded as an outstanding success, and I always felt that it should be read by every student of medicine. Sir StClair did provide a thousand reprints to be stored at King's so that for years to come every new student might be presented with a copy. As recently as March of last year he gave an admirable address on Lister before the students of the Medical Faculty of the University of Edinburgh. Writing to me about that time he expressed his joy because he had discovered that by standing on tiptoe looking out of his bedroom window at the Caledonian Hotel at the end of Princes Street he was just able to see the house where Lister lived during his first Edinburgh period. Thomson was a great host, and what a delight it was to be a guest at his hospitable home in Wimpole Street! In almost his last letter he expressed regret that enemy action had driven him from London, for, as he said, "I am now an exile and a wanderer. I had looked forward to ending my days with all my books and toys around me, but there is little prospect of having a home again." The example of his advancing years was itself a great lesson, for when the handicap of deafness cut him off from the drama which he loved so well, he found compensatory interests. One of these was the ballet, though those of us who knew him best recognized that this was really a return to an old love.

PERCIVAL JOHN HAY, M.D.

Consulting Ophthalmic Surgeon, Royal Hospital, Sheffield

We announce with regret the death on Jan. 17 of Dr. P. J. Hay of Sheffield. Percival John Hay received his medical education at Edinburgh University, qualifying M.B., Ch.B. in 1901, and taking his M.D., for which he was highly commended, in 1904. He early specialized in ophthalmology, among his first appointments being that of resident surgical officer, Birmingham and Midland Eye Hospital. For a period he was ophthalmic specialist, Cambridge Hospital, Aldershot. At the time of his death he was ophthalmic surgeon to the Education Committee and the King Edward VII Hospital, Sheffield, and consulting ophthalmic surgeon, Royal Hospital, Sheffield. Dr. Hay had been a member of the B.M.A. since 1904, except for a brief period during the last war, and had been a member of the Ophthalmic Group Committee since 1929. He was honorary secretary of the Section of Ophthalmology when the Association met at Glasgow in 1922, and at the Belfast Meeting in 1937 he acted as vice-president of the same section. He was chairman of the Sheffield Division in 1936-7 and represented his constituency at the Annual Meeting at Oxford in 1936.

Among his contributions to the literature on the eye and its diseases was the Middlemore Lecture in 1929 on "Astigmatism." At the funeral, which took place at Sheffield on Jan. 21, the B.M.A. was represented by Dr. A. B. Nutt. A colleague sends the following appreciation:

The medical profession of Sheffield has suffered a great loss in the death of Percival John Hay, which has added yet another name to the list of casualties of medical men on the Home Front, for his untiring devotion to duty was directly responsible for his death. Hay was not a native of Sheffield, coming to the city just before the last war and joining the staff of the Royal Hospital in 1916, but he soon established himself in the esteem of his colleagues, who recognized in him a man of great charm, though reserved and retiring in character. He threw himself whole-heartedly into the work of the ophthalmic department of the hospital, and within a few years had built up a reputation extending far beyond the Sheffield area. His influence was felt not only in his own department; his advice and opinion, always sound and freely given, were often sought by his colleagues in matters of general administration of the medical and surgical sides of the hospital.

As an ophthalmic surgeon he was recognized as being in the first rank, and his enthusiasm was such that after the foundation of the North of England Ophthalmological Society, for which he was responsible, the meetings of that body proved so interesting that not only were they well attended by members but they attracted visitors from the ranks of general medicine and surgery. His interest in this ophthalmic child of his never waned. Year by year, whenever possible, he organized foreign tours which were recognized as invaluable educational enterprises as well as delightful social events. Though many men would have relinquished the hard work inseparable from such an arduous task as falls to the lot of the secretary of an active society he conscientiously did his full share and was still secretary at the time of his death. From 1940 to 1942 he was Master of the Oxford Ophthalmological Congress, and in 1942 was elected to the highest honour in his own branch of the profession—that of president of the Ophthalmological Society of the United Kingdom.

His death will leave a real gap in the life of the Voluntary Staff Club of Sheffield, to the founding of which he contributed not a little, being its first secretary, and he will be genuinely missed by all who knew him. He leaves an only daughter, having lost his wife early in their married life.

PRESTON KING, M.D.

The death on Jan. 29 of Dr. Preston King has removed a notable figure from Bath medical circles. Preston King received his medical education at Cambridge and St. Thomas's, qualifying M.R.C.S. and L.S.A. in 1887 and taking his M.B., B.Ch. the following year; he proceeded to the M.D. in 1891. He went to the Royal Mineral Water Hospital, Bath, in 1890 as resident medical officer, and three years later set up in practice in Gay Street. Three years later again he was appointed honorary physician to the hospital, a post which he held until 1912. He practised chiefly as a spa physician and published a book on *Bath Waters*. He was also on the staff of the Royal United Hospital as assistant physician, relinquishing that appointment in 1905 to become the institution's first radiologist with the title of "physician-in-charge of the electrical department." In 1901 he joined the City Council, was elected Mayor in 1914 and again in 1917, and Alderman in 1918.

Preston King was a pioneer in other things besides radiography. He was the first medical man in Bath to possess a self-propelled vehicle. This was an early type of steam-driven car, the passage of which up Gay Street in 1901 often meant that the thoroughfare was shrouded in fog for several minutes. Unfortunately, it blew up one day on the way to Wells, and was soon replaced by a petrol-driven car, which proved much more satisfactory and lasted many years. He was also one of the first to be initiated into the mysteries of cinematography by his friend Rudge, who was its inventor in the early part of the century. Preston King was a strong advocate of euthanasia for hopeless cases, and of vivisection of criminals condemned to death, their consent being first obtained and the death sentence commuted if the experiment itself did not prove fatal. He did not hesitate to advance these views publicly, gaining a fair measure of support but also coming in for very spirited adverse criticism. "P. K.," as he was known, was one of the kindliest of men. He had a whimsical wit, and any meeting, medical or lay, knew it was going to enjoy itself as soon as he rose to his feet. He is survived by his widow: their only son died some years ago.

HOWARD KELLY, M.D., LL.D.

Prof. GREY TURNER writes: The death of Howard Kelly of Baltimore at the ripe age of 85 recalls the early days of the Johns Hopkins Hospital, for Kelly was one of the four original heads of divisions and figures in the famous Sargent portrait of that notable staff together with his colleagues Osler, Halsted, and Welch. The picture now hangs in the Welch Memorial Library in Baltimore. But though he was only a very young man when appointed to the Chair of Gynaecology, he had already done notable work, which was perpetuated in his magnificent two-volume *Operative Gynecology* published in 1898, with those wonderful illustrations by Max Brodel which have never been surpassed. But he was not limited by any narrow devotion to his own subject, and his introduction of the simple cystoscope which bears his name opened up a large field of activity in genito-urinary work. Here again he made notable contributions, and in the days before *x*-ray examination became so reliable the use of the wax-tipped catheter for the detection of ureteral calculi was a very useful method which he developed. It ought also to be remembered that he endeavoured to extend the use of his form of cystoscope to the male and published a paper on the subject as long ago as 1898. His modification of the Mayo operation for umbilical hernia, the short rectal speculum, and "Kelly's rake" each shows his wide interest and activities. His volumes on gynaecology were followed by the large book, *Appendicitis*, published in 1905, for which he was also responsible in collaboration with Hurdon; the beauty of the illustrations in that work caused quite a sensation at the time. He was a most skilful operator, and I can never forget the impression he made when in 1905 he operated in the old Royal Infirmary in Newcastle-upon-Tyne at the invitation of Mr. Rutherford Morison. The patient was suffering from a septic pelvis with a temperature chart "like the peaks of the Himalayas," as Kelly described it. He cleared out the pelvis beautifully and it was altogether a most masterly performance, but I think, if anything, it was almost surpassed by the exhibition of cystoscopy by his own method with which it was followed. He invited us to time him in passing the ureteric catheter, but before we could get out our watches the instrument was safely introduced up to the kidney pelvis. On the same occasion I cherish the recollection of quite a long visit which he paid to the pathological museum at the College of Medicine. I was assistant curator at the time, and the interest he took in the specimens that I was able to show him was a great encouragement. I never saw a larger audience of medical men in Newcastle than on the occasion when Kelly was billed to lecture under the title of "Lest we Forget." There was great speculation as to what he intended to talk about, and I somehow feel that the audience would not have been quite so large if it had been known that he was going to lecture on Walter Reed and his work in connexion with banishing yellow fever from the Panama Canal zone. From about the time of the last war Kelly's name rather seemed to disappear from professional activity, although it was often hinted that he was carrying on important work in the use of radium. His views on evangelical work, temperance, and social welfare often brought his name before the public, but the methods he employed in promulgating his views on these subjects at all times occasionally caused a little discomfort to his friends notwithstanding his obvious sincerity.

JOHN KEAY, C.B.E., M.D., F.R.C.P.Ed.

Dr. John Keay, who died at his home in Beaminster, Dorsetshire, on Jan. 21, aged 83, was born in Co. Wicklow. He began his medical studies at Owen's College, Manchester, but soon afterwards transferred to Glasgow University, where he qualified M.B., C.M. in 1881. He was successively house-surgeon and house-physician at the Glasgow Royal Infirmary, and then took a course of postgraduate study in Vienna. Returning to Scotland he began his life's work in psychiatry by taking a junior assistantship in Crichton Royal, Dumfries, in the spring of 1883, subsequently holding senior appointments at Polton and Inverness. In 1904 he became medical superintendent of Bangour Institution, near Edinburgh, which post he held until he retired in 1931. He was also lecturer on mental diseases at the School of Medicine of the Royal Colleges. He thus rendered almost half a century of service in Scottish lunacy administration. In 1881 he proceeded M.D.Glasgow with a thesis on "Some Features of Modern Asylum Practice," and two years later was admitted a member of the Royal College of Physicians of Edinburgh, being elected to a Fellowship in 1892. As president of the Caledonian Medical Society in 1908 he gave an address on "Fifty Years of Scottish Lunacy Administration," summarizing the evolution of lunacy law and asylum practice from 1855 onwards. On the outbreak of war in 1914 Keay was made commandant of the Bangour War Hospital with the rank of lieutenant-colonel, and soon after the conclusion of hostilities in 1919 received the C.B.E. in recognition of his services. He contributed a number of papers to the literature of his specialty, and in 1918 achieved the highest honour in this field of medicine by being chosen president of the Royal Medico-Psychological Association. Keay was a rather shy man, but he was even-tempered and extraordinarily diplomatic and tactful in dealing with those with whom he was associated. He was fond of outdoor sports, was a fine companion, and notwithstanding his long residence in Scotland he never lost the Irish brogue in his speech. He is survived by his wife, who was a daughter of Dr. Rutherford of Crichton Royal, Dumfries.

A. M. WATTS, M.D., D.P.H.

We regret to announce the death at his home in Broadstairs on Jan. 23 of Dr. A. M. Watts. Born in 1871 and educated at the Royal Academy, Gosport, and University College, London, Alexander Minter Watts qualified M.R.C.S. and L.R.C.P. 1894. After a few years in general practice he studied at Newcastle-upon-Tyne, obtaining the M.B., B.S.Durham in 1901 and the M.D. of that University in 1903. He was early attracted to public health work, and while in general practice at Minster was a member of the Isle of Thanet Rural District Council and Board of Guardians. In 1912 he obtained the D.P.H. and took a whole-time appointment with the Kent County Council. After the last war, in which he served in the R.A.M.C., he was appointed medical officer of health of the East Kent (No. 1) United District, which post he held until last December, when he retired owing to failing health. Dr. Watts was well known not only to all his colleagues in the area but also over a large part of Kent. He was an active member of the B.M.A., serving on the Kent Branch Council and also as chairman of the Isle of Thanet, later the East Kent, Division from 1933 to 1936 and again in 1942. His nomination as president of the Kent Branch in 1935 was for him a just recognition of many years of good work for the medical profession in the county, and he greatly appreciated the honour. In 1938 he was elected member of Council of the B.M.A., representing Kent and Sussex. Among a number of other activities was his interest in the National Association of Local Government Officers, and he was president of the Thanet Branch for several years. Although in failing health Dr. Watts carried on for as long as possible owing to the shortage of doctors, and he will be greatly missed by all those who knew him as a friend or adviser. He is survived by his widow.

Dr. **Selwyn Hale Puckle** died at Church Stoke, Montgomeryshire, on Dec. 13, 1942, aged 83. Born at Hamilton, Victoria, Dr. Puckle was educated at Gelong Grammar School and came to this country in 1878. He took his B.A. at Trinity Hall, Cambridge, in 1881 and qualified M.B., C.M. at Edinburgh in 1885. The following three years were spent in house appointments and assistantships in Edinburgh, and then he settled in Bishop's Castle, Salop, where he stayed until he retired in 1919. He had the esteem and respect of the population of a very extensive district. In addition to his professional duties he found time for much public work. He was mayor of the borough in 1899 and from 1910 to 1914, and took a keen interest in the life of the district, even after he retired, until failing health cut him off from active work three years ago. He took part in all kinds of sport and enjoyed shooting up to a few years before his death. He was a member of the B.M.A. from 1888 to 1919 and was president of the Shropshire and Mid-Wales Branch in 1909-10. His wife, whom he married shortly after coming to Bishop's Castle, died in 1939, and his later years were saddened by the absence abroad of his three sons—two in India and one in Hong Kong who is now a prisoner in Japanese hands.

Dr. **John Lewis Jones** of Llansamlet, Swansea, died suddenly at his home on Dec. 14, 1942, at the age of 78. Dr. Jones was born at Llanon, Cardiganshire, and was educated at Christ College, Brecon, and Edinburgh University, qualifying M.B., C.M. in 1891. From the time he qualified until 1935 he practised in Llansamlet and district, where he was both physician and friend to large numbers of the inhabitants. He held all the local medical appointments, and was made J.P. for the Borough of Swansea in 1919. He was twice married, both wives predeceasing him; there were no children. Dr. Jones had been a member of the B.M.A. for 39 years.

We regret to announce the sudden death on Jan. 29 after a short illness of Dr. **Alfred Adams** of Knutsford, Cheshire. Taking up medicine rather later than most, Alfred Adams qualified M.B., Ch.B. with honours at Liverpool University in 1910; two years later he took both his M.D. and the D.P.H. He held the Johnston Colonial Fellowship in Pathology and Bacteriology at Liverpool for a year before being appointed medical superintendent of the Liverpool Sanatorium, Delamere Forest, in 1912, a post from which he retired after twenty-six years' service on reaching the age limit in 1938. Dr. Adams was in many ways a pioneer in the early institutional treatment of pulmonary tuberculosis, and conducted the often difficult work of the sanatorium with ability and initiative. As far back as 1913 he was writing on induced pneumothorax in this disease. During the last war, in which he served with the rank of captain, he was in charge of No. 2 Mobile Bacteriological Laboratory in Salonika and served also in Gallipoli. He was a regular attender at medical meetings in the North-West, and for two years was president of the North-Western Tuberculosis Society. With the outbreak of the present war he came out of retirement and took up work as District Tuberculosis Officer under the Cheshire County Council.

Dr. **Charles John Girling**, who has died at Stratford-on-Avon, was the son of a North Country clergyman and was educated at Guy's Hospital. After qualifying in 1889 he went to Leeds, where he was associated with the late Lord Moynihan as assistant to Mr. Jessop, the celebrated Yorkshire surgeon. Later he went into general practice at Batley, and early this century he came south and worked for thirty years in a rural district in Dorset. He was a member of the B.M.A. for thirty years, and in 1930 was president of the Dorset and West Hants Branch. Essentially a quiet and unassuming man, Girling became the guide, philosopher, and friend of several generations of Dorset folk, and it was characteristic of him that when acknowledging some gifts from his friends on his retirement he used the phrase: "I've never been anything special." It will be a long time before this simple man with his simple pleasures and simple philosophy will be forgotten by his wide circle of friends.

We regret to announce the death at Bristol on Jan. 13 at the age of 74 of Dr. ISIDOR FISCHER, an eminent medical historian and gynaecologist, formerly a privat-dozent of Vienna. He was a prolific writer on the history of medicine, but his chief works were his *Lexicon of Eminent Doctors in the Last Fifty Years* (1932-3) and *Eponyms in the Terminology of Disease* (1932), two of the most useful books of reference that a medical library can possess. He contributed two valuable articles to Halban and Seitz's *Biology and Pathology of Women*—namely, "The History of Gynaecology" (1924) and "A Retrospect of the Progress of Obstetrics and Gynaecology in the Nineteenth Century" (1929). He was also the author of the *History of Obstetrics in Vienna* (1909), *Medical Deontology* (1912), and the *History of the Medical Society of Vienna, 1837-1937* (1938). He settled in this country in 1938, where he continued his studies in a more sympathetic atmosphere than in Vienna, and the following year was elected an honorary member of the Section of the History of Medicine of the Royal Society of Medicine.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

At a Congregation held on Feb. 6 the following medical degrees were conferred:

M.B., B.CHIR.—D J Bauer, D. M Jeffreys, S. J R. Macoun, Yok Hing Ng, P H. Sanderson, I. MacN Smith, P H S Hooper, J N. Agate, G G. B Blackman, P. D. Eeman, D I. Lishman, E J T Prettejohn, F. K. Lau, *T. S Hindle, *L. A. S White.

*In person

In the schedule to Regulation 26 for Degrees in Medicine and Surgery relating to exemptions from the First M.B. Examination, the Faculty Board of Medicine has substituted "The Intermediate Examination in Science of any University in Great Britain or Northern Ireland" for "The Intermediate Examination in Science in the University of London or Wales."

UNIVERSITY OF BIRMINGHAM

The Council of the University has recently converted the Readership in Pharmacology into a Chair of Pharmacology and has promoted Dr. Alastair C. Frazer to the professorship. Dr. Frazer has held the readership for rather more than 12 months.

UNIVERSITY OF SHEFFIELD

Dr. Helen P. Uprichard has been appointed an assistant tutor in medicine.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

A Comitia of the College was held on Jan. 28, when, the President, Sir Charles Wilson, being abroad, the Senior Censor, Sir Henry Tidy, was in the chair. The following Fellows were appointed representatives of the College: Sir Robert Hutchison on the Aliens Committee; Prof. F. R. Fraser on the Poisons Board; and Sir Arthur MacNalty and Prof. J. W. McNee on the Imperial Cancer Research Fund. The chairman reported that a message of greeting had been sent to the National University of Chile, which celebrated its centenary by holding a First National Congress of Medicine.

Prof. M. Greenwood will deliver the FitzPatrick Lectures on "Medical Statisticians from Petty to Farr" on Feb. 9 and 11; Dr S. A. Henry the Milroy Lectures on "The Health of the Factory Worker in Wartime" on Feb. 23 and 25; Prof. R. V. Christie the Goulstonian Lectures on "Emphysema" on March 4, 9, and 11; Dr. Geoffrey Evans the Lumleian Lectures on "Arteriosclerotic Disease" on March 16 and 18; Prof. G. W. Pickering the Oliver-Sharpey Lectures on "The Circulation in Arterial Hypertension" on March 23 and 25; and Air Commodore Symonds the Croonian Lectures on "Flying Stress" on May 25 and 27.

The following candidates, having satisfied the Censors' Board, were admitted Members of the College:

D. S Cadman, M B.Camb., D R. Cameron, M D.St. Andrews, E D H. Cowen, M B Camb., F. C Deller, M D Liverp., W. Fine, M B Lond, Frances V Gardner, M B Lond., W. P. U Jackson, M.B Camb, D S. Lewes, B.M Oxon, D. de la C. MacCarthy, M D.Lond., Surg. Lieut. R N.V R., M E. MacGregor, M.B.Lond, Surg. Lieut., R N., E. A. Spriggs, B M Oxon, Lieut., R.A M.C., T. C. Studdert, M B Durh.

Licences to practise were granted to the following 221 candidates (including 24 women) who had passed the Final Examinations in Medicine, Surgery, and Midwifery of the Conjoint Board, and have complied with the necessary by-laws:

J. D. Abbott, J. M. Allcock, P S. Allenby, D Annis, N Arenstein, J. K Arkle, F. R. St. C. Assinder, E. H Back, Muriel I. I. Baird, T. E Bairstow, J. F. Baker, T. M. Ball, D. R. Barnes, Joan E. Barter, N. I Bartholomew, H. C Bergmann, Margaret E. Berry, Isobel P. Beswick, J. W. Betts, Rosemary P. Biggs, P. R Birks, P. Ll. Blaxter, D. H Bodger, C. Boroda, J P. Bound, R E. Bowers, J. R. Briggs, F. S. W. Brimblecombe, F. B Bromfield, F. H Budden, J. D. Buxton, C. Campion, S L. Carey, C. B. Cartledge, W. F. Cavenagh, A. H Cheshire, J M. Childs, S. M Chris, G H V. Clarke, R. B Coles, M. C Connell, W. D. D. Cooke, T A. Copp, A. K. Cumming, F A. L. Da Cunha, Elisabeth Dalley, K. H. Dalrymple, I. E. Davidson, D. I. Davies (died Jan 3), R. G Davies, Jesser S Davis, J T Dawson, L. F. Demetrius, P F G. Denton, J. Douglas, W. K. Douglas, A. H Drewitt, J A Easom, C. D. Edwards, A J. Eley, T. H. Elias, F. R. Ellis, I. C W. English, G. L. Evans, G. M. Evans, T. G. Evans, Alianore M. C Fairfax-Lucy, H. C Faulkner, J. F. A Fenton, P F G Finch, R. A. Fisher, H T. Foot, Kate Forrest, T. C. Fort, A R Fox, H G. Frampton, Catherine J. S. Gauvain, T. A L Gethin-Jones, D S. Gibbs, R A. de K Glover, F J Goddard, S. Goldman, H Goldstein, Eva M. Graves, F. T Graves, A J. Gray, F W. M Greaves, R F Griffith-Evans, F D. Griffiths, R W. Griffiths, S. D. Gun-Munro, M. J. L. Hassall, P. E Helme, A. G Healing, G C Hickie, A. R H Hicks, Hazel B. Hill, J L. Honig, G. A. N Horton, J G. Howells, A. J R Hudson, F. P. Hulke, W. H Humphreys, R J Jameson, E S. Jardine, Margaret M G Joad, E L John, Kathleen E. J Jones, P. G. Keates, Margaret Kemsley, H. W H Kennard, R. A. H Kinch, E J King, H. E. Knowles, S. Kramer, R Lake, C. L S Lambert, Kathleen M Lane, P. L Langton-Lockton, H J C J L'Etang, W J Lewis, M. Lindner, J Littler, R. E. Loder, T. G. E. Loosemore, A MacL Macarthur, R I McCallum, K. McGlashan, L. S. MacLeod, I P Madhok, H. J. Markham, B P. Marmion, A. S Mason, C J Mathes, R H Maudsley, D G Maurice, S. R Mawson, F S Mellows, Jessica Mestel, J. R. Moffat, P A. G Monro, R J Moolan-Feroze, H C Moore, R. Morris, K E. Mortimer, M. F Morton, J R Napier, G. D K Needham, C T. Newnham, R. D Nicholson, N Noble, Rhona M Oliver, H B F. Ordish, L R B Parker, R T Parkin, P R P. Pearsall, J. G. Pegg, E J. Perks, D. J Petit, L Posner, R B Raffle, A. J H. Rains, G. S. Ramsay, C. R. McD Redwood, W. T Rees-Jones, C A. I. Reis, S M A. Rizvi, J A. Robertson, H M. Robinson, Edith M Robson, E Roebuck, J. Ronchetti, J. P I Rose, A. J E Rowe, P Rowntree, I A. Roxburgh, T J. Ryan, A. P. S Sanders, H T N. Sears, J Sebel, F O J Shaw, G N Shone, M. Singh, E G Sita, B. F Smallhorn, E S O. Smith, F. M. Smith, T P Smith, V O G Smyth, P Solnik, E M. Southern, G Steiner, D G H Stone, B Sullivan, F. R. Sutton, N W Tattersall, G W Taylor, L B Thomas, M. V P Thomas, J D Thompson, W B Thompson, Dorothy H Thorne, B E. Tomlinson, Edith M M. Toye, Joan D Trethowan, W H Trethowan, G. C Turner, Ll. R Twentyman, Elizabeth Tylden, F. L. A Vernon, J. A Vyse, E Waddington, I R Waters, G. Watkinson, H Weinreb, J A T West, A N Whiteside, D. H J Williams, H. O Williams, H. A G Winter, Celestina M Xavier

Diplomas in Public Health were granted, jointly with the Royal College of Surgeons of England, to the following successful candidates:

M R Blair, S. D. Elek, Ll M Franklin, A Jephcott, N J S Nathan, B F O'Flynn, T. G Osler, B. F Russell, A. E. Tinkler.

Diplomas in (*a*) Anaesthetics (27), (*b*) Psychological Medicine (10), and (*c*) Laryngology and Otology (7) were granted to the successful candidates whose names were printed in the reports of the meetings of the Royal College of Surgeons of England in the *Journals* of Dec. 26 (p. 770), Jan. 30 (p. 147), and Jan. 30 (p. 147) respectively

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

A quarterly meeting of the College was held on Feb. 2, with the President, Dr. Charles McNeil, in the chair. Dr. John George Sclater (Edinburgh), Dr. Adam Patrick (Dundee), and Dr. John William McNee (Glasgow) were introduced and took their seats as Fellows of the College. Dr. John Alexander Mortimer (Hamilton), Dr. George Alexander Grant Peterkin (Edinburgh), Dr. James Ronald (Stirling), and Dr. Thomas Alfred MacGibbon (Norfolk) were elected Fellows of the College.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

Dr. George Graham will deliver the Finlayson Memorial Lecture on "Various Hypotheses on the Causes of Diabetes Mellitus" in the hall of the Faculty (242, St. Vincent Street, Glasgow) on Wednesday, Feb. 24, at 4 p.m.

The Services

Air Vice-Marshal A. GRANT, C.B.E., R.A.F., has been appointed Honorary Surgeon to the King in succession to Air Vice-Marshal W. Tyrrell, C.B.E., D.S.O., M.C., R.A.F. (ret.).

Prob. Temp. Surg. Lieut. A. E. DE LA T. MALLETT, R.N.V.R., has been awarded the D.S.C. for bravery and enterprise when a west-bound enemy convoy was intercepted off Dieppe by our light naval forces and one supply ship and one escorting ship were sunk and others damaged.

The M.C. has been awarded to Capt. W. H. Campbell, A.A.M.C., and to Capt. M. H. K. Haggie and Lieut. C. G. Rob, R.A.M.C.

Flying Officer A. J. F. Eberle, R.A.F.V.R., has been appointed M.B.E. The official citation in the *London Gazette* of Jan. 26 reads as follows:

> "One day in Nov., 1942, when two aircraft were taking off in formation, the one leading struck another which was standing on the side of the runway, causing it to be thrown into the path of the second aircraft which was taking off. The three aircraft caught fire and the pilot of the second aircraft in the formation was stunned and trapped in his cockpit by the hood, which had become locked. Fire engines which came to the scene immediately were unable to subdue the flames. At this stage F/O. Eberle and an Army officer leapt on to the wing but, despite frantic attempts to open the cockpit hood, they were unable to do so before being forced to retire owing to the flames. Seizing an axe, these officers returned to the aircraft, which was burning furiously with ammunition exploding in both wings, and succeeded in smashing a panel. An airman then leapt on to the wings and with great presence of mind pulled the hood release, enabling the two officers to extricate the pilot from the blazing aircraft. F/O Eberle and his Army companion displayed outstanding courage and complete disregard of their safety in saving the pilot from certain death."

CASUALTIES IN THE MEDICAL SERVICES

The name of Temp. Surg. Lieut. J. E. Powell, R.C.N.V.R., is included in an Admiralty Casualty List, published on Jan. 29, among the officers of H.M. Aircraft Carrier *Avenger* who are reported "missing, believed killed."

Prob. Temp Surg. Lieut. **Robert Rosie Latto**, R.N.V.R., is included as "missing, presumed killed" in an Admiralty Casualty List published on Feb. 5. He was born on March 17, 1918, and was educated at Cardiff, qualifying M.R.C.S., L.R.C.P. in 1941 and taking the degrees of M.B., B.S. of the University of London in the same year. Before entering the R.N.V.R. he held a post at the Prince of Wales Orthopaedic Hospital, Cardiff.

Capt. **Frederick Hunter**, I.M.S., who died in India on Jan. 22 as the result of an accident, was educated at the University of Aberdeen, where he graduated M.B., Ch.B., in 1926, proceeding M.D. (with commendation) in 1934. Before entering the I.M.S. as Temp. Lieut. in Feb., 1942 (with seniority Aug., 1935), he held house posts at Perth and Rochdale Infirmaries and from 1929 to 1936 was in practice at Turriff, Aberdeenshire. In 1936 he moved to Worthing, where he was in partnership with Dr. John Ferries. He had been a member of the B.M.A. since 1928.

Prisoners of War.—Lieut.-Col. J. Bennet, R.A.M.C., Surg. Cmdr. H. L. Cleave, R.N., Capt. E. K. Cruickshank, R.A.M.C., Major J. W. D. Goodall, I.M.S., Capt. F. J. W. Hooper, R.A.M.C., Capt. J. G. Jesson, R.A.M.C., Col. V. H. Wardle, M.C., T.D., Capt. A. J. N. Warrack, R.A.M.C., Capt. R. B. C. Welsh, R.A.M.C.

Wounded.—Capt. J. C. Bishop, R.A.M.C., Capt. M. S. Chayen, R.A.M.C., Capt. E. P. Johnson, R.A.M.C., War Subs. Capt. J. S Martin, R.A.M.C., Capt. B. E. Miles, R.A.M.C., War Subs. Capt G. R. Wightman, R.A.M.C.

Missing.—Lieut.-Col. (Acting Col.) K. P. MacKenzie, R.A.M.C., Capt. E. J. A. Needham, R.A.M.C., Surg Lieut. N. J. W. Smith, R.N.

DEATHS IN THE SERVICES

Col. **James Henry Robinson Bond**, C.B.E., D.S.O., late R.A.M.C., died at Cheltenham on Jan. 14, aged 71. He was born on July 21, 1871, qualified M.R.C.S., L.R.C.P., in 1898, and entered the R.A.M.C. in the following year. He served in the South African War of 1899–1902, receiving the Queen's Medal with six clasps and the King's Medal with two clasps. During the war of 1914-18 he served in Mesopotamia from 1915 to 1918; was mentioned in dispatches, and was awarded the D.S.O. in 1917 and the C.B.E. in 1919. He retired in 1924, and latterly had been a confirmed invalid.

Lieut.-Col. **John Lawrence Wood**, O.B.E., R.A.M.C. (ret.), died at Rosslyn Castle, Midlothian, on Jan. 4, aged 60. He was born at Darlington and was educated at the University of Cambridge and at St. Bartholomew's Hospital, taking the B.A. in 1902 and the M.R.C.S., L.R.C.P. in 1906. He entered the R.A.M.C. and served in India and, during the war of 1914-18, in France, and was awarded the O.B.E. for his services. He retired in 1927 but was re-employed on the outbreak of the present war in Sept., 1939, in the Scottish Command, reverting to retired pay in July, 1940. He is survived by two sons, the elder of whom is serving in the R.A.M.C.

Lieut.-Col. **Wilfrid Wynne Jeudwine**, C.M.G., I.M.S. (ret.), who died at Eastcote, Middlesex, on Jan. 22, was born on May 19, 1877, and was educated at the University of Cambridge and at St. Bartholomew's Hospital. He graduated B.A. in 1898, and qualified M.B., B.Chir., and M.R.C.S., L.R.C.P. in 1902, proceeding M.D. in 1912 and taking the F.R.C.S.Ed. in 1933. He entered the I.M.S. in 1902 and had a distinguished career in both the military and civil branches of the Service. In 1908 he served with an expedition on the North-West Frontier of India, receiving the medal with a clasp. In the war of 1914-18 he served in France and Belgium, was mentioned in dispatches, and was awarded the C.M.G. in 1916. He held the important civil posts of professor of ophthalmic surgery at King Edward's Medical College, Lahore, in 1920-1, of civil surgeon at Jullunder in 1922, chief medical officer in the Delhi Province in 1922-3, and civil surgeon at Simla West from 1923 to 1925. He was promoted lieut.-col. in 1922 and retired in 1928. He was author of the *Handbook for Compounders in Civil Hospitals and Sub-assistant Surgeons in Outlying Districts*. After his retirement he was for a time school medical officer at Newport, Isle of Wight, and more recently was in practice at Eastcote. He had been a member of the B.M.A. for 27 years.

Medical Notes in Parliament

Treatment of Venereal Diseases in the Army

Replying to Dr. Morgan on Jan. 28, Sir **James Grigg** said sulphapyridine and sulphathiazole were recommended by the War Office for the treatment of gonorrhoea; neo-arsphenamine, bismuth, and in some cases mapharside for the treatment of syphilis. Specific and general instructions on treatment had been issued to all medical officers, and comprehensive notes on these diseases had also been issued for their guidance. The drug treatment was in general the same in the American and Canadian armies, but differed in some details. A good supply of all these drugs was available. Answering Mr. Groves on the same date, Sir **James Grigg** said King's Regulations laid down that commanding officers should ensure that all men were medically inspected not later than the morning after rejoining their units from furlough. He was satisfied this was in general carried out. Officers returning from leave did not automatically undergo a medical inspection.

British Hospital in North Russia

Mr. **Noel-Baker**, replying to Commander Bower, said that late last summer the British Government arranged for the establishment of a British hospital unit in North Russia. This unit, which was staffed by British Naval officers and ratings, now dealt with all sick and wounded British merchant seamen at Murmansk. The Soviet Government had agreed in principle to the establishment of a second British hospital unit at another port in Northern Russia.

Skin Diseases among Troops

On Feb. 2 Sir **James Grigg**, replying to Captain C. S. Taylor, said that 23 officers and 198 other ranks were returned from the Middle East in 1942 with skin diseases. It was not known how many of these contracted the diseases before they left this country, but the number was likely to be very small. He was satisfied that a very complete system of medical inspection of troops going over-seas was in operation, and that no one suffering from a serious skin disease was sent abroad.

Plan of Medical Officers of Health

During the debate on economic policy after the war, in the House of Commons on Feb. 2, Mr. **Pethick-Lawrence** expressed his pleasure on seeing in the Press that day a report issued by the Society of Medical Officers of Health, which stated: "A national medical and health service should be established on a whole-time salaried basis with the complete facilities outlined in this report. Private enterprise cannot provide and maintain complete hospital, medical, and allied services." He had, he added, seen other statements by eminent doctors and he thought, by bodies representing the doctors, bearing that out

Medical Services for Ethiopia

Mr. **Eden** announced on Feb. 3 that at the request of the Emperor of Ethiopia a senior member of the Colonial Medical Service was seconded on Feb. 1, 1942, for service under the Emperor, who appointed him Director-General of the Ethiopian Medical Services. At the request of the Ethiopian Government the names of four senior non-British doctors had been proposed to them for medical appointments. Every effort had been made and would be made, within the limits imposed by the man-power situation in this country, to meet the Ethiopian Government's further requirements. In addition the British Red Cross maintained a hospital in Addis Ababa. The Friends Ambulance

Unit had recently dispatched an important unit of doctors and medical assistants to undertake medical work in the capital and in the provinces. They had also supplied considerable quantities of urgently needed drugs.

Maternity Beds

Mr. ERNEST BROWN told Dr. Summerskill on Feb. 4 that during 1942 the maternity beds in the L.C.C. hospitals were increased by approximately 220, bringing the total number to approximately 627. During the same period the maternity beds in the voluntary hospitals in the county of London were increased by 165, bringing the total number to approximately 515. These were in addition to the 2,700 beds in emergency maternity homes in reception areas and the houses in the country to which many London homes had been removed. Both the L.C.C. and the voluntary hospitals hoped to provide more maternity beds in the near future if staff could be found.

No Special Diagnostic Service for Wales

Sir HENRY MORRIS-JONES asked on Feb. 4 whether the Minister of Health would make arrangements for the provision of free diagnostic assistance for young insured persons between the ages of 15 and 25 in Wales who were referred to the Regional Medical Service by their panel doctor, and, where necessary, hospital and convalescent home treatment in a State-aided hospital on the lines of similar provision by the Scottish Department in the Clyde Valley. Mr. BROWN replied that the staff of the Department's Regional Medical Service was engaged on war duties, and consequently the procedure to which Sir Henry referred was not practicable in England and Wales. Diagnostic and other facilities of hospitals in England and Wales had been augmented in a number of ways under the Emergency Hospital Scheme. He had no reason to suppose that they were not available to patients referred by their doctors.

Cost and Staffing of Medical Boards

Mr. BEVIN stated that between July, 1940, and Dec. 31, 1942, the average number of medical practitioners serving on medical boards was 3,418, the largest number at one date being 3,781, and the smallest 3,014. Between the outbreak of hostilities and Dec. 31, 1942, approximately £2,770,000 was paid in fees and travelling expenses to chairmen and members of civilian medical boards and to consultant examiners. These payments related to examination of persons called up under the National Service Acts for service in the Forces or in Civil Defence and of those volunteering for service in the Forces.

Cottages for Farm Workers

On Feb. 4 Mr. BROWN announced that the Government had authorized preliminary arrangements for the building by local authorities of a limited number of cottages for farm workers. Increased food production had aggravated the existing shortage and the cottages would be built where the need was most acute. Preliminary preparations were being made on the basis of 3,000 cottages.

Vaccinia and Small-pox Deaths.—On Jan. 19 Mr. ERNEST BROWN told Mr. ALFRED EDWARDS that 6 deaths were registered in England and Wales during 1941 of which the causes were certified as vaccination, vaccinia, or other sequelae of vaccination The sexes and ages of the deceased were 3 males aged 5 months, 19 years, and 30 years, and 3 females aged 9 weeks, 5 months, and 2 years. In addition, inquiries resulted in one other death certified as due to meningo-encephalitis being classed to vaccinia. The deceased was a male aged 29 years. Mr. BROWN also informed Mr. Edwards that no death from small-pox was registered in England and Wales during 1941.

Maintenance of Cancer Patients—Mr. HARVEY inquired on Jan 21 whether, in view of the fact that free maintenance in hospital had been extended to tuberculous patients and of the importance of encouraging sufferers from cancer to seek early treatment, a similar provision could be made in their case. Mr. BROWN replied that the distinction in payment for hospital treatment between infectious diseases (of which tuberculosis was one) and non-infectious diseases (of which cancer was one) was a matter of statutory requirement. In deciding whether any charge should be made in an individual case of the latter type local authorities were authorized to have regard to the financial circumstances of the individual. He had no reason to suppose that individuals were deterred from undertaking treatment by any difficulties on this account.

Medical Staffing of Appeal Tribunals.—Sir WALTER WOMERSLEY estimates that to staff the suggested pensions appeal tribunals, including the additional appointments which would have to be made to his own staff, between 35 and 55 whole-time doctors would be required. He added that the British Medical Association was last consulted on this matter on Nov. 27 last.

Medical Referees for War Workers.—In reply on Jan 21 to Miss Ward, Mr. ERNEST BEVIN announced that after consultation with the British Medical Association and Local Medical War Committees, he had appointed medical referees who, among other things, examined workers who sought permission on medical grounds to leave employment which was scheduled under an Essential Work Order but could not produce satisfactory medical evidence. He was also arranging for these medical referees to examine workers in certain circumstances where the employers wished to discharge them on medical grounds.

Mines Medical Service.—On Feb. 2 Major LLOYD GEORGE told Mr. Lipson that 207 applications were received from doctors for posts under the Ministry of Fuel and Power for the Mines Department Offers of appointment had been made to six of the applicants, and the selection of candidates for the remaining three posts would be made in the near future.

Parliamentary Medical Committee—The Parliamentary Medical Committee met on Feb. 2, Sir Francis Fremantle in the chair, and discussed the shortage of medical men for public services and in particular for the Indian Medical Service.

Notes in Brief

It has been decided to bring into operation, as soon as the necessary arrangements can be made, the Child Adoption (1939) Act.

It is estimated that over 90% of the milk sold in London for domestic consumption is pasteurized Mr. Mabane denied on Feb. 3 that a decision had been taken to make compulsory the pasteurization of raw milk.

Introduction of oatmeal into the national loaf is in progress.

Medical News

The spring programme of Chadwick Public Lectures, arranged by the Chadwick Trust (204, Abbey House, Westminster, S.W.1), is as follows: Feb. 23, 2.30 p.m., at London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, W.C., Prof. M. Greenwood, F.R.S., "Social and Industrial Environment and Disease"; March 16, 2.30 p.m., at Royal Society of Tropical Medicine and Hygiene, 26, Portland Place, W., Dr. R. Cruickshank, "Some Post-war Problems in the Control of Infectious Diseases"; April 6, 2.30 p.m., at Royal Sanitary Institute, 90, Buckingham Palace Road, S.W., Mr. T. Sharp, "Town Planning and Public Health"; May 11, 2.30 p.m., at Royal Society of Tropical Medicine and Hygiene, Dr. C. F. White, "Health Problems in Rebuilt London"; June 17, 4 p.m., at Chelsea Physic Garden, Swan Walk, S.W., Mr. F. J. Chittenden, "Plants causing Irritation." Admission to the lectures is free and further particulars may be had from the secretary of the Trust.

The President and Council of the Geological Society of London, Burlington House, London, W.1, extend a cordial invitation to any members of the Association who would care to attend their next ordinary general meeting, to be held on Wednesday, Feb. 24, at 3 p.m. There will be a discussion on some medico-geological problems, and the following communications will be read: "Human Fluorosis," by Drs. D. C. Wilson and M. M. Murray; "The Radiology of Human Fluorosis," by Dr. F. H. Kemp; "Molybdenum as the Cause of Teart Disease," by Dr. A. H. Lewis; and "The Geological Aspects of Fluorosis and Molybdenosis, and Other Problems," by Mr. C. E. N. Bromehead, F.G.S.

The second meeting of the Pan-American Congress of Ophthalmology will be held in Montevideo from Nov. 4 to 7, 1943. One full day each will be devoted to social ophthalmology (including prevention of blindness and trachoma), papers on research work, clinical ophthalmology, and surgical ophthalmology. Manuscripts should reach the executive secretaries, Dr. Conrad Berens, 477, First Avenue, New York, U.S.A., or Dr. Moacyr E. Alvaro, Conselaçao 1151, Sao Paulo, Brazil, before June, 1943.

Twenty-six grants were made by the Ella Sachs Plotz Foundation for the Advancement of Scientific Investigation during 1942, two of them to workers in this country: Dr. V. Korenchevsky of Oxford and Dr. Hermann Lehmann of the Sir William Dunn Institute, Cambridge. The nineteenth annual report of the Foundation states that during the present great need for funds grants will be given in the sciences closely related to medicine without reference to special fields; the maximum amount will usually be less than $500. Applications for the year 1943–4 should be sent to Dr. Joseph Aub, Massachusetts General Hospital, Boston, Mass., before April next.

The Wellcome Foundation has presented medical supplies to the value of £2,500 to Mrs. Churchill's Aid to Russia Fund and a similar amount to Lady Cripps's United Aid to China Fund. Arrangements have been made for these medical supplies to be dispatched to Russia and to China at an early date.

A new hospital, costing nearly £250,000, has been opened at Bulawayo, where the European population has increased in the last ten years from 51,000 to close on 70,000. Treatment facilities for natives are also being extended; in 1932 there was 1 native clinic and in 1941 the number was 53, and 10 have been built since; in-patients in 1941 numbered 45,948, as against 757 in 1932.

A meeting of the Fever Hospital Medical Service Group will be held in the Lecture Theatre at the London School of Hygiene, Keppel Street, Gower Street, London, W.C.1, at 3 p.m. on Friday, Feb. 26. Prof. S. P. Bedson will open a discussion on "Practical Applications of Recent Virus Research in Infectious Diseases."

The Association of Austrian Doctors in Great Britain (affiliated to the Free Austrian Movement) have arranged for a lecture to be given by Dr. Francis Bach on Sunday, Feb. 28, at 11.30 a.m., at 69, Eton Avenue, London, N.W.3 (near Swiss Cottage station)—the subject being "Rheumatic Diseases: Their Recognition and Treatment."

Speaking in Edinburgh last week, Dr. Andrew Davidson, Chief Medical Officer of the Department of Health for Scotland, made a plea for the fuller use by mothers of the orange juice and cod-liver oil provided under the Ministry of Food's scheme. Last month apparently only 21.6% and 16.8% respectively of those entitled to these important vitamin vehicles took advantage of the scheme.

Medical officers of health are now asked to notify the Ministry of Health of any women in their areas born in 1923 who have a history of tuberculosis. Form T.147 (W) should be used as before.

East Anglia and Bucks-Berks-Oxfordshire are the two latest areas in which hospital surveys are being undertaken by the Ministry of Health and the Nuffield Trust. This brings the number of surveys to date to six.

A sentence of nine months' imprisonment was passed at the Central Criminal Court on Jan. 13 on Dr. William St. John Sutton of Stepney for issuing false certificates to members of the Forces. He was also ordered to pay a sum not exceeding £50 towards the costs of the prosecution.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* during the week the notifications of infectious diseases went up with the exception of diphtheria and whooping-cough, with a fall of 189 and 51 cases respectively.

The rise in the notifications of paratyphoid fever, 32 cases, was due to an outbreak in Sussex, Hastings C.B., involving 27 persons—the largest outbreak for over twelve months.

There was a fall of 189 in the notifications of diphtheria, but the decline was not general, being contributed mainly by Yorks West Riding, Wales, Lancashire, and London with 71, 44, 37, and 26 fewer cases respectively.

The 51 fewer notifications of whooping-cough followed a continuous rise in incidence during the past month. The returns for Yorks West Riding fell by 52, and for Wales by 38, while those for Lancashire rose by 52.

The incidence of measles, after a reduction during the previous three weeks, has risen by 774 cases. In Yorks West Riding, however, the cases fell by 337. The largest of the increases were those of Yorks North Riding 218, Durham 155, and Gloucestershire 136. In the first county the rise was due solely to the experience of Middlesbrough C.B.

Dysentery notifications went up by 65 cases—almost 60%. New outbreaks occurred in Durham, Sedgefield R.D. 10, and Derbyshire, Derby C.B. 10. In Lancashire notifications mounted from 31 to 60, involving four county boroughs and four rural districts, the largest centres of infection being Manchester C.B. 18, Liverpool C.B. 7, Salford C.B. 8, Preston R.D. 15. Other important areas of infection were London 16, Surrey 17 (Epsom and Ewell M.B. 11), and Kent 17 (Maidstone M.B. 16).

In *Scotland* there was a rise of 47 cases in the incidence of acute primary pneumonia. During the past month the cases have been doubled, and in the week reviewed notifications in Glasgow went up from 139 to 186 and accounted for half the total cases in the country.

The recent outbreak of gastro-enteritis in St. Andrews, in which 110 persons were known to be affected, with 2 deaths, had its origin in sausage meat which had been heavily contaminated with an irritant poison.

In *Eire* only 4 cases of poliomyelitis were notified, the smallest number of cases for six months. During the height of the outbreak over 20 cases were reported each week.

Returns for the Week Ending February 6

The number of notifications of infectious diseases during the week in England and Wales included: scarlet fever 2,119, whooping-cough 1,695, diphtheria 897, measles 15,363, acute pneumonia 1,530, cerebrospinal fever 110, dysentery 89, paratyphoid 8, typhoid 9. In the great towns 109 deaths were recorded from influenza.

No. 4

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Jan. 30.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943 (a)	1943 (b)	1943 (c)	1943 (d)	1943 (e)	1942 (Corresponding Week) (a)	1942 (b)	1942 (c)	1942 (d)	1942 (e)
Cerebrospinal fever	113	12	28	4	3	156	6	42	4	7
Deaths		1	2				1	3		
Diphtheria	809	32	227	95	35	892	31	228	31	28
Deaths	24	1	6	5	—	33	4	7	1	1
Dysentery	178	16	24	—	—	125	29	32	—	—
Deaths		—	—	—	—			—	—	—
Encephalitis lethargica, acute	4	—	1		—	6	—	—		—
Deaths		1	—				—	—		
Erysipelas		—	58	14	3		—	53	11	5
Deaths		—	—				—	—		
Infective enteritis or diarrhoea under 2 years				22						
Deaths	33	3	8	7	3	48	9	4	7	2
Measles	12,601	821	392	39	41	1,235	107	77	77	1
Deaths	17	3	2	—	—	2	—	1	—	—
Ophthalmia neonatorum	104	5	20	—	1	69	2	23	—	—
Deaths										
Paratyphoid fever	33	—	1	—	—	14	1	1	—	—
Deaths		—	—	—	—		—		—	—
Pneumonia, influenzal*	1,528	89	27	3	4	1,304	83	29	—	21
Deaths (from influenza)	125	18	7	—	—	90	15	4	1	2
Pneumonia, primary			363	20				419	18	
Deaths		—		17	14		95		10	10
Polio-encephalitis, acute	1	—				—	—			
Deaths		—					1			
Poliomyelitis, acute	10	—	2	4	—	5	—	1	1	—
Deaths		—	—				—	—		
Puerperal fever	—	1	17	2	—	—	—	16	3	—
Deaths		—					—			
Puerperal pyrexia	162	5	16		1	167	9	22		3
Deaths										
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	2,272	153	357	36	50	1,076	24	192	33	27
Deaths	5		2	—		3	—	—	—	—
Small-pox	—	—	—		—	—	—	—		—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever†	6	—	4	7	—	10	1	—	5	2
Deaths	—	—	—	—	—	—	—	—	1	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths			—	—	—			—	—	—
Whooping-cough	1,790	104	119	55	3	1,439	24	38	29	—
Deaths	12	2	2	3	1	3	—	2	—	—
Deaths (0–1 year)	416	49	77	43	26	509	58	75	19	17
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	5,449	823	717	232	148	6,464	1,059	816	204	164
Annual death rate (per 1,000 persons living)			16 2	15·3	‡			18·4	13·6	‡
Live births	6,232	728	908	401	265	5,755	550	897	337	204
Annual rate per 1,000 persons living			18 5	26·4	‡			18 5	22·5	‡
Stillbirths	242	22	41			230	20	44		
Rate per 1,000 total births (including stillborn)			43					47		

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* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes paratyphoid A and B for Northern Ireland.

‡ Owing to evacuation schemes and other movements of population, birth and death ra es for Northern Ireland are no longer available.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, London, W.C.1.

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ANY QUESTIONS?

Iron for Anaemia

Q.—*Anaemia of a mild type is common at present Which is the best of the iron preparations and in what form is it most effective? Is there any need to add copper or manganese to the ingredients of the prescription?*

A.—Ferrous sulphate is the best preparation of iron for use at present. It is most effective when given alone—tab. ferr. sulph. (*N.W.F.*) 3 gr. t.d.s., p.c.—but may be better tolerated in the form of Blaud's pill (pil. ferr. carb. 10 gr. t.d.s., p.c.). There is no need to add copper or manganese.

Prophylaxis for Hay-fever

Q.—*How early in the year should prophylactic treatment of hay-fever patients be begun? Is there any advantage in having a vaccine made from local pollen?*

A.—Inoculations with pollen extract for the prevention of hay-fever should begin in the last week of February. They should be given every five days with increasing dosage until the limit of tolerance is reached. As a precaution against reaction three minims of adrenaline chloride (1 in 1,000) should be injected with the extract. Extracts made from local pollens have no advantage over stock preparations. Thus Timothy pollen extract desensitizes to such different species as maize and bamboo pollen (Freeman).

Disposal of Person Dead from Notifiable Infection

Q.—*I had a patient aged five years who showed symptoms of cerebrospinal fever and died after an illness of two days. Of course I notified it to the M.O.H. Instructions were given to the undertaker that the corpse must not be taken into the church before interment. Is this precaution in the interest of public health necessary and usual? The sanitary authority states that after referring the matter to their M.O.H. they are satisfied the precaution was necessary and usual I have been M.O.H. to an urban district for over thirty years and have never taken these precautions and never heard of it being done before.*

A.—The general duty of preventing persons from coming into contact with, or proximity to, the body of any person who has died of a notifiable disease is imposed by section 164 of the Public Health Act, 1936, upon the person in charge of the premises where the body is lying. Such prevention might be taken to include removal to any other place except for purposes of burial or cremation, unless special precautions were taken. The more specific duty in relation to such bodies arises when the death from a notifiable disease occurs *in hospital* and the M.O.H. or other registered medical practitioner certifies that it is desirable that the body should not be removed except to a mortuary or place of burial or cremation. In such circumstances Section 163 of the Act prohibits, by inference, the body being taken to church. It has been quite usual for certificates of this kind to be issued by medical officers of health, or for the relatives or the undertakers to be advised that action on these lines will be taken if they persist in a proposal to hold a ceremony in church in the presence of the body. It may be noted that cerebrospinal fever is not a notifiable disease in the sense of the Act, but the Regulations (S.R. & O., 1912, No. 1226) relating to this disease extend all the relevant powers and duties contained in the Public Health Acts to it and poliomyelitis. It is a matter for the judgment of the M.O.H. whether he will exercise his certifying powers for all the diseases to which they extend, or take into consideration modern knowledge as to the transmission of the particular disease which has caused the death.

Healed Sacro-iliac Tuberculosis and Child-bearing

Q.—*Miss X is about to marry. She suffered from tuberculosis of the left sacro-iliac joint six years ago, but x-ray examination four years ago showed that complete recovery had occurred. In view of her history she sought my advice concerning pregnancy and possible complications. The questions are: (1) What, if any, is the risk of maternal trauma, or flare-up of tuberculosis in the healed joint? (2) What is the likelihood of birth trauma on account of contracted or unyielding pelvic ligaments—should labour be induced early? (3) What is the risk of tuberculosis in the offspring?*

A.—If there has been no clinical or radiological evidence of active tuberculous bone disease for more than five years, the likelihood of reactivation by pregnancy is slight. Patients suffering from ankylosis of the hip caused by tuberculous disease in childhood are commonly sent to maternity hospitals because of fear of difficulty in confinement, but I have never seen or heard of a case in which the disease has been reactivated. In the case of the sacro-iliac joint matters are somewhat different, for that joint is subjected to strain during labour; if, however, radiological examination shows that there is sound ankylosis, there should be little or no danger. (Active tuberculosis of bones or joints has an evil reputation in obstetrics, for often the disease is spurred into great activity and the patient sometimes succumbs to a miliary tuberculosis. This happened, for example, in the case of a patient who became pregnant some five years after a bone-graft operation for spinal caries.)

The second part of the question can be answered with more certainty. If the disease occurred before the pelvis reached adult size considerable asymmetry may develop; in the case of sacro-iliac disease, the symphysis pubis is pushed over to the sound side. On ordinary radiological examination these appearances may seem alarming, but in spite of the lop-sided look the dimensions may still be adequate and the pelvis retain a good obstetric value. Stereoscopic x-ray examination will give a better mental picture of the true size and form of the pelvis. Speaking generally, there need be no departure from ordinary obstetric practice with regard to delivery. The usual ante-natal examination for determining the presence of pelvi-foetal disproportion will, of course, be carefully performed.

The risk of tuberculosis to the offspring is remote; in this respect the outlook is more favourable than it is in the case of a mother suffering from pulmonary tuberculosis.

INCOME TAX

War Work Here by Irish Resident

G. M. J.'s home is in Ireland; he had retired but is in the United Kingdom doing war work. His wife continues to live in Ireland.

⁂ In such circumstances G. M. J. will be regarded as having a residence in both countries—i.e., one here and one which is available to him, whether in fact he uses it or not, in Ireland. He is, therefore, legally taxable by both countries, but under the statutory arrangements between them is entitled to the special relief provided for "double residents." The basis of this relief is that each country gives relief at one-half of the lower of the taxpayer's appropriate rates. For further information, and for any form which may have to be completed, G. M. J. should refer to his inspector of taxes.

LETTERS, NOTES, ETC.

Infant Feeding

Dr. Winifred M. Thompson (Onitsha, S. Nigeria) writes: I have just received the *Journal* of Dec. 12, 1942, and have read with interest Mrs. Nancy Salaman's letter on loneliness in infancy (p. 708). May I be permitted at this late date to make some comments? Mrs. Salaman expresses the wish that mothers would get back to what she calls "natural impulse" rather than be tied to the clock in the question of infant feeding. She gives the impression that in her opinion babies should be fed whenever the mother thinks that the baby's cries mean that it is hungry. Earlier in her letter Mrs. Salaman says that it often requires some experience to tell just why the baby is crying. If the mother is encouraged to feed her baby whenever she thinks that it is hungry, it will result in her feeding the baby whenever she cannot find any other obvious cause for the crying. Naturally the baby will not object, for all babies like to be picked up, and they do not mind having small feeds whenever they feel like it. Here in Nigeria the native women follow their "natural impulse" and feed their babies at any time. The result is deplorable. The babies are unhealthy and overfed, and they cry if their slightest wish is frustrated. Is it to this that Mrs. Salaman wishes us all to return? A normal baby will readily go three or four hours without food during the day and eight hours at night. If the baby is hungry before the next feed is due, surely the remedy is to increase his feeds. A baby responds to a regular routine, and is far more contented in consequence. Not only is it better for the baby, but it gives the mother a better chance to do all the work which she has to do and to take adequate rest, a point of the utmost importance.

BRITISH MEDICAL JOURNAL

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VITAMINS AND PHYSICAL FITNESS

BY

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The purpose of the present experiment was to test whether, as the result of a deficiency in the average student's diet, the fitness of University students has diminished since the beginning of the war.

Procedure of Experiment

In two groups of students the effects of adding vitamin supplements to the diet of one group were studied. Certain anthropometric data, "physical efficiency tests," and the incidence of minor ailments were used as a basis of comparison of the two groups. The experiment was performed on 69 subjects over a period of 21 weeks (April 18 to Sept. 11, 1942). The subjects were 40 R.A.F. and 29 R.E. cadets attending a special short course at Manchester University. The cadets had only recently joined the Forces, were all about the same age (18–19), and had roughly the same social background; they lived in two of the University halls of residence, and had the ordinary undergraduate diet: breakfast and supper in hall and a midday meal in the refectory at the University.

Examination.—The subjects were first examined by A. A. H. and I. F. S. M. The examination consisted of the usual anthropometric data: height (standing and sitting), weight, chest girths ("normal," expiration, and inspiration), the distance between the iliac crests, and the bi-trochanteric diameter. In addition the following measurements were made:

(*a*) The resting heart rate (4 successive half-minute periods after the subject had rested in the recumbent position for 15 minutes), the standing heart rate (4 successive half-minute periods immediately after standing up); and the effect of exercise on the heart rate (measured 0–15 and 60–90 seconds after stepping on and off a 40-cm. box 15 times in 30 seconds).

(*b*) The resting vital capacity (the maximum expiration following a full inspiration, the expired air being collected in a Hutchinson bell spirometer: four attempts were allowed, and the maximum recorded); and the post-exercise vital capacity (measured 30 seconds and 90 seconds after 40 knee-bends in 1 minute).

(*c*) The R.A.F. breath-holding and endurance tests The breath-holding test is the time in seconds during which the subject can hold his breath after a deep expiration followed by a full inspiration. In the endurance test the subject, with his nose clipped, expires deeply, and then, after a full inspiration, blows the column of mercury in a manometer steadily to a height of 40 mm. and maintains it at that level for as long as possible without breathing. The time during which the mercury column is sustained is measured in seconds, and the pulse rate for successive 5-second periods is noted during that time.

Vitamin Supplements.—The cadets were then divided into two groups. Group 1 (35 students) were given a daily vitamin supplement consisting of 6,000 units of vitamin A, 1,000 units of vitamin D, and 50 mg. of vitamin C, in the form of one "adexolin" capsule and one "celin" tablet daily. Group 2 (34 students), who acted as controls, received capsules of arachis oil and tablets containing citric acid, identical in appearance with those given to group 1 but devoid of any vitamin content. Each group contained half the R.A.F. and half the R.E. cadets; care was also taken to see that the men examined by A. A. H. and I. F. S. M. were equally divided between the two groups.

History of Minor Ailments.—A fortnight's supply of capsules and tablets was issued to the cadets at a time. Each cadet was interviewed by one of us every fortnight, when he collected a fresh supply of vitamins, and a history was taken of any minor complaints during the previous two weeks, particular attention being paid to respiratory and gastro-intestinal upsets and to bleeding from the gums.

Re-examination and Change-over of Groups.—At the end of 10 weeks (June 25) the cadets were all re-examined, the same routine being used as in the first examination. At the same time the two groups were changed over: group 1 were now given control tablets and capsules, and group 2 vitamin tablets and capsules.

Final Examination.—The experiment was continued for a further 11 weeks (until Sept. 11), and the examination of the cadets was again repeated. Each cadet was examined on all three occasions by the same examiner. The cadets were not told whether they were on vitamin or control tablets, and did not know of the change-over of the two groups half-way through the experimental period. The examiners did not know which of the cadets were on vitamin supplements and which were on control.

Results

The detailed analysis of the various sets of measurements was made by Dr. G. L. Camm. In addition to considering the vitamin and control groups during each half of the experiment and over the whole experimental period, a separate sub-analysis was made of the behaviour of the R.A.F. and of the R.E. cadets. In brief the main observations are as follows:

1. Minor Complaints

The average number of days of minor respiratory and gastro-intestinal complaints per man was estimated. These included acute and chronic colds, loss of appetite, "indigestion," and, occasionally, nausea and vomiting. The minor nature of most of the complaints must be emphasized; they were "subclinical" in the sense that only in a small minority were the subjects ill enough to stop work. We would emphasize also that these figures are compiled from the histories given by the subjects. Only in a few instances did we verify their statements by examination. Very few cases of bleeding gums were reported, and these have been omitted from the calculations. Complaints during the first fortnight of the experiment, and during the first three weeks after changing over the groups, were also omitted, as it was considered that during these periods there was not enough time for any possible protective action of the vitamins to become apparent. It was found that over the other 16 weeks of the experiment the control group showed an incidence of complaints 50% greater than the vitamin group. The total figures were: vitamin group, 671 days; control group, 1,015 days. The mean figures were: vitamin group, 9.7 days per man; control group, 14.9 days. Mean difference (vitamin − control): −5.2 ± 1.7. The difference between the two groups is statistically significant.

2. Physical Examinations

The means of the various measurements made during the three examinations were calculated, and examined to see whether there were any significant differences between the vitamin and control groups. There was no significant difference in respect of the anthropometric measurements (heights, weight, chest girths, and pelvic measurements). Nor were any significant differences found on comparing the standing pulse rate, the pulse rate during the R.A.F. endurance test, the post-exercise pulse rate, or the post-exercise vital capacity in the two groups. On the other hand, in four of the measurements made, interesting differences were found between the vitamin and control groups. These measurements were (i) the resting vital capacity, (ii) the breath-holding time, (iii) the R.A.F. endurance test time, and (iv) the resting pulse rate.

Resting Vital Capacity.—At the beginning of the experiment the mean resting vital capacity was the same for the two groups. At the end of the first half of the experiment the vital capacity of both groups had increased, but much more so in group 1 (vitamin) than in group 2 (control). At the third examination the vital capacity of group 1 (now control) had diminished, and that of group 2 (now vitamin) had increased. At both examinations, therefore, the balance of improvement was in favour of the cadets who had been receiving vitamins for the previous 10 or 11 weeks. The differences between the vitamin and control groups are statistically significant. A separate sub-analysis of the R.A.F. and of the R.E. cadets also reveals a significant difference between the vitamin and control groups in both cases. The results are shown in Table I and Fig. 1.

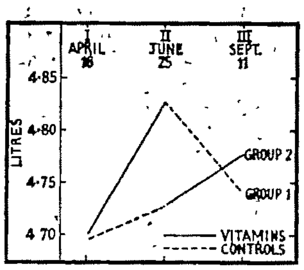

FIG. 1.—Resting vital capacity.

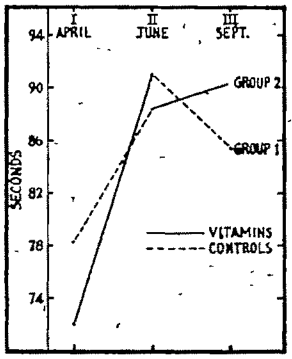

FIG. 2.—Breath-holding time

TABLE I.—*Resting Vital Capacity in Litres*

	1st Exam.	2nd Exam.	3rd Exam.
Group 1	4·698	(vitamin) 4 826	(control) 4·740
Group 2	4·694	(control) 4·727	(vitamin) 4·776

Whole period: Mean difference (vitamin − control) = +0 119 ± 0·022

Breath-holding Time.—The results resemble those of the vital-capacity measurements. At the end of the first half of the experiment the increase in breath-holding time in group 1 (vitamins) was much greater than in group 2 (control). At the end of the experiment, following the change-over of the two groups, the average time for group 1 had decreased, while that for group 2 had increased. At each examination, therefore, the cadets on vitamins showed a greater improvement than those on control tablets. Statistical analysis revealed a definitely significant difference between the vitamin and control groups of the R.A.F. cadets and a just-significant difference betwen the combined groups.

The results are shown in Table II and Fig. 2.

TABLE II.—*Breath-holding Time in Seconds*

	1st Exam.	2nd Exam.	3rd Exam.
Group 1	72·1	(vitamin) 91·0	(control) 85 4
Group 2	78·2	(control) 88·4	(vitamin) 90·3
Difference (vitamin − control):		+8·6 ± 3·7	+7·4 ± 3·9

Mean difference over whole experimental period (vitamin − control) = +8·0 ± 2·7

Endurance Test.—An examination of the times during which the cadets could maintain a column of mercury at a height of 40 mm. by a steadily exerted expiration shows changes similar to those in the breath-holding times, but less marked in degree. In each half of the experiment the group then on vitamins increased its time more than the control group. The differences are statistically significant only for the R.E. cadets. The results are shown in Table III and Fig. 3.

TABLE III.—*Endurance Test Times in Seconds*

	1st Exam.	2nd Exam.	3rd Exam.
Group 1	55·3	(vitamin) 64·3	(control) 68·7
Group 2	63·4	(control) 64·7	(vitamin) 71·3

Whole period: Mean difference (vitamin − control) = +5·1 ± 2·3
Mean difference for R.E. cadets = +6·7 ± 1·8

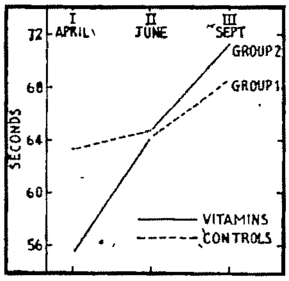

FIG. 3.—Endurance test.

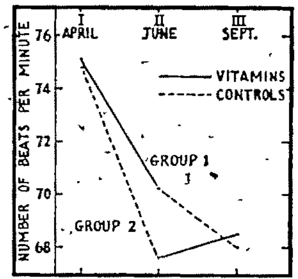

FIG. 4.—Resting heart rate.

Resting Heart Rate.—The changes in resting vital capacity and in the breath-holding and endurance-test times—showing in each a greater improvement in the vitamin than in the control groups—were such as might have been expected, assuming that the extra vitamins had increased the "physical fitness" either by diminishing the incidence of minor illnesses or by some other mechanism. The changes in the resting heart rate, however, were unexpected, if one accepts the popular view that a slow heart rate is a sign of "physical fitness." At the first examination the heart rates of both groups were practically the same. At the second examination the heart rates of both groups had diminished, but the slowing was more pronounced in the control than in the vitamin group. At the third examination it was found that the new control group showed a further diminution in heart rate, but the new vitamin group had increased in heart rate. The differences are statistically significant only in the R.E. cadets.

The results are shown in Table IV and Fig. 4.

TABLE IV.—*Heart Rate at Rest, per Minute*

	1st Exam.	2nd Exam.	3rd Exam.
Group 1	75·1	(vitamin) 70·2	(control) 68 0
Group 2	74 8	(control) 67·6	(vitamin) 68·5

Whole period: Mean difference (vitamin − control) = + 2·7 ± 1·0
Mean difference for R.E. cadets = + 4·5 ± 1·4

Discussion

The results of the experiment suggest that even during the summer months the diet of the students examined was sufficiently below the optimum level in respect of one or all of vitamins A, C, and D to produce a significantly greater amount of minor respiratory and gastro-intestinal upset than a similar diet supplemented with these vitamins. The greater improvement in resting vital capacity and in breath-holding and endurance times in cadets receiving vitamin supplements may be a reflection of this lessened susceptibility to minor infections, or may be due to some other action of the vitamins. The faster resting pulse rate in the cadets receiving vitamin supplements is difficult to explain.

The validity of these conclusions may be attacked on two grounds: first, that the number of subjects (69) was too small for an experiment upon nutrition and physical fitness; and, secondly, that the differences between the vitamin and control groups in vital capacity, etc., are not striking enough to warrant the drawing of any conclusions.

With regard to the second objection, Jokl, Cluver, Goedvolk, and de Jongh (1941), using a smaller group (32), found that repeated examinations of vital capacity and resting pulse rate showed mean figures varying only a matter of 20 to 30 c.cm. in the case of the vital capacity and fractions of one beat in the case of the pulse rate. All our variations are much greater than these.

The first objection (the paucity of numbers in the experimental group) is more valid. It is to some extent offset by the homogeneity of the group. All the cadets were of the same age, of the same social class, and during the experimental period were living under identical dietetic conditions. Another factor which increases the value of the observations is the striking manner in which the change over of vitamin and control groups half-way through the experiment in each case resulted in a reversal of the behaviour of the groups. This obviously increases the significance of the separate sets of observations, but no allowance for this was made in the computation of the results. The two halves of the experiment were treated separately, as if a second group of 69 students had been used for the second half. Had this actually been the case the differences obtained might well have been due to selection; but this can hardly be the true cause, since the same students were merely interchanged.

Despite these objections we feel that this report may be of value in drawing attention to a possible method of assessing the optimal rather than the minimal requirements of vitamins in the diet. A diet containing less than the optimum amount of a particular vitamin, while not producing a deficiency disease, may nevertheless give rise to a suboptimal physiological state which will only be revealed by the application of physiological tests such as we describe.

Summary

The effects of adding supplements of vitamins A, C, and D to the diet have been studied over a period of five months in 69 cadets living in university halls of residence at Manchester.

The cadets receiving vitamin supplements were less susceptible to minor respiratory and gastro-intestinal complaints than those receiving control tablets which contained no vitamins.

The group receiving vitamins showed a greater increase in resting vital capacity and in breath-holding and endurance times, and had a faster resting pulse rate than the control group.

We wish to express our thanks to Glaxo Laboratories Ltd. for facilitating the supply of vitamin and control tablets and capsules.

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EFFECTS OF VITAMINS ON EXPERIMENTAL HYPERTHYROIDISM

BY

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The problem of the relationship between thyroid hormone and vitamins is of great importance for the proper therapeutical application of these substances in several diseases and also for the treatment of hyperthyroidisms—in particular, Graves's disease. The existing literature on the subject is so large that economy of space unfortunately makes it impossible to review it here, but it will be reviewed elsewhere. At the same time it is most contradictory, apparently because the following facts have not been taken into consideration by some of the workers:

1. Vitamins are food factors; therefore thyroid hormone, the chief function of which is to increase the oxidation processes in the organism, increases the metabolism of the vitamins in a similar way to that, for example, of proteins, fats, and carbohydrates. Thus depletion of *vitamin A* in the organism of animals by thyroid hormone administration has been found by Abelin (1933), Parhon and Werner (1935), Sure and Buchanan (1937), and Mlinko (1938); a similar condition in hyperthyroid patients was indicated by Wohl and Feldman (1938). With regard to *vitamin B*, of especial importance are experiments by Himwich, Goldfarb, and Cowgill (1932), Hendricks (1933), Cowgill and Palmieri (1933), Cowgill (1934), and Drill (1938), who showed that the requirement of vitamin B of an organism per unit of mass is proportional to the metabolism of that mass, and that thyroid hormone therefore greatly increases this requirement. The depletion of *vitamin C* from the animal organism by thyroxine has been recorded by Demole and Ippen (1935), Plaut and Bülow (1935), Mosonyi (1935), Nespor (1936), Sure and Theis (1938), and Thaddea (1938). Increase of metabolism due to any cause accordingly requires increased administration of vitamins: e.g., in the case of muscular work, Cowgill (1934) found this for vitamin B and Hamel (1937) for vitamin C.

2. Therefore when even non-toxic doses of thyroid hormone are given or mild hyperthyroidism is present without a corresponding increase in vitamin administration, a relative vitamin deficiency might develop with more or less pronounced symptoms of anorexia, partial starvation, and loss of body weight.

3. For these reasons it is difficult to draw definite conclusions as to the antagonistic effects of thyroid hormone and vitamins from the experiments of several previous workers who used, often deliberately, a diet deficient in, or containing only a minimal normal amount of, the vitamin investigated, or used toxic doses of thyroid hormone.

The effects produced by any substance differ greatly according to whether toxic or non-toxic doses are used. In toxicosis, non-specific, mostly destructive, changes occur which obscure the specific changes. This is true both for thyroxine and for vitamins.

Technique

Non-toxic Experiments.—All these facts were taken into consideration when planning our experiments (see Tables I and II), performed on rats kept on our usual diet. This diet is rich enough in all vitamins to ensure (this appears to be the best test) excellent breeding results. We have chosen as criteria for judgment of antagonism or co-operative activity the changes in body weight and weights of most of the organs, fat deposition, and histological structure of thyroid gland. We have used non-toxic doses both of thyroid hormone and of vitamins, but in the case of vitamins, except with vitamin D, they were much above the normal requirement, while with thyroid hormone they were large enough to produce specific and typical changes (Korenchevsky and Hall, 1941).

Experiments were performed on 121 male rats for investigation of the effects of vitamins B and C, and on 66 female rats for investigation of vitamins A and D. The final age of the rats averaged 150 days. Each experiment was repeated twice. Although the doses and, in the case of vitamin B complex, the numbers of vitamins B used were somewhat different in the first and second experiments, the results were similar. The data from both experiments were therefore pooled, and average figures only are given in Tables I and II.

TABLE I.—*Effects of Non-toxic Hypervitaminosis A and D on the Means of Body Weight, Fat Deposition, and Actual Weights of Organs in Normal Female Rats and in Rats treated with Non-toxic Doses of Thyroid Hormones**

Organs	Co−V	Co+V	Thy−V	Thy+V
	Group 1	Group 2	Group 3	Group 4
Ovaries, mg.	68	68	87	84
Preputial glands, mg.	94	85	139	132
Adrenals, mg.	50	52	75	77
Thymus, mg.	288	332	289	273
Liver, g.	7·05	7·03	9·57	9·64
Kidneys, g.	1·29	1·32	2·12	2·11
Spleen, mg.	729	674	1,002	1,226
Heart, mg.	714	712	1,028	1,036
Abdominal fat, g.	7·4	7·6	1·6	1·7
Final body weight, g.	196	195	188	186
Gain in body weight, g.	52	51	43	38
No. of rats in group	16	16	16	18

* In this and the following table "Co−V" denotes the group of control rats receiving no additional substances; "Co+V" the group of rats receiving an extra amount of vitamins; "Thy−V" the group of rats receiving thyroid hormone alone; "Thy+V" the group of rats receiving simultaneously thyroid hormone and an extra amount of vitamins.

No changes in weight of uterus, vagina, thyroid, hypophysis, and brain were obtained in this experiment.

The doses used were as follows: In the first experiment 85 mg. of desiccated thyroid in the form of a sweetened emulsion was given orally by pipette 3 times a week; and 0.6 mg. of thyroxine was injected subcutaneously twice a week. In the second experiment desiccated thyroid only was given, but in a larger dose—180 mg. for the first month of the experiment and 280 mg. for the rest of the experiment—6 times a week. Vitamins A and D were given orally in the form of halibut-liver oil diluted with cod-liver oil, the daily dose (4 drops by pipette) containing 1,300 I.U. of vitamin A and 70 I.U. of vitamin D, 6 times a week in both experiments.

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* Dr. Korenchevsky desires to express to the University of Oxford and to Prof. E. S. Goodrich his own and the Lister Institute's gratitude for the kind hospitality extended to him and his co-workers in the Department of Zoology and Comparative Anatomy.

TABLE II.—*Effects of Hypervitaminosis B (Groups 1–4) and C (Groups 5–8) on the Means of Body Weight, Fat Deposition, and Actual Weights of Organs in Normal Male Rats and in Rats treated with Non-toxic Doses of Thyroid Hormone* *

Organs	Effect of Vitamins B				Effect of Vitamin C			
	Co−V	Co+V	Thy−V	Thy+V	Co−V	Co+V	Thy−V	Thy+V
	Group 1	Group 2	Group 3	Group 4	Group 5	Group 6	Group 7	Group 8
Seminal vesicles, mg.	727	822	620	558	646	711	481	459
Prostate, mg	935	1,010	803	815	911	939	731	702
Preputial glands, mg	128	110	138	146	116	105	147	144
Adrenals, mg.	23	24	45	45	35	34	47	47
Thymus, mg.	290	273	243	199	298	268	233	255
Liver, g.	9·68	10·79	10·66	9·99	9·80	10·29	11·31	10·43
Kidneys, g.	1·88	2·02	2·71	2·47	1·93	1·91	2·75	2·48
Spleen, mg.	991	1,109	1,611	1,439	982	1,137	1,591	1,434
Heart, mg.	928	976	1,289	1,235	949	939	1,290	1,234
Abdominal fat, g	8·1	10·2	4·3	3·4	9·0	9·7	3·4	3·5
Final body weight, g.	268	285	242	230	272	270	239	237
Gain in body weight, g. .	77	93	48	48	93	93	59	55
No. of rats in group .. .	15	16	17	16	13	14	15	15

* No changes in weight of testes, penis, thyroid, hypophysis, and brain were obtained.

In the first experiment vitamins B were given orally in the form of a sweetened emulsion 6 times a week, the daily dose being: aneurin 0.22 to 0.5 mg., riboflavin 0.22 to 0.5 mg., nicotinic acid 2.2 to 5 mg. In the second experiment the same vitamins B and doses were given by mouth, with in addition subcutaneous injections 6 times a week, each dose containing 0.4 to 0.5 mg. aneurin, 0.5 mg. pyridoxine, and 1.5 to 2 mg. calcium pantothenate. In both experiments 20 mg. of vitamin C was given orally by pipette 3 to 6 times a week, and in addition 25 to 40 mg. was injected subcutaneously 6 times a week. The duration of the first series of experiments was 53 days and of the second 47 days.

Toxic Experiment.—An additional experiment was performed on 18 male rats (Table III) in order to discover in particular whether different effects are produced by thyroid hormone and vitamins B when (as in most experiments of previous workers) toxic doses of thyroid hormone are given to animals fed on a diet deficient in or containing a minimal normal amount of vitamins.

TABLE III.—*Effects of Hypervitaminosis B on the Means of Body Weight, Fat Deposition, and Actual Weight of Organs in Male Rats treated with Toxic Doses of Thyroxine*

Organs	Controls	Thyroxine 1 mg Daily		
		Alone	+Crystalline Vits. B	+Cryst. Vits. B +Yeast +Wheat Germ
	Group 1	Group 2	Group 3	Group 4
Testes, g	2·81	2·58	2·24	2·61
Seminal vesicles, mg .	934	361	487	408
Prostate, mg	712	397	452	486
Penis, mg.	294	241	234	271
Adrenals, mg. ..	24	36	33	36
Thyroids, mg	20	20	18	16
Thymus, mg . ..	250	130	156	120
Liver, g.	9·36	6·78	7·84	8·19
Kidneys, g.	1·65	1·91	1·99	2·33
Spleen, mg. .. .	834	757	1,454	1,106
Heart, mg.	818	1,058	1,019	1,073
Abdominal fat, g. ..	4·2	1·4	1·4	1·3
Final body weight, g.	215	152	174	176
Gain (+) or loss (−) in body weight, g. ..	+63	−4	+17	+14
No. of rats in group ..	5	4	4	5

The diet was the same as that used in the non-toxic experiments but made considerably poorer in vitamin B complex by the exclusion of yeast and wheat germ, which were replaced by bread, and the substitution of rolled oats only for the grain mixture. One mg. of thyroxine was injected daily for 13 days, the rats being killed on the fourteenth day. To the rats of group 3 (Table III) the same vitamins B were given as in our second experiment: aneurin, riboflavin, and nicotinic acid by mouth, supplemented by subcutaneous injections of aneurin, pyridoxine, and calcium pantothenate. The doses were also the same, except the dose of aneurin injected, which was raised to 1 mg. The rats of group 4 received in addition yeast and wheat germ (incorporated in the diet in the same proportions as in our original diet) either alone or plus the same amount of crystalline vitamins B as in group 3.

All changes obtained were statistically analysed by one of us (B. Clapham) by means of Fisher's t-test. Unless they are mentioned as being "statistically not significant," all the results obtained were found to be statistically significant.

Experimental Hyperthyroidism

Non-toxic Hyperthyroidism.—The following changes, all statistically significant, were observed after administration of non-toxic doses of thyroid hormone (compare, in Table I, group 3 with group 1, and in Table II, groups 3 and 7 with groups 1 and 5): decreased gain in body weight and fat deposition, hypertrophy of adrenals, liver, kidneys, spleen, heart, and preputial glands in both sexes; hypertrophy of ovaries in females; and small decrease of seminal vesicles and prostate in males. Histological changes in the thyroids demonstrated a strong depressing effect on their function (flattened epithelium, accumulation of solid colloid in enlarged follicles). A preliminary histological examination of ovaries, adrenals, liver, kidneys, spleen, and heart confirmed our conclusion suggested by the increase in weight of these organs—namely, that thyroid hormone has a stimulating hypertrophying effect on them. A detailed microscopical investigation, however, might show new facts; it will be described elsewhere. Thus non-toxic doses of thyroid hormone simultaneously increased both anabolism (shown by hypertrophy of several of the organs) and katabolism (decreased gain in body weight and fat deposition), the anabolic processes prevailing over the katabolic. Although the treated animals were thinner than the controls they had the appearance of perfectly healthy animals.

Thyroid hormone therefore has hepatotrophic, nephrotrophic, and cardiotrophic properties similar to those of androgenic hormones (Korenchevsky and Ross, 1940; Korenchevsky, Hall, Burbank, and Cohen, 1941), but its effect on adrenals appears to be different from that of androgens (Hall and Korenchevsky, 1938). The effect of simultaneous administration of thyroid and androgenic hormones should be investigated with the object of determining whether they might be used for therapeutical purposes in suitable diseases of liver, kidneys, and heart. Epstein (1922, p. 186), for example, obtained "striking" favourable results after the treatment of chronic parenchymatous nephrosis with thyroid hormone.

Toxic Hyperthyroidism.—The administration of toxic doses of thyroid hormone was followed by an atypical reaction (compare group 2 with group 1, Table III): loss of body weight, much greater atrophy of seminal vesicles and prostate and considerably less hypertrophy of kidneys, atrophy instead of hypertrophy of liver and spleen, decrease of testes, and pronounced involution of thymus. At the same time all the animals became weak and emaciated; their fur became dull, rough, and dirty; most rats suffered from diarrhoea and began to lose weight; and some died from thyrotoxicosis before the end of the experiment. Histologically the same depression of thyroid function was observed as with non-toxic doses. Thus in general, instead of the predominant typical anabolic and hypertrophic reaction (still preserved only in adrenals and heart), with toxic doses katabolic and atrophic changes prevailed, resulting in some cases in the death of the animals.

Effect of Hypervitaminosis

The administration of the extra amounts of vitamins produced no considerable effects, if any (compare group 2 with group 1, Table I; and groups 2 and 6 with groups 1 and 5, Table II). Hypervitaminosis B and C (Table II) produced in male rats a small, consistent, but statistically not significant increase of seminal vesicles, liver, and fat deposition. Vitamin B also produced greater gain in body weight and improvement in external appearance and behaviour (the rats appeared to be more lively and, when handled, felt firmer and stronger, and had thicker and more glossy fur than the control groups "Co−V"). Histologically no definite effect of these doses of vitamins could be found on the structure of the thyroid gland, except perhaps a slightly depressing effect of halibut and cod-liver oils. This could easily be explained by the extra amount of iodine given in these oils (Mellanby, 1934; Sampson and Korenchevsky, 1932).

Effect of Hypervitaminosis on Hyperthyroidism

The effect of hypervitaminosis on non-toxic hyperthyroidism (group 4 in Table I, and groups 4 and 8 in Table II) was different from that on toxic hyperthyroidism (groups 3 and 4, Table III). In rats kept on our *normal diet and receiving non-toxic* doses of thyroid hormone, vitamins A and D (in the doses given) did not at all affect the specific reaction of organs and tissues to this hormone, while vitamins B and C produced a slight decrease in the hypertrophy of liver and kidneys. In rats kept on a *minimal normal* amount of vitamins B (Table III) and injected with *toxic* doses of thyroxine, the simultaneous administration of extra amounts of vitamins B was followed by a gain instead of a loss in body weight and the partial restoration of specific anabolic changes instead of a pathological (atrophic and almost exclusively katabolic) reaction of the organs to thyroid hormone. In such animals the atrophic changes were decreased in seminal vesicles, prostate, and liver and replaced by hypertrophy in spleen, while in kidneys hypertrophy became more pronounced. The fact that some typical reactions to thyroxine were not prevented in such animals indicates that in vitamin-treated rats suffering from thyrotoxicosis all the improvements described both by previous workers and by ourselves (including gain instead of loss in body weight) could be explained by the making good of the relative vitamin deficiency produced by, and complicating, the thyrotoxic effects. Histologically the thyroid glands were in the same resting condition as in the rats treated with thyroid hormone alone.

The results of our experiments therefore indicate that for the investigation of antagonistic effects neither toxic doses of thyroxine, which greatly raise the vitamin requirements and produce non-specific changes, nor diets with inadequate levels of vitamin content appear to be suitable.

Conclusions

In the therapeutical application of thyroid hormone its katabolic properties in raising metabolism and especially in reducing body fat are often taken most into consideration.

The results of our experiments (as judged by changes in weights and histological structure of organs) and those of some previous workers emphasize that thyroid hormone also possesses anabolic properties, which can lead to better development of such vital organs as liver, kidneys, spleen, heart, and adrenals in both sexes, and ovaries in females.

As shown especially in our experiments on females, it is possible, using moderate doses of thyroid hormone, to reduce the body fat to about one-fifth without affecting appreciably the gain in body weight, and at the same time preserving the stimulating anabolic effects of this hormone on the development of the vital organs mentioned above.

Thus from small or moderate doses of thyroid hormone favourable therapeutical results can be expected, but when large doses are given the useful effects disappear and the hormone becomes atypically toxic and dangerous.

The useful effects of thyroid hormone cannot be normally and fully operative, unless liberal amounts of vitamins are given simultaneously, because of the increased requirements in vitamins which arise during conditions accompanied by increased metabolism (such as those produced by thyroid hormone).

Therefore the best possible therapeutical results can be expected from simultaneous administration of thyroid hormone with extra amounts of vitamins.

Since both thyroid hormone and male sex hormones possess hepato-, nephro-, and cardiotrophic properties, and thyroid hormone also produces ovario-, spleno-, and adrenotrophic effects, the possibility of therapeutical application of thyroid hormone in cautious doses with vitamins, or together with sex hormones, should be investigated in some suitable diseases of liver, kidneys, and heart, or when an increased activity of ovaries, adrenals, or spleen is desirable.

The results of our experiments and those of some previous workers do not suggest, as has been stated by certain authors, any direct antagonistic effects of vitamins on thyroid hormone; but the data indicate that some beneficial results of the administration of vitamins in some cases of experimental and clinical hyperthyroidism were probably due chiefly to removal of the relative vitamin deficiency present in these cases.

Grants from the Medical Research Council and the Lister Institute have enabled us to carry out this work, and to them we offer our thanks. We are also grateful to the Ella Sachs Plotz Foundation for a grant from which some of the technical expenses were met. We are indebted to Messrs. Roche Products Ltd. for the generous supply of vitamins, and to Messrs. Parke, Davis and Co. for the liberal supply of desiccated thyroid powder.

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THE INCREASING IMPORTANCE OF ENDOCRINOLOGY IN GENERAL MEDICINE*

BY

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In this address I hope to be able to indicate clearly that the "increasing importance of endocrinology in general medicine" is a reality and is of interest to the physician, surgeon, and gynaecologist, and therefore to the general practitioner.

Adrenal–Pituitary Disorders

Cushing's Syndrome.—I shall first consider a syndrome which has been brought into prominence in the last decade by the observation of Harvey Cushing (1932), but which had already been recognized and described as the "fat bearded diabetic woman" by Achard and Thiers. The eponymous title was suggested by Parkes Weber, who had himself previously given a magnificent clinical description of the disorder. Cushing's invaluable contribution was to draw attention to the possibility of a basophil adenoma of the anterior pituitary being a primary cause, comparable to the eosinophil adenoma of acromegaly. It is now recognized that other primary causes exist—namely, tumours of the adrenal cortex, of the ovary, and of the thymus

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—but Crooke (1935) has shown that a constant change in all these pathological entities is hyalinization of the basophil cells of the anterior pituitary. Cushing described his syndrome as follows:

> "(1) A rapidly acquired, peculiarly disposed, and usually painful adiposity (in one instance representing a 40% gain in weight), confined to the face, neck, and trunk, the extremities being spared; (2) a tendency to become round-shouldered (kyphotic), even to the point of measurable loss of height associated with lumbo-spinal pains; (3) a sexual dystrophy shown by early amenorrhoea in the females and ultimate impotence in the males; (4) an alteration in normal hirsuties shown by a tendency to hypertrichosis of face and trunk in all the females as well as the pre-adolescent males and possibly the reverse in adult males; (5) a dusky or plethoric appearance of the skin with purplish lineae atrophicae; (6) vascular hypertension; (7) a tendency to erythraemia; (8) variable backaches, abdominal pains, fatigability, and ultimate extreme weakness."

This description gives an indication of the protean manifestations of an endocrinopathy, but it is more important to realize that a presenting symptom may overshadow the rest of the picture. Thus the disorder may be diagnosed as essential hypertension, nephritis, malignant nephrosclerosis, cerebral tumour, diabetes mellitus, polycythaemia, idiopathic adiposity, or sterility in the female or impotence in the male. It is also important to remember that an idiopathic adiposity may be the precursor of the complete syndrome, which may manifest itself only at the climacteric or in the course of a pregnancy. Not all patients developing Cushing's syndrome are sterile or without menstrual bleeding, although the latter tends to be scanty (Simpson, 1936).

The differentiation of the pathological varieties of Cushing's syndrome is helped by biological assay, and in 1934 and 1936 my colleagues and I recorded a high androgen excretion in virilism. I suggested the origin of androgens from the adrenal cortex and the significance of urinary 24-hourly values above 300 international units as indicating an adrenal cortical tumour. Work in this field was fruitfully developed by R. K. Callow (1938a, 1938b), with whom I collaborated on the clinical side over a number of years, especially in the demonstration of urinary androgens after bilateral ovariectomy.

Phaeochromocytoma of Adrenal Medulla.—A phaeochromocytomatous tumour of the adrenal medulla consists of adrenaline-secreting chromaffin cells, which discharge into the blood paroxysmally, though possibly also in constant small quantities. Hypertension, with periodic exacerbations to very high levels—e.g., over 300 mm. Hg, with the diastolic pressure rising to a relatively smaller extent—is the major manifestation. These vasomotor crises are due to a discharge of adrenaline into the blood stream; and other features are pallor, coldness and cyanosis of the extremities, profuse perspiration, trembling, agonizing headaches, painful constricting sensations in the chest with difficulty in breathing, angina-like pains, cramps of the calf muscles, mydriasis, albuminuria, and pyrexia. Ischaemic nephritis may also occur. The presenting features of the disorder, however, may be attacks of cyanosis, coughing and blood-tinged sputum, and pulmonary oedema; blurred vision, papilloedema, retinal haemorrhages, exophthalmos, mydriasis, and cephalalgia; epigastric pain, nausea and vomiting; an enlarged thyroid, with tachycardia; albuminuria and hypertension; attacks of coma due to hypertensive encephalopathy; hypersensitivity to heat associated with a considerably raised basal metabolic rate. The following mistaken diagnoses have been made: neurosis, neurocirculatory asthenia, thyrotoxicosis, diabetes mellitus (but severe diabetes mellitus may coexist), essential hypertension, malignant nephrosclerosis, pulmonary oedema, cerebral tumour, acute abdomen, and angina. The chief cause of such mistaken or incomplete diagnoses is the failure to realize that such a syndrome exists.

Sexual Precocity.—It is well known that sexual precocity may be associated with neoplasms of the endocrine glands, especially of the adrenals. It is less well known that the primary lesion may be a cerebral neoplasm in the neighbourhood of the third ventricle, producing its effects via the hypothalamic-pituitary mechanism, and it is probable that the classical sexual precocity associated with pineal tumours is also produced through this mechanism and not through an absence or excess of pineal gland secretion. There are sometimes, although by no means always, interesting points of clinical differentiation, but the essential point I wish to make is the overlapping of the endocrinological and neurological field. We have a similar overlapping, not well recognized, in the condition of gigantism, which does not necessarily present itself as a pathological entity, but as a variety of normality. Thus recently a mother brought her daughter of 14 to see me because the girl was easily tired and she thought it was due to her growing too rapidly. Examination of the fundi did not show the optic atrophy associated with a pituitary tumour, but the papilloedema of increased intracranial pressure, the latter confirmed by radiographs. The probability is that we are dealing with a third-ventricle tumour, and ventriculograms are being taken for further indications.

Addison's Disease.—This disorder is well known as a clinical entity, and interest has been intensified by the discovery of a potent cortical extract. But the protean manifestations of the disorder, and the fact that it is comparatively rare, lead to mistaken diagnoses, especially in fair people in whom pigmentation is minimal or absent, or in whom it is identical with that of leucodermia. Addison described one such case, and I have had three cases under my care, one ending fatally and showing atrophy of the adrenals at necropsy. I have seen a case of Addison's disease for the first time at necropsy, after the patient had been operated on because of an erroneous diagnosis of perforated gastric ulcer, the original disorder being quite unsuspected, although typical pigmentation in moderate degree was visible at the necropsy. Severe abdominal pain may be a feature of Addison's disease. Asthenia and psychoneurosis are other erroneous diagnoses met with. On the other hand, the label of Addison's disease may be incorrectly given. Thus I have had cases labelled Addison's disease in which the diagnosis was pregnancy with functional vomiting, carcinomatosis, pellagra, anorexia nervosa, and chronic arsenical poisoning. The Cutler or Kepler test of sodium and chlorine concentration in the blood and urine is valuable not so much for confirming Addison's disease as for excluding this diagnosis in a variety of disorders in which it may be suspected, often with some reason.

Simmonds's Cachexia.—The characteristics of this disorder, due to insufficiency of anterior pituitary function, are anorexia, wasting, weakness, hypotension, bradycardia, and loss of primary and secondary sexual qualities. The disorder as a complete syndrome is a rarity, but as an incomplete syndrome following pregnancy, especially with haemorrhage or infection at parturition, it is in my experience by no means uncommon, and is often missed entirely or mistaken for myxoedema. On the other hand, the condition of anorexia nervosa, which is primarily a psychoneurosis but secondarily a vitamin-deficiency and hormone-deficiency disorder, is often mistaken for Simmonds's cachexia. Clinically, the restless energy, the persistence of sexual hair, and a generalized downy growth of hair characterize anorexia nervosa, and further differentiation may be obtainable from urinary androgen assay and insulin-sensitivity curves.

Diabetes Mellitus

I refer only briefly to this condition because it is familiar to all of you, but it illustrates quite forcibly the thesis that endocrine disorders may present themselves as non-endocrine disorders in various branches of medicine. Thus it is now platitudinous to point out that the diabetic may first appear as suffering from boils, carbuncles, general pruritus, pruritus vulvae, dermatitis, xanthomatosis, neuritis, endarteritis with ulceration and gangrene of an extremity, cataract, retinitis, amenorrhoea, impotence, or infantilism, and such widespread manifestations are equally true of many other endocrinopathies.

I would suggest here that diabetes should not be arbitrarily excluded from the field of endocrinology because of the mathematical calculation of dietary values, and that those who have specialized in the field of diabetes could very appropriately extend their interests to the whole field of endocrinology. Not only has Young (1937) stirred the experimental and clinical world by the production of permanent pancreatic diabetes by injections of a pituitary diabetogenic hormone, but it has also been shown (Lukens and Dohan, 1942) that the development of this pancreatic diabetes can be prevented by insulin or diet, and can even be abolished or cured in the early stages. There is little doubt that this mechanism of producing a type of diabetes operates clinically in man, and it is well known that diabetes may complicate acromegaly, Cushing's syndrome, thyrotoxicosis, and other endocrine disorders. It is less well known that it may coexist with Addison's disease (Simpson, 1932), or that the latter may be superimposed upon pre-existing diabetes. I have seen two such cases, one through the courtesy of Dr. R. D. Lawrence. A small number are recorded in the literature (McCullagh, 1942), and the involvement of the suprarenals may remain unsuspected. Essentially the diabetic tolerance improves and the insulin dosage is progressively lowered, but clinically the patients get thinner and weaker. Pigmentation may not be conspicuous. A study of sodium chloride metabolism confirms the diagnosis.

The Gonads

The field of gynaecology and obstetrics is saturated with, and I think overwhelmed by, the vast amount of animal experimental endocrinology and therapeutic indications deduced therefrom. Several books have appeared on the endocrinological aspects of, or endocrine therapy in, gynaecology. Unfortunately species differences often invalidate application of the results of animal experiments to man; and, on the whole, endocrine therapy in this field has been tantalizingly promising but somewhat disappointing. Potentially it remains a very fruitful source of further study. Neither should one limit attention to the more obviously pathological—such as the endocrine concomitants—or aetiological factors in eclampsia. Physiological aberrants are equally important. Thus the increasing adiposity that follows each pregnancy in those with an unstable endocrine constitution is almost certainly associated with failure of involution of the physiological pituitary and adrenal hyperplasia, and the persistence of adrenal androgen secretion is often indicated by an accompanying mild but definite hirsutism.

The brilliant results of oestrogen therapy in the vasomotor and psychoneurotic disturbances of the climacteric are too well known to bear repetition, but it is not generally realized that such disturbances may persist for ten or more years after the menopause or may return after a long interval of freedom, or may supervene for the first time ten years after the menopause, just as they may occur in the late forties in a woman who has been completely ovariectomized in the second or third decade of life.

In the male the treatment of sterility by gonadotrophic hormone or small doses of androgens is far from satisfactory, but the treatment of hypogonadism in the surgical castrate or eunuchoid is dramatic. Also, excellent physical and mental improvement has occurred in a group of cases showing juvenilism in the presence of apparently normal genital function. Impotence due to organic hypogonadism always responds to androgenic therapy, but psychological impotence calls for psychological treatment.

Parathyroids

Hyperparathyroidism, due usually to an adenoma of one of the parathyroid glands, is primarily an endocrine disorder, but its manifestations are in the main skeletal, the general decalcification and rarefaction of bones resulting in bony deformities, spontaneous fractures, and variable bone pains. Previous to the discovery of the function of the parathyroids and knowledge of the high serum calcium, low serum phosphorus, and negative calcium balance in this condition, the disorder was often confused with osteitis deformans and more localized forms of rarefying osteitis. I have recently seen a case in a woman of 40 who first had a localized bony swelling of the tibia removed, the histological report being osteoclastoma. It was only some months later that the underlying condition was recognized, and a parathyroid tumour sought for, found, and removed. This patient also had multiple renal calculi (calcium deposits)—which reminds one that these patients may first present themselves to the urogenital surgeon with renal colic or haematuria; or, if the calcium deposition is generalized (calcinosis), there may be severe renal insufficiency and uraemia. In such cases the inadequate excretion of phosphorus blurs the chemical picture.

Hypoparathyroidism appears to be more common in Denmark than in this country. It may be due to atrophy or degeneration of the parathyroids or may follow thyroidectomy for thyrotoxicosis in a small percentage of cases, interference with blood supply being apparently at least as important as inadvertent removal of parathyroid glands. In addition to the characteristic tetany (associated with a low serum calcium and high serum phosphorus) there may be various cerebral and mental disturbances, with epileptiform convulsions, changes in character, hallucinations, and dementia. It is known that patients have been treated as idiopathic epileptics for years (as has been the case with hypoglycaemic attacks resulting from pancreatic islet tumours). Hypoparathyroidism may also present itself in the first place as a trophic disturbance of the skin, hair, nails, teeth, or eye lenses (cataract). Thinning or loss of hair, impetigo herpetiformis, acrodermatitis continua, psoriasis pustulosa, and various ill-defined eczematous lesions have been found associated with hypoparathyroidism, and have apparently responded to calcium and calciferol therapy. Lachmann (1941) states that migraine, cardiac pain with palpitations, and gastro-intestinal spasm severe enough to lead to laparotomy may be presenting features in unsuspected hypoparathyroidism.

Thyroid Gland

The diagnosis of thyrotoxicosis, primary or secondary, is relatively easy, yet it is surprising how often the condition is missed, even when the manifestations are characteristic, and especially when the presenting feature is not obviously endocrine. The cardiologist's awareness of thyrotoxicosis as one cause of tachycardia, auricular fibrillation, or angina-like pain is now taken for granted, and more recently attention has been drawn to the possibility of a small group among hypertensive cases being thyrotoxic in origin. It is perhaps less well realized that anginal pains, cardiac insufficiency, and electrocardiographic changes may have myxoedema as their background. The pulse is usually slow in myxoedema, but may be rapid in the presence of cardiac insufficiency. The capillaries also show characteristic narrowing and absence of tortuosity.

Gastro-intestinal symptoms may be severe in thyrotoxicosis, and I have seen a necropsy on one patient who was operated on for a "query perforated gastric ulcer," the diagnosis at operation having been changed to acute pancreatitis, the pancreas being very congested. I have also seen a necropsy on a patient who was admitted in semi-coma with the diagnosis of "query intracranial haemorrhage, query concussion, with cerebral irritability," when the patient was really in the terminal stages of a thyrotoxicosis crisis. I have seen several cases of "idiopathic wasting, query malignancy" in older people with unsuspected secondary thyrotoxicosis who recovered a few stone in weight following thyroidectomy.

Asthenia is commonly present in thyrotoxicosis, and rarely myasthenia gravis may coexist, but thyrotoxicosis may be wrongly diagnosed as myasthenia gravis or progressive muscular atrophy. Neurocirculatory asthenia may be associated with enlargement of the thyroid gland, but it is coincidental, and an erroneous diagnosis of thyrotoxicosis has led to a useless thyroidectomy.

Psychoneuroses and the Psychoses

Endocrinopathies are more often associated with psychoneuroses than with psychoses, but the latter may coexist with, or be precipitated by, endocrine disorders—e.g., manic-depressive disorders, paranoia, delusional insanity in thyrotoxicosis, myxoedema, chronic hypoparathyroidism, chronic hypoglycaemia, and the climacteric. Hemphill and Reiss (1940) recognize a type of involutional melancholia associated with adiposity and scanty or absent menstruation which they claim responds to oestrogen therapy; and a hypo-ovarian–hypo-adrenal type which is said to respond to corticotrophic hormone. A cautious approach to the problem is called for, and a critical evaluation of cause and effect is essential, but it is interesting to note that many years ago Mott drew attention to the degeneration of the testes in dementia praecox.

It is my opinion that all endocrinopathies, constitutional or more obviously pathological, influence behaviour pattern, and that the association of mild or severe psychoneuroses with untreated endocrinopathies is very frequent. This is obvious with thyrotoxicosis and the climacteric, for example, but I have seen a transformation of personality follow adequately treated Addison's disease, eunuchoidism, and even hyperparathyroidism. The important point is that a group of psychoneuroses and psychoses coming to the psychiatrist in the first case may have an underlying endocrinopathy as an aetiological factor.

Endocrines and Ophthalmology

In 1938 Sir Walter Langdon-Brown gave a lecture to the Oxford Ophthalmological Congress reviewing the ocular manifestations of endocrinopathies as they present themselves to the ophthalmologist. Parathyroid, pineal, pituitary, thyroid, adrenal medullary, gonad, and pancreatic disorders may all show ophthalmological signs, and these may for a time be the presenting feature.

Endocrines and Cancer

Experiments in small animals, such as mice, indicate that oestrogens in large doses over long periods may induce neoplastic growth in genital and other organs. Thus Allen (1942) records cancer of cervix uteri (mice), uterine fibromyomas (guinea-pigs), mammary cancer (mice), interstitial cell tumours of the testis (mice), adenomatous tumours of the pituitary (rats and mice), tumours of the suprarenal cortex (mice), and osteogenetic transformations of bones including tumours (mice). Such neoplastic changes are not found in monkeys, and there is no clinical evidence of the endocrines being responsible for malignant changes in the genital or other organs in man.

Endocrine Therapeutics in Non-endocrine Disorders

Hormones have been used with success in a number of non-endocrine disorders. Thus insulin is anabolic in some thin people, and recently Sargant (1942) has found it useful in a group of neurotics who have lost much weight and have broken down after a long period of stress, showing "a peculiar mixture of anxiety, hysterical, and reactive depressive symptoms." Insulin has also been used in the vomiting of pregnancy and in thyrotoxicosis. Insulin-shock therapy is apparently more beneficial than electric-shock therapy in early schizophrenia. It is claimed that cortical extract has proved of value in surgical shock and shock from burns, the blood chemistry in both instances having some similarity with that of Addison's disease. Apparently the corticosterone carbohydrate influencing factor is more important than the desoxycorticosterone factor. In infections the adrenal cortex loses lipoid and undergoes congestion and degeneration. Cortin has therefore been advocated for the acute stages of a variety of infections, especially malignant diphtheria, and for post-infection debility. It is also said to be of value in meningococcal septicaemia of infants, as is illustrated in the Waterhouse-Friderichsen syndrome. Oestradiol appears to be of value in a group of menopausal rheumatoid arthritics. Testosterone I have found of value (Simpson, 1938) for its anabolic nitrogen-retaining effect in hyperthyroidism associated with much wasting. It has also been used for menorrhagia and mastitis. Both testosterone and stilboestrol are effective in suppressing lactation. Adrenaline is of course specific in asthma. Pitressin has been used for chronic pyelitis, and in obstetrics.

Conclusions

I think we must conclude from the above review that the manifestations of endocrine diseases extend throughout the whole domain of medicine, including in that term surgery and gynaecology and the various "special" branches of medicine; that endocrine disorders do not necessarily appear as complete syndromes; and that unless an awareness of the possibilities is present they may remain unrecognized as endocrinopathies when the presenting feature is not obviously endocrine. In the opposite direction one sees a tendency to ascribe the origin of obscure chronic disease, especially of a functional character, to endocrine disorders which are not really present, and the necessity for a knowledge of existing methods of differentiation and the development of more specific chemical, metabolic, and biological tests.

Endocrinology, however, viewed from any angle, is no longer merely a lusty infant. It has grown to maturity, and is at least as well founded on scientific data as many other older accepted specialties. I doubt whether it would gain from the founding of a special hospital for its study—rather would it tend to flourish as special centres or clinics in large hospitals, remembering that such centres for accumulating clinical material from large areas are essential for progress in this field. Such centres or clinics, however, must not be auxiliary adjuncts in the charge of assistants, created merely to give an air of modernity or progress. Endocrinology is one of the most difficult specialties. Its practice, and even more so its teaching, require wide general clinical experience and judgment, as well as personal experience and continuous familiarity with the enormous and ever-widening field of experimental research and a specialized knowledge of endocrinopathies, which can only be obtained by those who have had special facilities and opportunities for their study. An endocrine clinic should be an important integral part of a hospital, and should serve as a model for modern methods of investigation, research, and therapy in disease.

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USE OF AMPHETAMINAE SULPHAS IN FACILITATING ELECTRICALLY INDUCED CONVULSIONS

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The use of electricity for inducing convulsions in the treatment of mental disorders has revealed a significant factor in connexion with the electrical stimulus. The electrical convulsion threshold has been found to vary, so that not only do successive applications of electricity require increasing strengths of current, but also there is a wide variation in the initial effective amount necessary. In some patients, more noticeably those suffering from certain types of disorder, a very high threshold either obtains from the outset or rapidly develops. In view of the possibility that electricity, particularly in high strengths, may not be altogether harmless, it seems desirable to discover methods by which the electrical convulsion threshold may be lowered. This to some extent may be achieved by increasing the interval between successive treatments, but at least in the cases exhibiting a high initial threshold recourse cannot be had to this method. Moreover, the period of the treatment would be much prolonged. Other ways of achieving the same objective are suggested by the fact that certain drugs have a stimulating effect on the cerebral cortex, and, owing to the results obtained with amphetaminae sulphas (benzedrine sulphate), experiment in the use of this drug was thought likely to be effective, and was therefore undertaken. Before the results of this procedure are examined it is profitable to consider the theoretical basis of this ascertained variation in the electrical convulsion threshold.

So complex has the nomenclature in psychiatry become, and so difficult is it to fit cases into definite disease entities, that it is often more useful to consider symptom-complexes. Particularly is this so in relation to therapeutic measures.

Variations in Cerebral Activity in Psychotic Disorders

Certain types of psychotic disorders exhibit the symptom of diminution of motor activity. This occurs particularly in depression and in schizophrenia. It may be of any degree from lassitude and a disinclination to do anything to apathy and even stupor. When such a prominent feature presents itself, it is pertinent to seek a reason for it, particularly when it occurs in such widely different types of mental disorders as manic-depressive and schizophrenic psychoses. In the former there is a true depression with often suicidal tendencies; in the latter there is an absence of emotional tone, with a consequent apathy. Both of these lead to a diminution of activity, which in an extreme degree is manifested by stupor. A consideration of the stupor reveals two different types—that occurring in depression being more often of the anergic type, in which there is a loss of muscular tone and in which mental processes such as perception, memory, and ideation appear to be in abeyance; whereas that occurring in schizophrenia is usually of the resistive katatonic type. Here there is a retention or even an increase of muscular tone, causing the posture of the patient to remain as arranged, undetermined by gravity, and the mental processes are not in abeyance, so that mannerisms and stereotypy occur and outbursts of excitement and impulsive behaviour interrupt the stupor. Apparently in the anergic stupor the cerebral activity is lowered so that there is a diminution of sensory stimuli to, and a reduction of more impulses from, the brain, with an associated paucity or lack of motor function. On the other hand, in the stupor associated with schizophrenia there is a retention of the muscular tone and cerebral activity as shown by mannerisms, stereotypy, and impulsive behaviour. Thus the mechanism of the two conditions appears to be entirely different—that associated with depression being due to a reduction of cerebral activity, and that occurring in schizophrenia being due not to a reduction of cerebral activity but to failure of integrity.

Causes of Lowered Cerebral Activity in Depression

From these observations it is possible to conjecture about the likely causes of this lowered cerebral activity which occurs in cases of depression. One such view has already been advanced—namely, that it is due to inhibition of cerebral function. Thus Pavlov (1941), who attempted to apply his findings in animal experiments to mental disorders, considered that in depression there was a state of positive inhibition, which with advancing years ceased to be effective, so that the patients with depression and diminished motor activity in earlier life became excitable and unrestrained in their behaviour when old age overtook them.

This supposition that cerebral activity is diminished in these cases of depression appears reasonable, and it was hoped that, with the induction of fits by the electrical method of Cerletti and Bini (1938), the measurement of the resistance of the head preparatory to applying the shock current would be an indication of the cerebral resistance and inhibition. This, then, would be not only a useful guide to the effective amount of current required to produce a fit, but an index to the degree of cerebral inhibition in different mental states. Unfortunately this hope was not realized, and, although the factors responsible for this head resistance are not yet completely understood, enough data are available to connect it with changes in the skin and underlying structures. Thus Krause (1936) found that the resistance of impedance of the head depends on the skin, muscle, and periosteum, and that no difference occurred when the brain was replaced by a wet sponge. That the skin is the most important of these factors is the opinion of McGregor (1941) and Walter (1942), which is supported by the fact that the resistance is appreciably lower in hypoglycaemic states, when there is excessive sweating, than when the skin is dry. Atmospheric conditions also appear to affect the resistance, as, of course, does the degree of contact of the electrodes. Thus the measurement of the head resistance is no measure of the resistance of the brain, and certainly the apparatus supplied on the Solus machine is inadequate for this purpose. Hence any hope of using the measure of the head resistance as a guide to the degree of cerebral resistance, and therefore of inhibition, was not possible. Hemphill and Walter (1941) experienced the same difficulty when assessing the effect of epanutin in relation to electrically induced fits. They considered that the product of the voltage and the time of application of the current was a more useful index of cerebral resistance.

Shortly after the use of the electrical method to induce fits a great variation in the electrical convulsion threshold was found, and as in the case of the chemical methods, using cardiazol and triazol, a tolerance developed which raised the threshold. Besides this, however, different individuals varied widely, even in the initial threshold. The reason for this was not at first understood, but careful observation has shown it to depend upon two main factors—age, and the type of mental disorder. Naturally other factors may also operate to some extent, such as the difficulty, already mentioned, of the exact diagnosis, and the degree of contact of the electrodes. Nevertheless the following tables appear to be most suggestive.

TABLE I.—*Showing Variation of Average Electric Convulsion Threshold (expressed as the Product of Volts and Duration of Stimulus in Relation to Age, in 110 Patients, irrespective of Type of Mental Disorder*

Age Group :	16–20	21–25	26–30	31–35	36–40	41–45	46–50	51–55	56–60	61–65
Average V.×T. ..	18·3	20·2	23·2	23·4	24·4	26·9	28·9	30·9	34·5	42·
No. of patients ..	10	8	17	23	8	3	11	16	9	5

TABLE II.—*Showing Relation of Average Electric Convulsion Threshold to Type of Mental Disorder, and Average Age of Each Group*

Diagnosis:	Schizophrenia	Depression	Delusional	Obsessional	Toxic	Mental Defect	Mania
V.×T. ..	21.9	29·5	26·9	20·9	20·4	23.6	24
No. of cases	32	55	7	9	4	2	1
Average age of each group (years) ..	27·8	46	44	30·8	29·5	23	46

From Table I it is seen that the electric convulsion threshold increases with age. This suggests that an organic factor is operating. This is unaffected by sex, since the average threshold for females as compared with males is 26.9 to 24.7 in 110 cases, of which 75 were females and 35 were males. From Table II it is apparent that this threshold is increased in cases of depression as compared with other types of mental states, and that the average age for these cases of depression is the highest of any of the groups. This is significant, for it suggests that the increased threshold in cases of depression depends more upon age than on the actual mental state. It is still necessary, however, to attempt to discover why the threshold should increase with age and why depression should be more common in later life. One might surmise that organic changes occur with increasing age that make the cortex of the brain more resistant to stimuli, with correspondingly increased inhibition, and that when a certain degree of inhibition is present a state of depression occurs. This would explain the lack of adaptability and the dislike of change which occur in later life, and thus supports the theory advanced by Pavlov. Certainly the increased threshold is not due to the depression itself, for it does not occur in all cases, being more commonly found in the older depressed patients—between 40 and 60—as may be seen by comparing the average threshold in depressed patients younger than 40 with those over 40. It was 23.1 and 33 respectively. Further, if the raised threshold depended upon the depression, it should tend to become lower as improvement occurred. This was not found, and even if the condition of tolerance, which itself raises the threshold, tended to some extent to mask any lowering of the threshold due to the mental improvement, this latter must be extremely small or it would, at least, have compensated for the rise due to the tolerance. The increased electric convulsion threshold appears, therefore, to be brought about by changes in the cerebral cortex as a result of age, which at first are reversible but which later become irreversible, as seen by the lack of response to treatment in the more chronic cases.

Tests with Amphetaminae Sulphas

If, as has been suggested, the increased electric convulsion threshold is due to changes in the brain, they should be capable of modification by drugs known to act on the brain. It is now common knowledge that sedative drugs, such as the barbiturates, by depressing cortical activity, increase the electric convulsion threshold, as shown by Hemphill and Walter (1941) in the case of disodium diphenyl hydantoinate. It was therefore considered useful to test the effect of a cerebral stimulating drug on the electric convulsion threshold, and in view of the improvement that occurs from amphetaminae sulphas (benzedrine sulphate) alone in certain cases of depression, it was decided to employ this drug. Accordingly 5 mg. was given by mouth to each patient, to test their susceptibility, and thereafter 10 mg. was given one hour before the electrical treatment. The results in 6 patients are tabulated below:

Case I, aged 56

No. of T'ment:	1	2	3	4	5	6	7	8	9	10	11	12
Volts × Time ..	26	45	48	80	80	75	75	75	45	24	24	24
Milliamps of current passed ..	30	81	104	225	250	162·5	175	200	78	35	28	26
Amphet. sulph. in mg. ..									5	10	10	10

Case II, aged 42

No. of T'ment:	1–16	17	18	19	20	21	22	23	24	25	26
Volts × Time	26	39	26	45	45	45	45	30	30	45	45
Milliamps of current passed	30	93	32	78	87	87	93	38	35	99	78
Amphet. sulph. in mg. ..			5		10	10	10	10	10		

Case III, aged 54

No of T'ment :	1–4	5	6–8	9–19	20	21	22	23	24
Volts × Time .. .	26	52	48	52	36	26	26	26	26
Milliamps of current passed	29	104	112	122	82·5	35	33	35	34
Amphet. sulph. in mg. ..					5	10	10	10	10

Case IV, aged 62

No. of T'ment :	1	2	3–10	11	12	13	14
Volts × Time	24	24	45	60	30	60	60
Milliamps of current passed	30	30	86	109	38	120	147
Amphet. sulph. in mg. ..				5	10		

Case V, aged 52

No. of T'ment :	1	2	3	4	5	6	7	8	9
Volts × Time	45	45	30	30	45	39	39	39	39
Milliamps of current passed..	105	87	40	40	102	67·5	72	75	72
Amphet. sulph. in mg. ..			5	10	10	10	10	10	10

Case VI, aged 44

No. of T'ment :	1	2	3	4	5	6	7	8	9	10–14
Volts × Time	12	12	12	26	28	28	14	14	42	42
Milliamps of current passed	9·5	7·5	10	35	36	34	9.5	9·5	75	69·5
Amphet. sulph. in mg. ..						5	10	10		

Comments on Results

In Case I it is obvious that amphetaminae sulphas produced a lowering of the electrical convulsion threshold, as measured by the product of the volts and duration of the stimulus: it was reduced from 75 to 45 with 5 mg. and to 24 with 10 mg. A corresponding reduction occurred in the milliamperes of current passed.

In Case II the threshold fell from 39 to 26 with 5 mg.; but 10 mg., two treatments later, failed to achieve any effect; three treatments later the threshold fell to 30 on two occasions, but rose again to 45 when the drug was discontinued. A possible explanation of the absence of effect of the drug in treatments 20, 21, and 22 may be that a phase of tolerance was developing which masked the effect, for 5 mg. had previously been effective.

Cases III and VI are good examples and require no explanation. The immediate rise in the threshold when the drug is discontinued is seen in Case VI.

In Case IV some explanation is required, for the threshold increased when 5 mg. of the drug was given. The reason for this is that a too optimistic lowering of both the volts and the length of the stimulus was made, so that it was reduced from 150 volts and 0.3 sec. to 120 volts and 0.1 sec., and five further shocks had to be given before arriving at the effective shock of 150 volts and 0.4 sec. This meant that the factor known as "extinction phenomenon" came into play. After the brain has been stimulated, a phase of negativity develops so that stimulus of greater strength must be given to be effective. This phase lasts 1/2 to 1 hour, so that if the stimuli are given in quick succession the effective amount of current is much greater than if an interval had been allowed between the shocks. On the next occasion, however, when the strength of the current was not altered and only the duration was changed from 0.3 to 0.2, it was effective. The threshold rose again when the drug was omitted.

Case V at first showed a lowering of the threshold, but two treatments later this rose again, and it is likely that tolerance was developing.

In every case, therefore, a reduction of the electrical convulsion threshold occurred, and even in Case II, when it did not occur until the drug had been given on four consecutive occasions, it was eventually reduced below the level obtaining before the drug was given.

Mode of Action of Amphetaminae Sulphas

The manner in which amphetaminae sulphas stimulates the brain is not clear, but since it resembles ephedrine very closely it might be assumed that it acts similarly. Gaddum (1938) has suggested that ephedrine acts in conjunction with adrenaline by a process known as "substrate competition," by which the amine oxidase which is thought to be present in the so-called adrenergic nerves destroys adrenaline, just as choline esterase destroys acetylcholine in the so-called cholinergic nerves. On this supposition it may be assumed that amphetaminae sulphas performs a similar function and that its action is central rather than peripheral.

The effect of other substances on cortical activity has been investigated, and Miller, Stavraky, and Woonton (1940) believe that acetylcholine and physostigmine salicylate, which have a stimulating action on the cortex, exert their effect by a similar process of "substrate phenomenon," the physostigmine preventing the destruction of acetylcholine, since a stronger stimulation results when they are given together than when given separately. Atropine inhibits their action, as it does that of all choline esters. McKail, Obrador, and Wilson (1941) and Williams and Ritchie Russell (1941) confirmed the cortex-stimulating action of these substances and considered that they acted centrally rather than peripherally, for respiratory, blood, sugar, and acid-base changes showed no real effect.

The question of the influence of the change in blood pressure on cortical activity has been studied by Beecher, McDonough, and Forbes (1938), who found that a fall of blood pressure was accompanied by a diminution of electrical activity, whereas McKail, Obrador, and Wilson found that sodium nitrite and amyl nitrite stimulated the cortex. These conflicting findings suggest that the blood pressure has little or no action on cortical activity. The blood pressure was examined in the cases reported here, and readings were made before and one hour after the administration of the amphetaminae sulphas. They are as follows:

	Before	After
Case II	150/80	130/70
„ IV	140/90	160/100
„ V	210/120	240/120
„ VI	160/98	166/110

How far these changes were operative it is not possible to say, but in view of the findings already reported it is possible that they were not so important as the central effect. This is the view of Miller (1937) in the case of physostigmine salicylate, the effect of which was local, facilitating transmission through the cortical synapse, the threshold being reduced.

Summary and Conclusions

On the basis that the initial electrical convulsion threshold varies in different individuals, that a condition of tolerance during treatment occurs resulting in a rise of the threshold, that amphetaminae sulphas is one of a group of drugs which have the property of stimulating the cortex, and that it seems desirable to retain a reasonably low threshold and thus limit the strength of the electrical stimulus, the question of the cause of the heightened threshold in certain types of cases was raised. Assuming that the diminished motor activity associated with depression is due to increased cerebral inhibition, in contrast with that which occurs in schizophrenic disorders, a heightened electrical convulsion threshold might reasonably be expected to result from this inhibition. Now, it is shown by this investigation that cases of depression generally have a higher threshold than cases of other disorders. Investigation also showed that the threshold increased with age, and as depression itself is more commonly found in older age groups there are two possibilities: (*a*) that certain forms of depression raised the threshold *per se,* or (*b*) that age alone has this result. It is impossible to say definitely which factor operates the more strongly, or, indeed, whether the age factor is not really the determinant of the psychosis.

Amphetaminae sulphas, being a known cortical stimulant, was utilized in an attempt to lower the electrical convulsion threshold; in this it was found to be effective, and smaller strengths of electricity could be used.

As regards the mode of action, considerations were discussed showing the likelihood that it exerts its effect centrally rather than by any accompanying peripheral changes, such as the heightened blood pressure. The possibility of the achievement of the central action by a process of "substrate competition," as suggested by Gaddum in the case of ephedrine, was advanced.

In two cases there was some post-convulsion excitement. This was never very great, and may not have been due to the drug, since such excitement has been present after the convulsion when the drug was not employed. No other undesirable effects were observed from the use of the drug: even in the patient with a blood pressure of 210/120 no harm appeared to result with the doses given.

I am indebted to Dr. Thomas Beaton, medical superintendent, St. James Hospital, Portsmouth, for his kind permission to publish this investigation and for his help and interest in it.

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ACUTE DISSEMINATED LUPUS ERYTHEMATOSUS: RECOVERY WITH SULPHANILAMIDE

BY

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The following case is reported because few records have been found of successful treatment of acute lupus erythematosus with sulphanilamide.

Case History

The patient, a married woman, first attended the Middlesex Hospital Dermatological Department in 1933, at the age of 31. She showed lesions of chronic lupus erythematosus on the cheeks, hands, and sternal region which had developed after sunbathing 4½ years previously. During this period she had suffered from toxic hepatitis and anaemia following arsenical treatment for her skin complaint. There was no family or personal history of tuberculosis. Constant supervision and treatment at the Middlesex Hospital included several courses of quinine iodobismuthate intramuscularly, quinine and stovarsol tablets by mouth, and injections of gold thiosulphate, which had to be discontinued owing to a febrile reaction with a rash after the fourth injection. With this treatment her skin condition was kept well under control.

On July 25, 1940, the patient was admitted as an emergency to an E.M.S. hospital. A few days previously she had been taken suddenly ill with acute dissemination of her rash. On admission her temperature was 100.4°, pulse 90, and respirations 20. There was a diffuse patchy erythema, affecting chiefly the cheeks, nose, upper lip, neck, and limbs, some of the lesions showing scaling; the finger-joints were swollen, stiff, and painful; and there was generalized lymphadenopathy, most marked in the cervical glands. In the first 8 days 27 g. of sulphapyridine were administered, and though she felt better, her temperature, which remained swinging, had risen to 103°, and she had more extensive joint pains. Many original skin lesions had faded, but numerous others had appeared, some being discoid in nature.

On the ninth day a macular rash, becoming confluent in places, started on the neck, thighs, and trunk, and rapidly became diffuse: although it was thought to be an erythematous phase of her lupus, the possibility of drug rash was considered, and as the sulphapyridine had evidently had no beneficial effect it was discontinued. A blood culture taken on the fifth day proved sterile apart from a contaminating *Staph. albus,* and a blood count showed red cells 4.5 millions, Hb 86%, leucocytes 7,500 (neutrophils 63%, lymphocytes 37%).

Her condition rapidly deteriorated, and on the twelfth day she was very drowsy, her cerebration was slow, and the temperature reached its peak of 105.4° and remained between 104 and 105° for 36 hours. Pulse 110-124; respirations 24-28. She became completely irrational and delirious, and the tip of the spleen was easily palpated. The position was desperate, and it was decided to attack a possible streptococcal infection anew.

A drip blood transfusion of 1 pint initiated intravenous therapy, and during the next 8 days she received intravenously 21 pints of glucose-saline, 35.5 g. of soluseptasine, and 50 c.cm. of pentnucleotide, with daily intramuscular injections of 6,000 units of antistreptococcal serum. She became rational again, but was very weak, and a stomach tube for feeding purposes was necessary for a further 10 days. During the four weeks after the start of her intravenous treatment she received the following: 35 g. of soluseptasine (first week) and 93 g. of sulphanilamide (last three weeks); 225 c.cm. of pentnucleotide intravenously or intramuscularly; and 144,000 units of antistreptococcal serum intramuscularly. Apart from a few chronic lesions her rash faded completely; her arthropathy disappeared; her haemoglobin fell from 92% to 57%; daily white cell counts showed an almost constant leucopenia, the lowest being 2,500; and almost all her hair fell out. When a rise of temperature to 101°, with a macular drug rash on the trunk, occurred at the end of this period, a blood transfusion of two pints appeared to do good, and a steady recovery followed, although a mild attack of rubella caused a slight scare. The only possible septic focus discovered during her stay was pyorrhoea affecting five teeth in the lower jaw. Extraction was purposely postponed until July, 1941, when it was performed uneventfully.

In Dec., 1941, a tuberculin patch test proved negative, but within five days she had a recurrence of her arthropathy and lymphadenopathy. These subsided under sulphanilamide treatment without any spread of her skin lesions, but further tuberculin tests were considered unjustifiable. Apart from this setback she has remained in apparently good health since her acute attack.

Discussion

Barber (1941) considered that chronic lupus erythematosus can be produced by reaction either to the tubercle bacillus or to a streptococcus; Kelvin (1941) implied that tuberculous toxin can be held responsible for all cases. It is difficult to believe that the latter theory accounts for many of the acute forms of the disease. Sequeira (1927) certainly said that evidence of tuberculosis, including acute miliary and glandular types, could be found in about two-thirds of the patients, but also stated that "the possibility of a non-tuberculous origin of some cases must not be overlooked." Roxburgh (1933) went further in attributing five deaths to streptococcal septicaemia. This termination with or without acute endocarditis has come to be recognized, and although it cannot be taken to prove that the streptococcus is the cause of the whole clinical picture, it is at least suggestive, and is presumably the reason why the sulphonamides were first given a therapeutic trial in this condition. Success has been reported in a small proportion of the patients so treated in America by Weiner (1940), Wile and Holman (1940), and Hopkins (1941), sulphanilamide being the compound chiefly used. In four of the fatal cases on which necropsies were performed tuberculosis was conspicuous by its absence, while a variety of acute lesions were encountered, including pericarditis, pleurisy, splenitis, and glomerulo-tubular nephritis.

Although the aetiology of the condition is not clear, further trial of sulphanilamide therapy is urged for the acute forms of lupus erythematosus without clinical evidence of tuberculosis. In view of the leucopenia accompanying the condition, the simultaneous administration of pentnucleotide seems to be indicated.

I wish to thank Dr. Henry MacCormac for his encouragement, and for permission to publish this case, for which I am also grateful to Surg. Rear-Admiral Whiteside, medical superintendent.

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Medical Memoranda

An Improved Pappenheim Stain for Detection of Gonococci in Smears of Pus

In 1938 Sandiford described a malachite green–pyronine counterstain for use in Gram's method. He stated that with it pus cells were bluish green, gonococci bright red, and Gram-positive cocci purple-black. It was in fact a modification of the original Pappenheim and Saathof stain (Pappenheim, 1899), which consisted of methyl green, pyronine, ethyl alcohol, phenol, and glycerol. Walton (1936) used the Pappenheim formula recommended by Conn (1929) and got good results in the examination of smears for gonococci; but Sandiford (1937) could not reproduce them, possibly because he used the original Pappenheim formula. Sandiford found that bacteria and cells and their nuclei were not well differentiated on account of a violet coloration, and in 1938 suggested that this coloration was a metachromatic effect due to the presence of methyl violet as an impurity in methyl green. He therefore substituted malachite green.

According to Conn, methyl green is largely used in stain technology for its metachromatic effect, and is actually crystal violet into which a seventh methyl group has been introduced. This seventh methyl group is very loosely attached and thus there is always some methyl violet present, either because it is not all converted into the higher homologue (methyl green) or because it has broken down. In order to obtain pure methyl green Conn suggested that the commercial dye should be shaken up with chloroform, in which substance methyl violet is soluble.

Walton (1938-9) increased the stability of Pappenheim's stain by incorporating in it methyl alcohol instead of ethyl alcohol. He held that methyl alcohol by virtue of its extra CH_2 groups prevented the seventh methyl group of methyl green from dissociating itself.

THE NEW METHOD

In preliminary work at the Liverpool laboratories it was found that Pappenheim's stain deteriorated within a week even after the substitution of methyl alcohol, and gonococci stained more of a violet colour than a red. It was decided, therefore, to shake up methyl green with chloroform before incorporating it in the Pappenheim stain; this resulted in stabilization of the stain. In the method now used a 1% aqueous solution of methyl green is shaken in a separating funnel for a few minutes with about one-third of its volume of chloroform. The chloroform becomes deep violet and is discarded after separation. A modified Pappenheim solution is then prepared which has the following composition:

Methyl green (Gurr), chloroform-treated, 1% ..	100 c cm.
Methyl alcohol, absolute	10 c cm.
Pyronine G (Gurr)	0.6 g.
Phenol	1.0 g.
Glycerol	20 c.cm.

The solution is allowed to mature for 24 hours and is then filtered into a dropping-bottle before use. The optimum staining period is 1/2 to 1 minute.

If used as a counterstain in Gram's method for smears of pus, Gram-positive organisms stain normally and gonococci brilliant red Most other Gram-negative organisms are a less intense red. Nuclei of the leucocytes are bright blue, but the cytoplasm of the polymorphonuclears behaves differently from that of the mononuclears. The cytoplasm of the latter is red, whereas that of the former is unstained. Endothelial cells have blue nuclei and a cytoplasm of a variable pink.

Sandiford found that the phenol in Pappenheim's solution, normally 2 g. in 130 c.cm., tended to decolorize Gram-positive bacteria after more than 2 minutes, and therefore omitted it from his modification. This fact was confirmed by me, and 1 g. of phenol was substituted. With this amount the decolorizing action was minimized, although it was of little importance because the staining period was much shorter than that used by Sandiford. The staining intensity of Pappenheim's solution is lessened if phenol is omitted.

In a comparison of Sandiford's modification of Pappenheim's stain with that described by me it was found that gonococci were more distinctly red by the latter and easier to detect against the clear unstained background of the polymorphonuclear cells. Moreover, the contrast of the brilliant-red gonococci and the bright-blue nuclei by my modification was greater than that by Sandiford's, with which gonococci were red and the pus cells green with bluish-green nuclei

The modified Pappenheim stain here described was primarily intended for use in the examination of smears for gonococci, either directly or as a counterstain, but it is very suitable for blood films, particularly in the differentiation of the mononuclear leucocytes. The stain is also excellent for cerebrospinal fluid containing meningococci, and any amount of pyronine from 0.5 to 1 g. will yield good results.

The keeping quality of the modified stain has not yet been determined, but it is longer than 3 months and the solution is effective after Sandiford's has begun to deteriorate.

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The Vitamin C Saturation Test

This test, as modified by Harris and Abbasy (*Lancet*, 1937, 2, 1429), affords useful and reliable information concerning the vitamin C reserves of men. During my year as lieutenant in the R.A.M.C. I carried it out on 1,200 soldiers according to a scheme drawn up by the Directorate. I performed several thousand titrations, and in the first tour each involved the usual simple calculations, taking into account the period of retention, the volume of the sample of urine, the burette reading, and the variable strength of the reagent—2:6-dichlorophenol-indophenol. These were tedious. The following is the procedure followed in the second tour; it is described here because it saved so much time both in the titrations and calculations.

As before, the men were dosed with 0.75 g. of ascorbic acid in water at 7.30 a.m. They emptied their bladders at 10.30 a.m., and a two-hour period of retention was adhered to rigorously. This is better than three hours, which in winter is too long. The samples were collected at 12.30 p.m. in numbered 2-lb. jam-jars, and instead of measuring the volume, which for 100 samples took about 1½ hours, each sample was made up to 500 or 1,000 ml. with tap-water. While an assistant did this, 10 ml. was pipetted off from each and run into a 6-oz. medicine bottle, numbered on shoulder and on cork. These bottles had previously received 1 ml. of glacial acetic acid.

This method obviates the addition of large quantities (30 to 50 ml.) of reagent in titrating the more concentrated urines. By taking 2.20 ml. of acidified sample for titration (namely, 2 ml. of urine), using a pipette graduated to the tip, with reagent adjusted so that 1 ml. was equivalent to 0.1 mg. of the pure vitamin, convenient readings were obtained. These were around 0.2 ml. for the initial low values of the first day, rising finally to about 6 to 8 ml. Saturation was taken to be when 50 mg. was excreted in a 3-hour period, or correspondingly for two hours. It is convenient to use the numbered corks to identify the 2-ml. portions removed to test-tubes for titration.

The reagent was adjusted to correspond to 0.1 mg. of vitamin, using 100-mg. portions weighed before the tour (*not* a bought tablet or a 1-g. tube as sold—these are not prepared as standards, and do not justify the implicit faith in their exactness that one sometimes finds). Tap-water had to be used, but this introduced no appreciable error. The standard must be titrated immediately after preparation.

The method appears to be entirely reliable, and will differentiate groups of men living under slightly different conditions. This may best be appreciated by plotting the number of daily doses required to saturate on the vertical axis and the number of men saturated by that day on the horizontal axis; namely, the sum of those saturated on first, second, and third days—say 60%—would be plotted at 60 for third day. Another way of assessing is to plot for each group the number unsaturated on some selected day; this shows up deficiencies. Thus, for example (an entirely hypothetical case), suppose one group of men had 5% remaining unsaturated after six doses and another had 50%, the difference could be strikingly shown in a graph. If, however, the two groups were close together they might best be differentiated by choosing a smaller number of doses for a comparison. Thus two groups which gave the same percentage of unsaturated after, say, five doses might be separated by one of them having a larger number unsaturated after four doses.

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Reviews

TUBERCULOSIS STUDIES FROM U.S.

Modern Aspects of the Anti-tuberculosis Program. By J. Burns Amberson, Kendall Emerson, Wm. Charles White, and Louis I. Dublin. University of Pennsylvania Bicentennial Conference (Pp. 38. 3s. 6d.) Philadelphia: University of Pennsylvania Press.; London: Oxford University Press. 1941.

The four papers in this booklet were read at the University of Pennsylvania Bicentennial Conference and all will repay close study. Dr. J. Burns Amberson's subject is the "Evaluation of the Early Lesion in the Clinical Approach to the Control of Tuberculosis," and his remarks on the management of the early lesion discovered by routine radiological examination are significant. "The only choice, therefore, if the physician and patient wish to accomplish maximum results at the most opportune time, is to treat these newly developed lesions promptly and carefully [bed rest for several months being essential]. Promptness is of the greatest importance. The rapidity of some of the early changes indicates that the ultimate fate of many patients is determined within a few days or weeks after the first diagnosis." Dr. Amberson bases this conclusion on clinical investigation during the past ten years among nurses, medical students, house officers, and other hospital personnel, details of which are shortly to be published. It supports the view of those who maintain that any worthwhile results from mass radiography will be obtained only if the examinations are repeated at relatively short intervals and enough beds are available for the effective rest treatment of those discovered to have active lesions. To quote Dr. Amberson again, ". . . a freshly developed pulmonary lesion is not merely a mechanical problem to be solved by a mechanical means. The very development of the lesion is an indication of inadequate resistance which only time and rest treatment can restore most effectively and surely. To ignore this is to neglect the greatest bulwark against relapse in later years, and it is the physician's duty to take the long view."

Dr. Emerson's discussion of "Tuberculosis Control from the Point of View of a Voluntary Public Health Agency" will be of less interest to readers in Great Britain, where much of this work is the function of local authorities. "The Place of Medical Research in the Anti-tuberculosis Campaign" is described by Dr. White, chairman of the Committee on Medical Research of the National Tuberculosis Association. Planned systematic research in tuberculosis is not very conspicuous in this country, and the National Tuberculosis Association in U.S.A. may well be proud of its record. Finally, Dr. Dublin, of the Metropolitan Life Insurance Company, discusses "The Outlook for the Eradication of Tuberculosis," mainly in the U.S. It is perhaps carrying simplification too far to consider that the tuberculosis problem "largely simmers down to the discovery of cases and to providing adequate care and treatment for the cases when discovered." On the other hand, we agree that "there has been altogether too much hesitation and complacency with respect to tuberculosis as a disease to be conquered. There is good evidence that tuberculosis will not be much more difficult to eradicate than have been other communicable diseases. But we must attack it with the same energy, skill, and forethought that we have employed against diphtheria or typhoid fever."

It was a good idea to publish the four papers in this form, for in these 38 pages there is indeed *multum in parvo*.

SURGICAL TREATMENT

Textbook of Surgical Treatment, Including Operative Surgery. Edited by C. F. W. Illingworth, M.D., Ch.M., F.R.C.S.Ed. (Pp. 528; illustrated. 28s., plus 8d. postage) Edinburgh: E. and S. Livingstone. 1943.

This textbook of surgical treatment is compiled by eighteen Scottish surgeons under the editorship of Prof. C. F. W. Illingworth of Glasgow. It is of comfortable size, is well printed in clear type, and covers the field of general surgery well; specialties such as rhino-laryngology and gynaecology are not included.

Surgical treatment implies rather more than operative surgery, and while giving due prominence to the operation, which is usually the central and great event in surgical management, this book deals also with the pre-operative and post-operative care of patients, and also with the conservative treatment of surgical conditions for which operation is not required. In this sense, therefore, it is rather a practical guide to surgical case management than a textbook of operative surgery, and in order to keep the size within reasonable limits descriptions of operations have for the most part been confined to details of single procedures rather than to a variety of methods which are so often put before one in books on operative surgery. For this reason, however, there will not be general agreement with all the procedures advocated. Inconsistencies are bound to occur in such a work as this, and while Knight's name is mentioned in connexion with sympathectomy for cardiospasm, Oldham and Rogers, whom we associate with renal sympathectomy and sympathectomy for supra-oesophageal spasm respectively, are given no mention. We should have liked to see more illustrations: such as there are, especially the line drawings, are good, but there could with advantage be more of them in certain sections; some, such as "Affections of the Bladder and Urethra," are well illustrated, while others are lacking in this respect.

This is a well written, sound, and essentially modern textbook which we predict will prove popular and run into future editions. It will be valued, we believe, not only by medical students in the Scottish schools, to whom it will of course have special appeal, but by students throughout the English-speaking world.

STOIC PHILOSOPHY IN VERSE FORM

Marcus Aurelius: A Rendering in Verse. By John Lyth. Preface by Prof. Gilbert Murray. P.E.N. Books. (Pp. 29. 2s.). London. George Allen and Unwin, Ltd. 1942.

Those, in Prof. Gilbert Murray's words, "who have felt the magical beauty of Fitzgerald's *Omar Khayyám* must sometimes have wondered whether some more adequate and less helpless philosophy would not yield a similar harvest of poetry."

Dr. Lyth has presented in rhythmical form the essence of the Stoic philosophy as Marcus Aurelius interpreted it in actions and words. No doubt the genial influence of Horace, to say nothing of our own Landor and Peacock, makes men of literary tastes think more kindly of Epicureanism than Stoicism. But we must remember that Horace's noblest characters were Stoics, and Stoicism, practical Stoicism, the creed of most of the world's noblest characters. Dr. Lyth's charming verses often remind us of this:

> Live out thy life as at thy journey's end;
> But if mayhap men prove too strong for thee
> Then get thee gone, nor dream thy death to be
> The greatest trial which the gods can send.
> I quit this room, whose smoke gives me offence—
> Is this a matter of great consequence?

One remembers: "But you also, judges, must regard death hopefully and must bear in mind this one truth, that no evil can come to a good man either in life or after death, and God does not neglect him. So, too, this which has come to me has not come by chance, but I see plainly that it was better for me to die now and be freed from troubles."

In these times Dr. Lyth's poetry will bring comfort and a quiet mind to many readers, and even a sense of pride that so many, neither philosophers nor emperors, have been faithful to their ethical creed, even unto death.

Notes on Books

We welcome the fifth edition of one of the well-known Edinburgh "Catechism Series"—Part V, *Anatomy*, which comprises the thorax and lymphatic system (E. and S. Livingstone; 1s. 6d.). This has been enlarged and revised by Mr. C. R. WHITTAKER, and it has the characteristic feature of brevity combined with clarity which distinguishes the series in general. The part now under consideration will be of value to students who wish to revise the essential points in the anatomy of the thorax and lymphatic system and owing to the mode of presentation—Question and Answer—it will assist them to focus their attention on those facts which should be known for examination purposes. It will also serve to impress firmly on the mind knowledge which has already been obtained through dissection and classwork, and, so to speak, register it in the brain in such a way that it will be available when, later on, it is required in ordinary practice. The book is not illustrated and makes no claim to originality or to the recording of any of the latest advances in scientific work. The inclusion of such matter is, however, outside the intention of what is primarily designed for the use of the average student and to help him to concentrate his attention on well-established and fundamental facts, a knowledge of which is essential for the practice of the medical profession.

Preparations and Appliances

IRON LUNG IMPROVISED IN A WARSHIP

Surg. Lieut.-Cmdr. A. C. K. YATES, M.B., Ch.M., F.R.C.S.Ed., R.N.V.R., writes:

The following is an account of the improvisation of a Drinker apparatus on board H.M.S. *Hermione* and the result of collaboration with the S.M.O. of H.M.S. *Ark Royal* after manufacturing a similar unit.

On Oct. 26, 1941, an able seaman was transferred from H.M.S. *Hermione* to the local military hospital suffering from follicular tonsillitis and was placed in close contact with another patient who was found later to have developed acute anterior poliomyelitis. The latter patient was transferred to the Colonial Hospital, where it was found necessary to place him in a Nuffield iron lung (the only one in the locality). A few days later the A.B. also developed symptoms and signs of acute anterior poliomyelitis. He rapidly showed signs of paralysis and began to experience respiratory embarrassment. At this stage H.M.S. *Hermione* was visited by the medical liaison officer of the port, who requested on behalf of the hospital authorities that 12 to 15 hands from the ship should be held in readiness for immediate call to carry out artificial respiration. Also, it was suggested that H.M.S. *Hermione* should attempt the manufacture of an iron lung, as the only available one was in use and it was doubtful if a further supply would reach the port in time. The warrant shipwright was consulted, and he, with two shipwrights and a blacksmith, was accompanied to the Colonial Hospital to inspect the Nuffield iron lung in use. It was the first occasion any of the shipwright's party had ever seen the apparatus, and after making a few sketches and notes they returned to the ship and immediately set to work, using only materials available in the workshop, with the exception of a sorbo-rubber neckpiece (which we could have improvised) obtained from the hospital. In 14 hours they produced a replica of the original, their work being completed at 2 a.m. An experimental subject was then placed in the apparatus, which was found to answer perfectly.

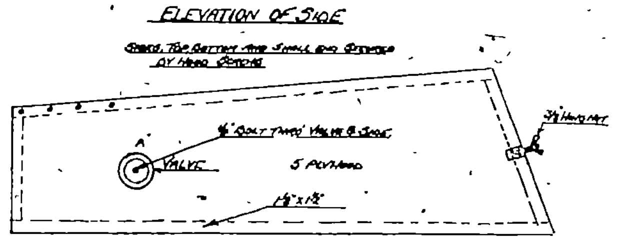
ELEVATION OF SIDE
SIDES, TOP, BOTTOM AND SMALL END SECURED BY HEAD SCREWS
¼" BOLT THRO' VALVE & SIDE
A
VALVE
5 PLY WOOD
1½"×1½"
¾" WING NUT

FIG. 1

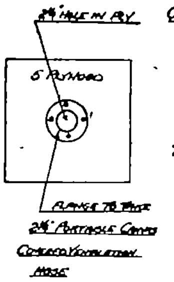

FIG. 2

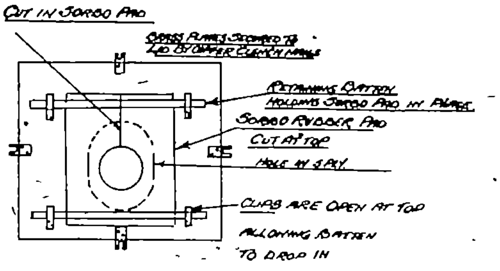

FIG. 3

The improvised "lung" was then transferred to the military hospital at 3 a.m., as an urgent request for it was received just on completion. Parties of four men in each were detailed from the ship's company to work the hand bellows, each man pumping in 15-minute shifts and each party being relieved every four hours. The work was carried out daily to the complete satisfaction of the hospital authorities and to the great benefit of the patient.

Forty-eight hours later H.M.S. *Ark Royal* transferred a case of anterior poliomyelitis to hospital and, hearing of H.M.S. *Hermione's* experience, consulted us. Although their patient showed no signs of respiratory involvement it was considered advisable to be prepared. After obtaining advice from the *Hermione* and seeing their apparatus in operation, and after a preliminary inspection of the iron lung at the Colonial Hospital, *Ark Royal* with their more extensive workshops were enabled to produce a unit in under seven hours.

After consultation between *Hermione* and *Ark Royal* we have come to the following conclusions: first, that from the experience of these two cases it is obvious that a unit, sufficient for the immediate purpose and at little expense, can be put together in a very short time; secondly, that the unit can be made from materials readily available in H.M. ships, shore establishments, and probably also in civil institutions which have their own workshops. The following are particulars of the apparatus:

The body is made of five-ply boards secured to 1½ in. by 1¼ in. fillet pieces. The hose joining bellows to body should be of a non-collapsible variety—a length of portable ventilation hose which is wire-stiffened inside is very suitable. The hose should be approximately 6 ft. in length to allow pumping to be done in an adjacent room. The bellows should be 2 ft. in diameter, with a rise and fall of at least 9 in. The bottom of the bellows is pulled by handle towards the top, the top of the bellows being secured to a suitable platform 14 in. high, for the man to stand on when pumping. If time permits, four vertical guide rods should be fitted to ensure that the bottom of the bellows rises and falls vertically, thus making pumping easier. A stretcher-board of five-ply should be fitted inside the bottom of the body of the unit, running the whole length, and have two rope beckets at the entrance to enable it to be withdrawn easily when the patient is in the unit. A shaped mattress to fit this board should be made. The action of the relief valve is similar to that on a Service respirator.

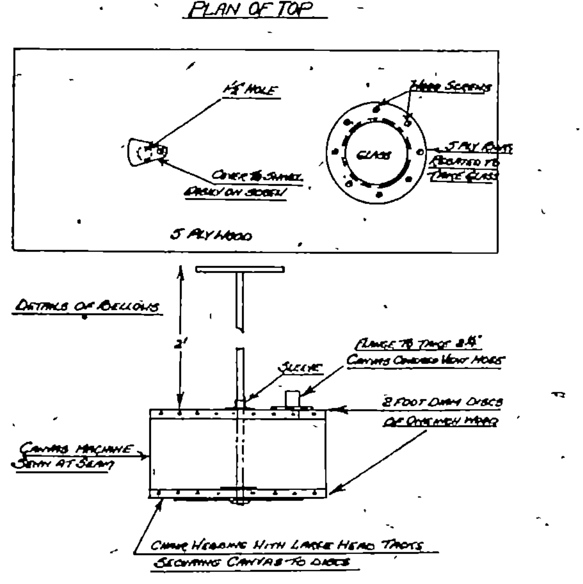

FIG. 4

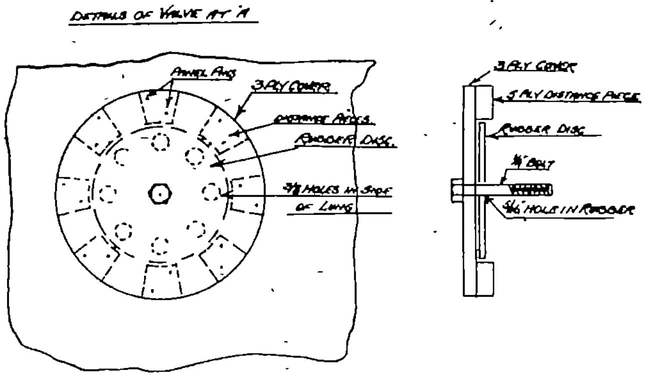

FIG. 5

Pumping is done by relays of men, four to a watch of four hours, each man having 15 minutes' duty every hour and 45 minutes off duty. These men did this easily and without fatigue.

This work, although primarily of medical importance and under medical supervision, was done entirely by the shipwrights of both ships with a little assistance from each ship's engineering department, and it is due to them that these jobs were completed so efficiently and in so short a time. We are indebted to them also for the technical details and drawings. I am also indebted to Surg. Cmdr. McCoull of H.M.S. *Ark Royal* for his co-operation in this report.

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THE KING'S FUND

Although the title was proposed by its first royal President, King Edward's Hospital Fund for London (or the Prince of Wales's Fund, as it was called at first) is not very happily named. "King's Fund" suggests nothing more than a gilt-edged banking account, and the Fund is much more than a collecting and distributing agency. It has been for forty-five years an integral part of the hospital service of London, the buttress of voluntaryism in the South of England, has shaped hospital policy, and has prompted or assisted many developments which are now commonplaces in the institutional care of the sick. Above all, it has vastly broadened the basis of public support for hospitals. When it began its work not one person in a hundred contributed to these institutions. A Fund under royal auspices—its President must always be the son, brother, or grandson of the sovereign—was able to call forth magnificent donations from imperial financiers and Indian princes, but it also called forth the modest guineas of the middle class and even the shillings and sixpences of the poor, for it was largely at the instance of the Fund that the Hospital Saving Association for London was founded in 1923.

To commemorate the service of the Fund in five reigns a short and very readable history has been prepared.[1] Apparently it was Edward VII himself, then Prince of Wales, who conceived the idea of the Fund as a memorial of his mother's sixty years' reign, though there are other figures in the background, notably Sir Alfred Fripp and Sir Henry Burdett, who may have whispered a word in the royal ear. The preliminary discussion at Marlborough House in 1897 was attended by dukes, bishops, bankers, and Members of Parliament, also by Lord Lister and the Presidents of the Royal Colleges. Lord Lister was the only medical man on the general committee of ten members appointed to work out details. The first object of the Fund was to secure from £100,000 to £150,000 in annual subscriptions from people who were not already contributing to hospitals. The plan was not altogether welcomed by the hospitals themselves. The prospect of additional revenue was pleasing enough, but they feared that ancient liberties would suffer, that concentration of services, perhaps amalgamations, would be forced upon them. The future Edward VII was a philanthropist; but he was a great stickler for efficiency, and the hospitals of those days, in their administration, were, frankly, inefficient. They were jealous for their isolation, they were competitors for the purse of the charitable, and the idea of working together or profiting from common experience was remote. At that time, although there were rate-aided workhouse infirmaries, the municipal hospital had not arisen to challenge and stimulate voluntary effort. The first grants made by the Fund may well have exacerbated the feeling. Guy's, which at that time was falling down, received £6,000, and the London £5,000, but Charing Cross, Middlesex, King's College, and St. Mary's received only £1,000 each, and St. Bartholomew's, happy in its endowments, nothing at all. The benefactions were at first made to hospitals within a seven-mile radius from Charing Cross; it was on the proposal of Lord Lister that the radius was extended to nine miles; and now the area is conterminous with the metropolitan police district, with a population of 8,500,000 and 168 voluntary hospitals.

At the time when the Fund began its work 687 hospital beds in London had been closed for lack of means. Within a year 185 of them were reopened, and a few years later there were no closed beds at all. Another critical period came after the end of the last war, when, in the aggregate, the expenditure of London hospitals was exceeding their income by 10%, and there was a prospect of the wholesale closing of wards. It was at this time that the first Minister of Health, Dr. (now Lord) Addison (never "Sir Christopher Addison," as this brochure calls him), appointed the Cave Committee, on the recommendation of which the King's Fund functioned as the Voluntary Hospitals Committee for London. Largely because of the Fund, both for its direct grants and the enthusiasm it inspired, the aggregate deficit was wiped out by 1924, and there was a surplus of £227,000. Well might the Prince of Wales (afterwards Edward VIII), speaking at a special meeting of the council in that year, ask whether anyone could now suppose the voluntary system to be dead or dying. The annual distributions of the Fund rose from £50,000 at the end of the reign of Queen Victoria to £150,000 at the end of the reign of Edward VII, and when George V died they had been £300,000 for each of the last three years.

But, as we have tried to make clear, the Fund has been far more than a mere treasure chest. Among the achievements which are to be placed to its credit are the encouragement of pay beds (it promoted the Voluntary Hospitals (Paying Patients) Act, 1936), a better organization of the out-patient system, the improvement of deficient radium supplies at London hospitals, the establishment and maintenance of a nursing recruitment centre, a pension scheme for nurses and hospital officers, a uniform system of hospital accounting, an amelioration in hospital routine whereby patients were wakened at a later hour, more rapid admission of urgent cases, leading to the foundation of the Emergency Bed Service, now dovetailing into the Emergency Hospital Scheme, and a reduction in the number of hospital flag days from seventy-seven in the year to two, without loss of revenue. The Fund took a leading part in the discussions which followed the Local Government Act, 1929, with a view to working out principles of co-ordination between voluntary hospitals and the new municipal and county service. It was a pioneer in this field, for although its concern is for voluntary hospitals, yet the chairman of the London County Council, the head of the greatest municipal hospital authority in the world, has always been a member of its general council. In the new era of co-operation between these services which has been forecast by the present Minister of Health the Fund will no doubt find new tasks to fulfil. Some might have supposed that such a Fund had no history, only a succession of balance-sheets, but that is far from being the case, and this little book forms a useful footnote to the annals of social progress in our time.

UNPADDED OR SKIN-TIGHT PLASTER SPLINTS

In a recent legal action against a medical man for alleged negligence in the treatment of a forearm fracture, confusion was caused by the use of the term "skin-tight" as applied to a plaster splint, and by statements quoted from authorities purporting to show that encircling plaster bandages were to be condemned. The term "skin-tight plaster" is used not for a tight plaster but for one which is applied direct to the skin. Unpadded, or so-called skin-tight, plasters were reintroduced by Böhler of Vienna as an economy measure during the last war, when there was a scarcity of cellulose and other padding materials in Austria. He found that when such bandages were evenly applied the risk of constriction was no greater than with padded plasters, and that the risk of pressure sores occurring beneath them was, in fact, less, because of the more perfect moulding which was possible round the contours of the limb. For the same reason the immobilization of fractures was found to be more perfect by the unpadded plaster method. Tension within a fractured limb normally rises an hour or two after the injury, the rise being due to vascular damage and haematoma formation. For this reason some surgeons have advocated delay in reduction until swelling is maximal. The disadvantages of this are, first, that it is more difficult in some cases to get satisfactory reduction, and, secondly, that the fragments are apt to slip apart when the swelling has subsided inside the plaster splint. These difficulties are avoided if the fracture is reduced before swelling has occurred and a plaster splint is applied immediately, but the drawback here is that the plaster does not permit swelling beneath it, and, therefore, relative venous and lymphatic obstruction is apparent in swelling of the peripheral portions (fingers and toes) of the limb left uncovered by the plaster.

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[1] *King Edward's Hospital Fund for London, 1897-1942.* By Frank D. Long. (The Fund Offices, 10, Old Jewry, E.C.2.)

A third possibility is to use a temporary splint lightly bandaged until the swelling has subsided, and wait several days until reduction can be performed. Even then the manipulative procedure is apt to cause fresh swelling within the plaster cast and the same careful after-treatment is required. Delayed reduction of this sort has its own risks where a severely displaced fracture may produce important vascular or nervous complications. Rise of tension with a well-applied plaster is, therefore, to be considered normal, and is not much less with a padded plaster than with one that is unpadded; it is a great disadvantage of any plaster technique, however perfect. Elevation of the limb reduces the tension by diminishing the flow of arterial blood into it, and helps lymphatic absorption and venous drainage. Should rise of tension become dangerous in spite of elevation, further relief can be obtained by splitting the plaster and subjacent padding (if any). The presence of swelling peripheral to a plaster splint is thus of itself no indication that the splint has been incorrectly applied. Obviously, therefore, the fact that the surgeon has ordered a plaster to be split is not an admission that he has applied the plaster wrongly in the first instance. Nor can anyone who has not seen the case in the acute stage decide whether a particular surgeon was right or not in applying a plaster before natural swelling either had occurred, become maximal, or had subsided. The judgment of "the man on the spot" is paramount, and he himself must be judged upon the consideration he has given to the problem in the light of the skill and attention that can reasonably be expected of him.

As to the methods suitable for the application of unpadded plaster splints, it is necessary to draw attention to statements which to the layman, and particularly the lawyer, appear conflicting. This is important, because two well-known textbooks both give details that are confusing. Böhler, for example, states that "the use of encircling (roller) plaster bandages without padding is to be strictly forbidden on account of the danger of pressure sores." On the same page he then describes a method of applying plasters as follows: "First of all a plaster splint (slab or flat) is applied and over this an encircling bandage. This must not be taken to imply a circular plaster bandage in the old sense. The plaster bandage should not be drawn tight but only lightly applied." Later in the book, when dealing with Colles's fracture, he describes a method by which a plaster slab 6 in. wide is applied to the extensor surface, moulded carefully round the limb, and completed by a calico bandage; but he adds that "care must be taken that the starch bandage is not applied too tightly, because in contrast to the plaster bandage it contracts on drying." Watson-Jones,[1] in his discussion on plaster technique, gives in a series of pictures and their legends a method in which a slab on the extensor aspect of the wrist is completed by a wet open-wove bandage. On the next page he describes the complete plaster-cast technique, in which "one or more slabs are carefully moulded in position with a wet, soft bandage," and finished by the application of an "ordinary plaster bandage in a circular manner." Both writers, therefore, approve the carefully applied encircling plaster bandage over one or two slabs.

There is a possibility that one or other of the statements may be taken to uphold a view which was not intended by the author. Used intelligently and with adequate care, single plaster slabs or double plaster slabs with encircling plaster or encircling gauze bandages are all recognized and approved procedures. Those who are in a position to teach plaster technique must see to it that students (and this includes medical practitioners) appreciate the need for precision in the application of these methods and the importance of adequate supervision and proper after-treatment. Finally, we would urge the adoption of the adjective "unpadded," which is less misleading than "skin-tight."

DOCTORS AGREE ABOUT PASTEURIZATION

The correspondence that followed the moderately worded leader on pasteurization of milk in the *Journal* of Dec. 19 showed once again that pasteurization is one of those subjects that tend to generate more heat than light. It is a great pity that medical men who oppose pasteurization support their case by misstatements of fact, or by ignoring those facts which are available to anyone who will take the trouble to spend an hour or two in a medical library. It is a pity, because their misstatements and ill-informed views are given much prominence in a press often enough, unfortunately, more anxious to please certain interests than to get at the truth of the matter. It has frequently been said that the first line of health defence in this country is the general practitioner, and perhaps too little credit has been given to him for the daily advice and instruction he gives his patients on all matters of health and hygiene. But with so little time at his disposal, the G.P. cannot be expected to sift the scientific evidence in books and medical periodicals on behalf of the pasteurization of milk. While it may seem to him to be self-evident that if you want to prevent 2,000 children dying every year from bovine tuberculosis you should prevent the bovine bacillus from reaching the child population of this country, the stubborn—but apparently humane—opponents of this obvious public health measure seek to trip him up by specious arguments. With a few exceptions the doctors of this country agree—and have agreed for a number of years—that pasteurization is essential. So that medical men may have the facts at their finger-tips, we have asked Prof. Selby Wilson to put the gist of the matter in the form of question and answer. If every doctor in practice were to keep his patients and influential people in the locality in which he works informed of the facts presented in Prof. Wilson's admirable summary, then in time that indefinite thing called "public opinion" might be able to overcome the powerful vested interest which by its opposition has been responsible for the deaths of thousands of children through bovine tuberculosis, not to mention the suffering and crippling caused in those who survive this and other infections conveyed by milk.

The situation was summarized pithily by Sir Alfred Webb-Johnson at a deputation from the British Medical

Association which was received last week by the Minister of Food, when he said that the Government as controllers of the organization and sale of milk had a moral responsibility to take adequate steps to prevent infection from it. Lord Woolton has a great respect for facts and for the opinion of experts; it is because of this that the conduct of his Ministry has received such unstinted praise. The medical profession are glad that he has taken this trouble to be informed about the pasteurization of milk. The statements made by the influential deputation, introduced to the Minister last week by Prof. R. M. F. Picken, are published elsewhere in this *Journal.* We hope that every medical man will read Prof. Wilson's article and the account of the deputation, and, armed with this ammunition, will carry the war energetically into the enemy's camp—that is, the camp of those who oppose pasteurization.

THE CARE OF THE NEWBORN

Two inquiries into the incidence of breast-feeding, one relating to children in welfare centres and the other to children in the casualty and out-patient departments of a city hospital, have lately been made in Birmingham, and the statistical results and conclusions are given in a report issued by the British Paediatric Association. In the "welfare" group between four and five thousand records were obtained through the co-operation of health visitors. The conclusions of the health visitors are that the incidence of breast-feeding has not been materially altered by the present emergency, with its large demands for female labour. In areas where married women have not been accustomed to work in the factories they are still not entering such employment while they have a baby under one year; and where they have been accustomed to work in factories they return to such employment at no earlier date—that is to say, they wait until the baby is at least two months old. Influences which affect breast-feeding are said to be the shopping queues, part-time work, emotional disturbances (such as anxiety concerning a husband on war service), and, above all, the action of the doctor. The doctor is said to be more responsible than any other single factor for weaning babies, taking babies off the breast whenever there is any difficulty. But on the whole it is considered that infants are now better cared for than they were in peacetime, largely because munition workers are now getting higher wages. Of 2,698 "welfare" infants, the proportion who continued to be breast-fed after three months was 39% in the case of first babies and 42.7% in the case of second or later children. The inquiry into the condition of babies seen at hospital with their mothers covered a much smaller group, and a group which obviously had to be divided into the "sick" and the "well." Of the babies in the "sick" category nearly 20%, and of those in the "well" category 34%, were breast-fed after the third month. Several interesting conclusions are reached from the voluminous statistics presented, but the most interesting is that when the results are compared with those of a similar inquiry made in 1938 it does not appear, at least in Birmingham, that weaning is associated with the mothers' employment in industry.

The British Paediatric Association has also issued a report of its subcommittee on neonatal mortality. It is stated that immaturity accounts for about 50% of neonatal deaths, but that this usual death rate can be reduced to below 20% by special paediatric care, supported by skilled nursing in suitably equipped units. The report urges the setting up of a "premature unit" in every maternity hospital and in all large children's hospitals, the unit to be in charge of a paediatrician possessing experience in neonatal work. Of the other causes of neonatal mortality, the second to be mentioned is birth trauma, the prevention of which is a problem for obstetricians, general practitioners, and midwives. The incidence of asphyxia neonatorum could probably be reduced by a higher standard of ante-natal care and by consultations with obstetricians and physiologists on the question of analgesics and sedatives and on that of methods of resuscitation. Another set of problems is concerned in the reduction of incidence of infective and toxic conditions among the newly born. This is held to be largely a question of nursing. Neonates, particularly those who are premature or suffer from congenital weakness, and therefore are particularly prone to infection, should not be herded together. They should be in a special unit designed on the cubicle system. The subcommittee suggests that a committee of paediatricians, obstetricians, and public health experts should be set up to discuss the various aspects of neonatal mortality and morbidity, especially the health of the pregnant woman, the relative advantages of domiciliary and institutional confinements, and the encouragement of breast-feeding. On this last point it urges that breast-milk banks or "pools" should be set up in maternity hospitals or other suitable centres. Another recommendation is that the Central Midwives Board should include at least one paediatrician, and that the final examination for the C.M.B. certificate should include questions, set by a paediatrician, on neonatal care.

PROGESTERONE AND VITAMIN E

Recent efforts to reduce neonatal mortality may cause us to forget that the problem of habitual abortion, although much less urgent, still awaits solution. Vitamins and hormones are apparently both implicated, but the evidence is somewhat contradictory Recent published work[1-2, 3] in German journals suggests that a combination of the corpus luteum hormone (progesterone) and vitamin E is particularly beneficial. Certainly the figures, although small, are suggestive, and indicate the need for further study. Since it is possible that some of the abortions are due to hormonal dysfunction, while others are the result of vitamin E deficiency, combined therapy would naturally be more beneficial if patients from both categories were included. There is some evidence, however, that vitamin E exerts its effect by acting through the ovarian hormones. Thus, a resting thyroid gland can be activated either by follicular hormone or by vitamin E, but the latter is inactive in castrated animals. Stähler and his co-workers,[4, 5] impressed by the potentiating action of vitamin E on progesterone, have attempted to analyse this effect. This they have done by determining the dose of progesterone required in young rats and rabbits to complete the uterine cycle which had been initiated by oestradiol benzoate. There appeared to be little doubt that much more progesterone was necessary when no vitamin E was given. The potentiating effect did not appear until the fifth day of vitamin therapy and was not maximal until the thirteenth. The results of oral administration were more marked than were those of injection of an oily solution. As for the action of vitamin E on other gonadal hormones, it was found to have a slight potentiating effect on oestrogens, but did not increase the production of prolan A or lead to any histological changes in the anterior pituitary. Vitamin E did not significantly alter the growth curve in rabbits, but progesterone caused an increase in weight proportional to the dose. In rats, on the other hand, vitamin E led to a transient loss of weight which was greater than

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[1] *Arch. Gynäk.*, 1940, **170**, 142.
[2] *Ther. Gegenw.*, 1940, **81**, 11.
[3] *Klin. Wschr.*, 1940, **19**, 263
[4] *Arch. Gynäk.*, 1941, **171**, 118
[5] Ibid. p. 134.

that accompanying complete starvation. It also favoured the production of corpora lutea in rats, but in rabbits, although the follicles became more fully developed, they did not reach the luteal stage. These facts show the need for caution in applying to one species the experimental results obtained in another. This is further demonstrated by the fact that in rats glycogen appeared in the endometrium as a result of progesterone action, while in rabbits it was often present without this hormone. It is obvious that the action of vitamin E on the endocrine system is a complex one, and much must still be done before the interrelationship is clarified. The effect of combined hormone and vitamin therapy has still to be determined, and individual case reports, while possibly of interest, merely cloud judgment. The next steps must be further experimental work, and, even more important, the accumulation of a sufficient number of carefully controlled clinical observations from ante-natal clinics and maternity hospitals.

INCUBATION PERIOD IN TUBERCULOSIS

The problem of tuberculosis control might be greatly simplified if the onset of the primary infection were associated with a generalized rash. Unfortunately erythema nodosum only occasionally helps, and even this association is not recognized widely enough at present. It is not surprising, therefore, that the incubation period of tuberculosis is seldom discussed, although attempts, recently summarized by Wallgren,[1] have been made to investigate it in the past. He lays down certain criteria for estimating the incubation period—that is, the interval between infection with tubercle bacilli and the first appearance of the primary tuberculous lesion. Wallgren found in the literature only 13 cases which fulfilled these criteria. He has added 23 of his own, and divides the 36 cases into two groups: (1) those in which the end of the incubation period and onset of allergy could be determined only by means of tuberculin tests; and (2) those in which the end of the incubation period was determined by manifestations of primary tuberculosis. In this second group were cases with "initial fever" and erythema nodosum and cases with fever but no erythema nodosum. Each of these subgroups was divided again into patients who later developed clinical signs of primary tuberculosis, and those in whom the diagnosis was established only by a positive, following a negative, tuberculin test in relation to the erythema nodosum and/or "initial fever." The 36 cases were also classified into (*a*) those in which contact could definitely be assumed to have taken place for no longer than a day (13 cases), and (*b*) those in which the contact covered a period of two days to two weeks (23 cases). Only in (*a*) could the incubation period be determined with accuracy, and analysis of the case reports showed that it was under 30 days in one case, 30 to 35 days in three, 35 to 40 days in five, 40 to 45 in two, 46 to 50 days in one, and over 50 days in one. The incubation periods in the other 23 cases, allowing for a minimum period of contact of two days and a maximum of three weeks, are indicated in the following table:

	Incubation Period (Days)									
	< 15	15–20	20–25	25–30	30–35	35–40	40–45	45–50	> 50	Total
Minimum number of cases ..	1	4	1	6	1	7	3			23
Maximum number of cases ..			2	1	4	3	6	6	1	23

From these findings it can be concluded that, although the incubation period is variable and may rarely be under two weeks or more than seven weeks, in most cases it is four to seven weeks. The practical importance of this in connexion with the examination of contacts and tuberculin testing is obvious.

SILICOSIS IN SWEDEN

All those interested in silicosis will find Torsten Bruce's study of the extensive investigations he carried out into the incidence of the disease in various industries in Sweden both timely and helpful.[1] Altogether 2,631 workers in porcelain, iron, silicate, sandstone, quartz, and coal-mining were examined, and also 500 others who were incapacitated, or in receipt of a pension, or following occupations that were presumed to be associated with silicosis. Radiological appearances were classified according to the criteria laid down by the International Silicosis Congress in Johannesburg. Silicosis developed in different occupations at apparently strikingly different rates. Thus severe silicosis developed most rapidly in quartz workers, among whom silicosis Stage 3 might be met after less than fifteen years' work, whereas among porcelain workers such a stage was not reached until after at least twenty-five years. It follows that in certain occupations silicosis might lead to incapacity while the individual was still in the prime of life, while in others this stage might not be reached until the worker was due to retire. Further, in cases in which Stage 1 silicosis took a relatively long time to become manifest the disease did not progress in the following five years; whereas in cases in which Stage 1 developed rapidly the disease might progress even if the work responsible was given up. Although the investigations led to no definite conclusions on the part played by tuberculosis in silicosis, pulmonary tuberculosis was nevertheless a complication to reckon with, even in occupations where the silicosis appeared slowly. Moreover, the outlook for persons suffering from silicosis and "open" tuberculosis is almost uniformly bad, although silicotic and tuberculous lesions might coexist without apparently exerting any influence on each other.

Discussing clinical investigations, in the second part of the monograph, Bruce concludes that, although the radiographical appearances in the various occupations are similar, nevertheless certain characteristic differences indicate the type of work causing the silicosis. By means of bronchography he demonstrated frequent bronchial changes in silicosis Stage 3, chiefly in the anterior branches. Similarly, spontaneous pneumothorax was found to complicate advanced silicosis, the pneumothorax being presumably itself a complication of the emphysema that follows fibrosis. Even when bilateral, spontaneous pneumothorax may be symptomless and disappear; but it may recur, and in general the outlook for the silicotic is worse. Bruce concludes that respiratory insufficiency in silicosis is caused by the emphysema that develops in the course of the disease; but there are certain differences between this and the "usual" emphysema.

THE HALF-YEARLY INDEXES

The usual half-yearly indexes to the *Journal* and to the *Supplement* have been printed. They will, however, not be issued with all copies of the *Journal*, but only to those readers who ask for them. Any member or subscriber who wishes to have one or both of the indexes can obtain what he wants, post free, by sending a postcard notifying his desire to the Accountant, British Medical Association House, Tavistock Square, W.C.1. Those wishing to receive the indexes regularly as published should intimate this.

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[1] *Arch. Kinderheilk.*, 1941, **124**, 1.

[1] *Acta med. scand.*, 1942, Suppl. **129**.

THE PASTEURIZATION OF MILK*

BY

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It is frankly impossible, in the space allowed, to put forward the full case for compulsory pasteurization of milk or to answer the numerous objections that have been raised against it. A few years ago, owing to insufficient evidence, scientific opinion was divided on pasteurization. Since then numerous experiments have been carried out in the laboratory and in the field, the results of which show that pasteurization brings about no detectable change of any significance in the nutritive value of the milk. Objections are frequently raised to it on pseudo-scientific grounds, but the real objection in the past has been financial, and has come from the producer-retailers. Before the war farmers of this kind received both the producers' and the distributors' profit; if they had been compelled to pasteurize their milk themselves, or to arrange for its pasteurization elsewhere, their receipts would have been slightly diminished. Now, however, when the Milk Marketing Board buys all their milk and sells it to them again at a uniform price, whether raw or pasteurized, this financial objection no longer has any weight.

In the following brief summary statements will have to be made without qualification, and without providing the evidence on which they are based. Those who are anxious for further information may be referred to a report which I made to the Ministry of Health and which has been published recently in book form.†

Question 1: Why is there a Milk Problem?

Answer.—Cows' milk is a food of exceptional value for the growing child. It contains a well-balanced mixture of fat, carbohydrate, and first-class protein; it is rich in mineral salts, especially calcium and phosphorus; and it contains important vitamins. On the other hand, it is more often infected with pathogenic bacteria and more likely to give rise to disease than any other common article of our dietary. Hence arises the double problem of how to improve the nutritional status of the young without spreading milk-borne disease, and how to abolish milk-borne disease without lowering nutritional standards.

Question 2: To What Extent is Raw Milk infected with Pathogenic Bacteria?

Answer.—About 5 to 10% of farms in this country are sending out milk containing tubercle bacilli; about 20 to 40% *Brucella abortus*; and a much higher proportion mastitis streptococci, which, though not usually infective to man, may cause undesirable changes in the milk. "Accredited" milk appears to be as heavily infected with tubercle bacilli as ungraded milk; and tuberculin-tested (T.T.) milk is just as heavily infected with *Br. abortus* as ungraded milk, if not more so. Bulked milk reaching our large towns usually contains all three organisms—namely, tubercle bacilli, *Br. abortus*, and mastitis streptococci. Occasionally milk becomes infected with other organisms, such as scarlet fever streptococci, diphtheria bacilli, and bacilli of the typhoid, paratyphoid, food-poisoning, and dysentery groups.

Question 3: How do Pathogenic Organisms reach the Milk?

Answer.—Tubercle bacilli, *Br. abortus*, and mastitis streptococci, from the cow's udder; organisms of the typhoid, paratyphoid, food-poisoning, and dysentery groups, either from the infected fingers of those handling the milk or from water used for washing the cows' udders, cleaning the milk utensils, or watering the milk; scarlet fever streptococci and diphtheria bacilli, from the cough-spray of the milker or from the infected udder of the cow.

Question 4: How Much Disease is Raw Milk responsible for in the Human Population?

Answer.—In England and Wales about 1,500 to 2,000 deaths a year from tuberculosis of bovine origin; 400 to 500 cases of undulant fever; occasional outbreaks of scarlet fever, septic sore throat, diphtheria, typhoid fever, paratyphoid fever, dysentery, and acute gastro-enteritis. It is known that during the years 1912 to 1937 there were at least 113 outbreaks of epidemic disease in Great Britain, affecting about 14,000 persons. During the same time about 65,000 persons in England and Wales died of tuberculosis of bovine origin, and an unascertained number, probably several thousands, suffered from undulant fever contracted through milk. If epidemic summer diarrhoea in infants under 2 years of age is included, some of the deaths during this period, which in England and Wales amounted to 190,000, must be added to this total.

Question 5: Why do Some Practitioners Belittle or Deny the Existence of Milk-borne Tuberculosis?

Answer.—Because their clinical training makes them think in terms of the individual rather than of the herd. They do not realize that if every practitioner saw a case only once in 5 years there would be 8,000 cases annually in England and Wales.

Question 6: How can Milk be Rendered Safe for Human Consumption?

Answer.—Tuberculosis and undulant fever could be avoided by the establishment of tuberculin-tested and abortion-free herds. Diseases of the typhoid, paratyphoid, food-poisoning, and dysentery groups might be diminished to some extent by a rigid clinical and bacteriological supervision of all those employed in handling milk, and by the provision to all farms and dairy establishments of a safe water supply. Since about 40% of the cattle in this country react to the tuberculin test, and about one in every 200 cows is excreting tubercle bacilli in its milk, the establishment of sufficient T.T. herds to provide liquid milk for the human population would be an enormous task. It may be pointed out that in the United States, where a campaign for the eradication of tuberculosis among cattle was started in 1917, an initial tuberculin-positive rate of 4% was reduced by 1939 to a rate of about 0.5%, at a cost of $260,000,000. In this country we should have to start with a rate ten times as high, and with herds far more closely packed together than in the States. The control of contagious abortion, which is widespread in cattle, presents an almost insuperable problem, as does that of mastitis. Control of the human personnel handling the milk is not reliable, and even if it were it would create so many administrative difficulties as to be unworkable. The only practicable method at present of ensuring that the human population is supplied with milk free from pathogenic organisms is by some form of heat treatment, of which pasteurization, if carried out under proper conditions, is undoubtedly the most satisfactory.

Question 7: What is Pasteurization?

Answer.—Pasteurization is a loose term applied to several forms of heat treatment of milk. In this country, however, only two methods of pasteurization are officially allowed—namely, pasteurization by the holder method and pasteurization by the high-temperature short-time (H.T.S.T.) method. In the holder method the milk must be retained at a temperature of not less than 145° F. and not more than 150° F. for at least 30 minutes, and then cooled to a temperature of not higher than 55° F. The milk must *not* be heated more than once. The processing plant must be provided with indicating and recording thermometers, and temperature records must be preserved for a period of not less than 1 month. In the H.T.S.T. method the milk must be retained at a temperature of not less than 162° F. for at least 15 seconds, in an apparatus that is thermostatically controlled and provided with an automatic device to divert the flow of any milk which has not been so treated. The milk must then be cooled as under the holder process. The efficiency of either method may be tested by means of the phosphatase reaction. The enzyme phosphatase is destroyed by a time-temperature combination slightly higher than that necessary to destroy tubercle bacilli. Milk, therefore, in which the phosphatase test is negative can be regarded for all practical purposes as free from pathogenic organisms.

Question 8: What Effect has Pasteurization on the Properties and Nutritive Value of Milk?

Answer.—About 5% of the lactalbumin is coagulated; the coagulation time by rennin is lengthened, but the casein clot formed consists of finer particles and is of a more open texture: there is a diminution of about 5% in the soluble calcium and phosphorus; there may be some loss of iodine through volatilization; about 10% of vitamin B_1 is destroyed, and about 20% of vitamin C; the flavour of the milk is somewhat altered owing to the removal of volatile products from the raw milk, but in properly pasteurized milk the acquirement of a cooked flavour is practically negligible and cannot be distinguished except by a very few persons; the keeping quality of the milk is increased considerably. Against these positive changes may be set a number of negative findings. Observations on rats, mice, calves, and children have failed to reveal any change in the biological value and digestibility of the protein, in the availability of the calcium and phosphorus, in the amount of vitamin

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* This article is contributed by special request.—ED., *B.M.J.*

† *The Pasteurization of Milk*, by G. S. Wilson. Edward Arnold and Co., London. 1942.

A or D, or in the total energy or nutritive value of the milk for the growing animal.

Question 9: Does Pasteurization Destroy Pathogenic Organisms in the Milk?

Answer.—The tubercle bacillus is destroyed by a temperature of 138° F. in 30 minutes, of 145° F. in 5 to 10 minutes, of 150° F. in 2 to 5 minutes, and of 160° F. in 12 seconds. It will be seen that there is an ample margin of safety in the time–temperature combination laid down for the holder method, and a fair margin of safety in that laid down for the H.T.S.T. method of pasteurization. Other pathogenic organisms—with the exception of *Staphylococcus aureus*, which is not pathogenic by the mouth—are more susceptible to heat than the tubercle bacillus, so that their survival in pasteurized milk is improbable.

Question 10: Is Pasteurization Antagonistic to Clean-Milk Production?

Answer.—It is not sufficiently appreciated that the quality of the pasteurized product depends to a considerable extent on the cleanliness of the raw milk. It is therefore to the advantage of the large dairy companies practising pasteurization to obtain the highest quality of raw milk. To most farmers it is immaterial whether their milk is pasteurized or not. Their real motive for improving the cleanliness of their supply is financial. The operation of the accredited-milk scheme in this country showed that a bonus payment of 1d. a gallon for accredited milk led to an enormous increase in the number of registered suppliers, in spite of the fact that a large part of the milk so produced was being taken to London and the large towns to be pasteurized. It is sometimes objected that a farmer who has taken considerable trouble to produce clean milk will be disheartened if he finds that his milk is to be mixed with that of a lower standard of cleanliness from other farmers. Perhaps this is true, but it is an argument not against pasteurization but against the bulking of milk.

Question 11: Is Pasteurization Antagonistic to the Eradication of Diseased Animals from Milking Herds?

Answer.—As with clean-milk production, the stimulus to eradicate disease is almost purely financial, and is unaffected by the subsequent history of the milk. This has been amply shown by the success of the Tuberculosis (Attested Herds) Scheme, in which financial support was given to the producer who was anxious to eradicate tuberculosis from his herd. It is also borne out by the experience of the United States. In 1936, for example, no less than 99.8% of raw milk and 99.2% of pasteurized milk distributed in towns of 1,000 inhabitants and over was derived from T.T. herds. The two figures are so nearly identical as to lend no colour to the view that pasteurization retards the process of disease eradication.

Question 12: How Often is Pasteurization Inefficient?

Answer.—The term "pasteurized" is often applied erroneously to any heat-treated milk, not solely to milk that has been heat-treated in a licensed plant by one or other of the two methods laid down by the Ministry of Health. Many of the statements that pasteurized milk has been found to contain tubercle bacilli are incorrect if the word "pasteurized" is limited, as it should be, to officially pasteurized milk. Stringent requirements are exacted under the Milk (Special Designations) Orders of 1936 and 1938. In addition we have now a reliable test—the phosphatase test—for determining whether or not the milk has been adequately heat-treated. The proportion of inefficiently pasteurized milk is therefore much less than ten years ago. Examination of 1,439 samples of pasteurized milk taken during 1934 to 1936 in London, Manchester, Sheffield, and Liverpool failed to reveal living tubercle bacilli in a single sample, in spite of the fact that the raw supply was often infected. It is not denied that the record of small dairies may be less satisfactory than that of the larger dairies supplying our great cities, but if compulsory pasteurization was introduced more thorough supervision would be exercised over these smaller plants. Admittedly, owing to some undetected fault in the plant or to some human error, the milk may at times be inefficiently heated; but there is no more reason to condemn pasteurization on this account than there is to condemn railway transport because of the occasional failure of the signal system.

Question 13: Does the Consumption of Raw Infected Milk in Childhood Protect against Pulmonary Tuberculosis in Adult Life?

Answer.—Though some doctors believe this to be true, there is no reliable evidence in its support. Those who do advocate the consumption of raw infected milk fail to realize that what they are recommending is a method of indiscriminate vaccination with living tubercle bacilli in the hope that, by a process of natural selection, the survivors will be more resistant in later life to invasion by the human tubercle bacillus. Against what other disease, it may be asked, would a method of vaccination be tolerated that is known to demand at present the sacrifice of 1,500 to 2,000 lives a year?

Conclusion

Cleanliness of production is no safeguard against tuberculosis or contagious abortion in the cows; and T.T. milk is just as exposed as ungraded milk to infection from human sources. Though the ultimate ideal may be clean milk produced from disease-free herds and protected from human contamination, there is no other immediate practical solution to the problem of supplying safe milk to the public but pasteurization. Whether we like it or not, the logic of the case is inexorable.

EXPERIENCES IN A MILITARY HOSPITAL IN FREE CHINA

BY

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In February and March, 1942, I had the strange experience of doing surgery in a military hospital in Kiangsi Province, in S.E. China. To reach this area it was necessary to make an overland journey of about 2,500 miles from Rangoon.

K. is a large Chinese city, the foreign residents of which are practically limited to two small mission communities. Several widely differing dialects are spoken, so there are formidable obstacles for the linguistic amateur. The nearest battle front is several hundred miles away in N. Kiangsi. The hospital in which I lived had 100 beds, a primitive operating theatre and laboratory, but no *x*-ray department. There were a few civilian victims of a recent air raid, and the other cases were all of wounded soldiers. There was no one practising surgery when I arrived, nor was there at the military hospital of 600 beds outside the city. I was received with great cordiality by the medical staff and by the local military commander, and was invited to help myself freely to surgical material from both institutions. I was further assured that when I had finished with these there were 4 more military "hospitals" waiting for me at greater distances. I use inverted commas advisedly because it requires some imagination to describe as hospitals some of the dumping-grounds in which many Chinese wounded soldiers develop their chronic lesions.

Medical and Nursing Staff

Our hospital was relatively good. It had been built up by the New Life Medical Movement, founded at considerable sacrifice by a group of doctors who gave up lucrative practices in the occupied areas in order to help Free China. The staff consisted of 3 doctors, of whom 2 had good qualifications and a knowledge of English. The third, alas! had neither. China has some excellent medical schools, but in others the qualifying standard is a low one, perhaps comparable to that required of a sub-assistant surgeon in India. A difference is that in China the holder is not debarred, if he can pull the necessary strings, from holding the most senior posts in hospitals. There were 7 nurses, of whom 2 were well trained, while the rest tried to make up for their amateur status by their infectious enthusiasm. There was unfortunately no system of night nurses, and from 8 p.m. until 8 a.m. the patients were at the mercy of a number of nondescript "boys," who were as likely to consign to perdition anyone who complained as to fetch help. On one occasion one of these "boys" showed a deplorable complacency in the presence of secondary haemorrhage.

Types of Wounds

The military patients came from various battle areas, especially from that around Changsha. All were more or less chronically disabled, and the majority had unhealed wounds of from 6 months to 4 years' duration. These cases of unhealed wounds fell into 3 classes. In the largest (45%) there was a sinus, or sinuses, connected with chronic osteomyelitis and/or a foreign body. I had no *x*-ray apparatus to guide me, but found in nearly every case that exploration was justified by the results. A typical case was that of a soldier, aged 24, wounded 3 years before. He said he had had 9 operations, presumably curettings, during this time. He had a completely stiff ankle associated with 3 sinuses. I explored a cavity in his tarsus and removed a large piece of shrapnel, which gave him great satisfaction. In spite of considerable opposition I introduced closed-plaster therapy in K. It was very difficult to convince the Chinese staff and patients that an offensive odour was no cause for alarm.

The other big group of patients with unhealed wounds (40%) had leg ulcers initiated by trauma and apparently maintained by syphilis, malnutrition, and lack of rest. Some of these were the largest I had ever seen; some extended the whole length of the tibia; others completely encircled the leg, often deeply involving the calf muscles. Many were associated with a fixed equinus. We had no potassium iodide and no organic arsenical preparations (in Kiangsi N.A.B. cost 120 dollars—about £1 10s.—per ampoule!). Rejecting as hopeless the very large ulcers just mentioned, I tackled the smaller ones by excision of the edges and curetting the unhealthy granulations of the base. For this the Chinese do not seem to feel the need for anaesthesia. A week or so later the areas so prepared were treated with pinch grafts. The results were uniformly good, which was surprising, especially as there was little discipline in the place and it was difficult to persuade the patients to stay in bed.

The remaining cases (15%) had not healed for a variety of reasons. For example, there was a bronchial fistula, a small bowel fistula, a subphrenic abscess following an untreated bullet wound of the abdomen which was discharging on the surface though drainage was inadequate, a bullet wound of the perineum with multiple urinary fistulae, a sinus connected with an infected extradural haematoma, and so on.

"Chronic" Disablement

Some of these young soldiers were pathetically eager for treatment, but many were quite content to remain chronically disabled. On most Chinese battlefields medical services are conspicuously absent, and it is left to the wounded man to extricate himself if he can. If he is seriously wounded he does not get away. With a less serious injury he does not get treatment in the early stages, and the journey to hospital takes so long that his disability is likely to have passed into a chronic state before he does arrive. Even in hospital he is most unlikely to receive radical treatment. In the large base hospital outside K. there were 600 patients. No notes were kept and practically no surgery was done. The general standard of the place is illustrated by the fact that many of the patients chose to walk 5 miles into the city each day in order to have their dressings done either at our hospital or at one of the mission stations. Perhaps the chief reason why most of the patients showed no eagerness to get well was that "occupational therapy" was available. This meant that the men were allowed to make string and to be paid for doing so. By getting up at 5.0 a.m. and working hard all day, as many of them did, a man could earn as much in one day as he would earn in a week at the front. Additional attractions were regular, if inadequate, meals while in hospital and access to the local cinema, so that the complacency with which they came to regard themselves as incurable was easy to understand. One man, aged 28, gave an indefinite history of a wound in the leg healed months before. For nearly a year he had walked about the city with one knee full-flexed, using crutches. When I gave him a spinal anaesthetic and demonstrated to his companions that both his legs were normal he was much upset and they were vastly amused.

STERILIZATION OF SULPHANILAMIDE POWDER

The Medical Research Council recently called a conference, which was attended by clinicians, bacteriologists, and representatives of the Association of British Chemical Manufacturers, to consider methods of sterilization of sulphanilamide powder for local application. The following is a summary of the findings of the conference.

The report[1] of a fatal case of tetanus which was possibly due to infection from the container of a sulphonamide powder applied locally emphasizes the desirability of the practice, already adopted in the United States, by which all sulphonamide preparations intended for topical application are marketed ready sterilized in sterile containers. It has been shown that if sulphanilamide powder contaminated with tetanus spores is implanted in the tissues of animals, the presence of the drug does not prevent the development of tetanus.[2] An account by Dr. John H. Brewer of the procedure used by Hynson, Westcott, and Dunning in America for the large-scale sterilization of sulphanilamide powder in 5-g. packages ready for use was published with a covering letter from Lieut.-Col. Perrin H. Long in the *Lancet*, Sept. 12, 1942 (p. 322). At a conference held in Nov., 1942, between representatives of the Medical Research Council and the Association of British Chemical Manufacturers it was agreed that the Hynson, Westcott, and Dunning procedure was suitable for adoption also by British manufacturers of sulphanilamide powder, and that the powder thus sterilized should be issued in sterile packets each containing 5 g.

Since, however, this recommendation must inevitably take some time to put into full effect, and it would not, in any event, apply to existing stocks of the powder held in hospitals and at aid posts, the conference proceeded also to consider suitable methods for the small-scale sterilization of sulphanilamide powder. It was considered probable that lack of uniformity in the results reported by different investigators with a particular sterilizing method which, on theoretical grounds, should have proved satisfactory was attributable to minor variations in technique, and, more especially, to the known variability of different commercial preparations of sulphanilamide powder with regard to chemical purity and physical properties. Thus, it was pointed out that thermostatic control of a hot-air oven, without a check on the actual temperature of the powder itself, was insufficient to ensure that the temperature aimed at for sterilization was in fact being applied; careful control in this respect, by means of thermocouples in certain of the packages, was one of the notable features of the procedure used by Hynson, Westcott, and Dunning for large-scale sterilization. Caking and discoloration of the powder on heating might depend upon a number of factors, including the degree of purity, the moisture content, and the particle size. Very fine powders tended to cake, and the powder found satisfactory for large-scale issue in the United States was standardized at a 40-80 mesh. It was agreed that a sulphanilamide powder to be satisfactory for local use after sterilization should not show more than a slight discoloration after heating at 150° C. for one hour.

Small-scale Processes for Hospitals

For the small-scale sterilization of sulphanilamide powder in hospitals, etc., the following alternative procedures were recommended:

(A) Dry heat maintained at 150° C. for one hour in a paraffin bath, with the technique proposed by H. Berry[3] as follows: "Use dry sterile cotton-wool-plugged test-tubes (5 inches × 3/4 inch or smaller diameter). Half fill them with the dry powdered substance, using a powder funnel. Flame the upper portion of the tubes and replug with the sterile plugs. Immerse to within one inch of the tops of the tubes in a liquid paraffin oil bath and maintain at 150° C. for one hour. If the tubes are to be stored the plugs should be covered with cellophane or paper."

(B) Dry heat maintained at 150° C. for one hour in an electric oven, with precautions to ensure even heating throughout.

(C) Autoclaving in a dressings sterilizer by the technique and with the precautions proposed by W. J. Buckland[4] as follows: "An autoclave with vacuum drying attachment (dressing sterilizer) is used and the container is a dry boiling-tube plugged with non-absorbent wool. The boiling-tube must be thoroughly dried, if possible in a hot-air oven. (1) The jacket pressure of the sterilizer should be ready at a pressure of 20 to 30 lb. (2) Allow steam at 20 lb. into the empty closed chamber of the autoclave and leave for five minutes. (3) Using the appropriate valves clear chamber of all steam and condensed water. This process has heated the chamber, and the boiling-tubes, loosely plugged with non-absorbent wool and containing the powder (in 5- or 10-g. batches), are now placed in it. They should be placed on their sides, with the powder spread over their full length, giving a thinner mass for the steam to penetrate. (4) Leave the tubes for 15 minutes in the hot chamber; this heats tubes and contents sufficiently to prevent condensation inside and on the powder. (5) Autoclave at 15 lb. for half an hour. (6) Clear the chamber of steam and any condensed water quickly, and allow vacuum of 10 to 15 inches for 15 minutes. (7) Remove tubes from autoclave, place a tight sterile plug of non-absorbent wool on the top of the one already in, and cap tubes with a suitable paper—preferably cellophane. Caking does not occur. If apparent caking is observed, it is only present while the powder is still hot, and when cool a tap on the side of the tube is all that is necessary to show the sterile preparation to be the desired soft powder."

A proviso should be added with each of these recommendations that a sulphanilamide powder to be satisfactory for local application should not cake or be more than slightly discoloured with any of the techniques proposed.

The recommendations of the conference related only to sulphanilamide powder, as the sulphonamide preparation most frequently applied locally. It may be mentioned, however, that the paraffin bath technique described by Berry[3] is recommended by the author as being suitable also for the sterilization of sulphathiazole powder in hospital practice.

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[1] *Pharm. J.*, May 30, 1942, p. 192; *Lancet*, 1942, **1**, 770.

[2] Welch, Slocum, and Herwick, *J. Amer. med. Ass.*, 1942, **120**, 361.

[3] *Pharm. J.*, Oct. 24, 1942, p. 139.

[4] *British Medical Journal*, 1942, **2**, 264.

SALARIES AND EMOLUMENTS OF NURSES

FIRST REPORT OF RUSHCLIFFE COMMITTEE

In November, 1941, the Minister of Health appointed a Nurses' Salaries Committee, under the chairmanship of Lord Rushcliffe, to draw up agreed scales of salaries and emoluments for State-registered nurses employed in hospitals in England and Wales. The committee's first report, which has now been issued as a Command Paper,[1] deals with female nurses other than those employed in mental hospitals. Further reports affecting nurses in the public health service, district nurses, and male nurses will be issued later, and a separate committee, also under the chairmanship of Lord Rushcliffe, is considering midwives' salaries.

The work of the committee has been done by two panels, one nominated by organizations representing nurses and the other by organizations representing employers of nurses. In approaching their problems the committee has been guided not only by consideration of what is a fair and appropriate remuneration for a nurse, having regard to her status and responsibilities, but also by the importance of attracting the right type of person to the profession. Further, the number of trained nurses qualifying at the present time is not enough to satisfy growing demands or to make good the wastage caused by nurses giving up their work for personal reasons such as marriage. "Notwithstanding the many demands on woman-power at the present time," the report states, "an increased flow of suitable student nurses into hospitals should be encouraged. . . . What is required as a stimulus to recruitment is that the prospect of the nurse after training, in senior as well as junior posts, should be equitable and attractive."

Present Proposals

The chief recommendation is, therefore, that there should be national salary scales covering every grade of nursing staff in every type of hospital (except mental hospitals). The report sets out what these graded salaries should be, and at the same time fixes for each category of nurse what is regarded as a reasonable valuation of the emoluments (board, residence, and laundry), in terms of cash, this amount to be the standardized value for superannuation purposes. The salaries for matrons and assistant matrons are to vary according to the type and size of the hospital. The matron's salary in a hospital of 500 or more beds approved by the General Nursing Council for complete training in general nursing, sick children's nursing, or fever nursing will range from £450 to £700 (total value of salary and emoluments £650 to £900). For nurses from student status to that of qualified senior sister tutor the new salaries will be as follows:

	Scales of Annual Salary	Total Value of Salary and Emoluments
Student nurse	First year, £40, second, £45; third, £50; fourth year (before State registration), £60, fourth, after State registration (if on four years' contract), £70	£115–£145
Staff nurse (on general part of State register)	£100, rising by £5 a year to £140	£190–£230
Ward sister	£130, rising by £10 a year to £180; with one additional increment of £20 after ten years' service as ward sister	£230–£300
Qualified senior sister tutor (in charge of one or more others)	£260, rising by £15 a year to £350	£380–£470

Slightly higher rates of pay are proposed for nursing staff up to and including sisters in sanatoria and tuberculosis hospitals, because "of the special difficulty in staffing that prevails."

Other Recommendations

The report makes some recommendations to the General Nursing Council on the training of sister tutors. It suggests that the council should standardize the training, as the Central Midwives Board has that for midwives—that is, it should draw up a curriculum, prescribe rules of admission including the amount of experience that candidates should have had, and approve institutions for training purposes. It is further recommended that an educational grant should be made by the Ministry of Health to enable suitable nurses who otherwise could not afford it to train as sister tutors. Sanatoria should be encouraged to become training schools for those taking up the nursing of cases of tuberculosis and certain respiratory diseases, and it is suggested that there should be a supplementary part of the State register for such nurses, though the use of the term "tuberculosis" in the title should be avoided.

The new salaries, which are to come into operation on April 1, are based on the general establishment, as soon as conditions permit, of a 96-hour fortnight, day or night. In the committee's opinion all nurses, including students, should have at least one complete day off duty a week and should have 28 days' holiday with pay each leave year. It is not desirable that there should be nursing staff doing permanent night duty; the maximum continuous periods of night duty should be six months for sisters and staff nurses and three months for student nurses. All nurses should be provided with uniform free of cost, and the practice at some hospitals of charging a fee from students at the beginning of their training should be stopped. Finally the report makes recommendations about sick pay, and also suggests that all nursing staff at sanatoria and tuberculosis hospitals, other than matrons or assistant matrons, should have free travel twice a week to the nearest centre of population.

The Minister of Health, announcing the publication of the report in the House of Commons on Feb. 11, stated it was estimated that the total additional cost of these recommendations would be between £1,500,000 and £2,000,000 a year, and he was informing local and voluntary hospital authorities that the Government was prepared to pay 50% of any increased expenditure incurred in giving effect to these recommendations.

THE POSITION IN SCOTLAND

The corresponding committee in Scotland, under the chairmanship of Prof. T. M. Taylor, has also recommended national salary scales, the salaries suggested for student nurses and for ward sisters being the same as for similar personnel in England and Wales, except that sisters reach their maximum in 15 years. In the case of staff nurses in Scotland the maximum salary is to be lower but the increments larger—i.e., £100 a year rising by £10 to £120; and a qualified senior sister tutor in charge of two or more others will receive £250 with annual increments of £10, but her maximum has not yet been agreed. As in England and Wales the salaries of all matrons and assistant matrons will vary with the size and type of hospital—for example, the assistant matron of a hospital of over 300 but under 500 beds will receive a salary of £240 rising by £15 a year to £285 (emoluments £120); the starting salary of a matron of a similar hospital will be £350, with annual increments of £125, but here again the maximum has not yet been decided.

The two reports agree on such questions as the 96-hour fortnight, night duty, free uniform, and the abolition of entrance fees for students. Sick pay, annual leave, and off-duty time are still being considered. The Scottish report, however, goes further than the English one and makes recommendations about the salaries of midwives, health visitors, and district nurses. Subject to certain adjustments for qualifications and duties undertaken, the salaries of domiciliary midwives, health visitors, and district nurses will normally start at £250 a year and rise to £320 in the 15th year. Where board and residence are provided the salary will be £100 less.

Local and hospital authorities in Scotland have received the same assurance as those in England and Wales that the Government will pay 50% of any increased expenditure these improved salary scales will mean.

THE ROYAL COLLEGE OF SURGEONS

The Scientific Report of the Royal College of Surgeons of England for the year 1941–2 records the first steps in the restoration of the College Museum. Gifts from individuals and institutions, and offers of assistance from all over the English-speaking world, are laying the foundations of the new collections. Although relics of Hunter and Cheselden, Paget and Shattock have been lost for ever, these new collections in their own way will be equally historic. Specimens from Melbourne, Sydney, and Wellington will share the same shelves as those from Edinburgh and Manchester, Colombo and Capetown, Chicago and Montreal. They will be symbols of united purpose in a common cause and tributes to the common tradition of Hunter and Lister.

During the year the Research Laboratories have continued to make fundamental contributions to our knowledge of the effects of haemorrhage and transfusions. Articles on these researches appeared in this *Journal* during 1942. It is unfortunate that the demands of the Services prevent fuller use being made of the research facilities at the College. There is no lack of problems of immediate practical value, but Service men and women well trained and interested in research problems often lack the facilities to carry on their investigations. Perhaps some means can be found of seconding them for limited periods to laboratories which have the facilities they require.

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A SAFE MILK SUPPLY

B.M.A. Deputation to the Minister of Food

On May 18 the British Medical Association led a large and influential deputation to the Minister of Food (Rt. Hon. Lord Woolton) to urge the need for complete and efficient pasteurization of milk. The deputation included representatives of the Royal Colleges, the National Association for the Prevention of Tuberculosis, the Joint Tuberculosis Council, the British Paediatric Association, the People's League of Health, and other bodies. With the Minister was Miss Florence Horsbrugh, M.P., Parliamentary Secretary to the Ministry of Health.

Prof. R. M. F. PICKEN, Acting Chairman of the Council of the B.M.A., introduced the deputation by pointing out that there was no serious difference of opinion in the medical profession on the question of pasteurization; few questions in preventive medicine commanded so nearly complete unanimity. The Representative Body in 1936 agreed, with only one dissentient, "That only milk complying with the conditions required for the designation 'tuberculin tested' or 'pasteurized,' or preferably both, can safely be consumed without boiling." When the British Medical Association decided to embark on a campaign of medical publicity the first thing it did was to spend some thousands of pounds on advertising safe milk. In February, 1939, the Association led a deputation on the subject to the Ministers of Health and Agriculture. The Royal College of Physicians had recently passed a resolution advocating pasteurization. Seven years ago, when the British Medical Association gave qualified approval to "tuberculin tested" milk in the raw state, it did so in the hope that steps would be taken to improve the quality of milk in that respect, but in 1939 he believed that only 3% of the herds in this country were attested, and there had been no increase since then. There was no quick solution on those lines, and pasteurization was the only practicable safeguard which had no serious disadvantage. The problem had been intensified in wartime by the proper endeavour of the Ministry of Food to maintain milk production and to increase consumption among young children. The necessary redistribution of milk rounds took away from families the free choice of dairy, so that many who had been accustomed to buy safe milk had been transferred to dairies which could not supply it.

Prof. L. P. GARROD (St. Bartholomew's) said that tuberculosis was deplorably common among dairy cattle, and the percentage of samples of milk which contained some tubercle bacilli was between 5 and 10. One-third of the deaths from tuberculosis in children under 5 were due to the bovine organism; this meant 2,000 deaths a year, with, of course, a much larger incidence of invalidism and crippling. Another disease of the cow which was transmitted in milk was contagious abortion, producing in man a long and incapacitating fever; this was not very common, but some hundreds of cases occurred. Ordinary infectious diseases might also be conveyed by milk, commonly owing to contamination by the milker. He instanced the typhoid fever epidemic at Bournemouth in 1936. The only remedy was pasteurization. All bacteria concerned in producing these diseases were destroyed by a moderate degree of heat, far below boiling-point, applied for a short time. Pasteurization did not alter flavour. Admittedly it destroyed a certain amount of vitamin C, which could be made up in the form of fruit juice. The advocacy of pasteurization had been referred to as a policy of defeatism—the countenancing of the production of dirty, infected milk, and covering its defects by this additional process. That was a specious argument. There was no immediate prospect of eradicating tuberculosis from cattle—that would take a generation—and to guarantee that no person handling milk was a carrier of germs of disease would mean an impossibly rigid supervision of the whole personnel of the industry. Pasteurization must be recognized as the only complete safeguard, but it must be pasteurization carried out efficiently in accordance with standard regulations.

Dr. ALAN MONCRIEFF said that paediatricians were anxious about the possibility of infections of the alimentary tract which were traceable to dangerous milk. The adjective which should be stressed was "safe." Innumerable claims had been made for various grades of milk, but the grading system had dismally failed from a safety point of view. The term "T.T. milk" was most unfortunate. Even if tuberculosis were eradicated by getting rid of all infected cattle, the danger of other infections would remain. Only a special pasteurization process which could be easily controlled by tests seemed to give the guarantee of safety required. The question had been raised as to whether some immunity was lost by not drinking raw milk. There was no scientific evidence that raw milk conferred any sort of immunity. Even if it did, the price would be too high to pay. If inoculation against diphtheria involved 2,000 deaths a year—which was what bovine tuberculosis in young children involved—it would be difficult to maintain propaganda for inoculation.

Dr. D. S. SUTHERLAND said that during the last ten years between 1,200 and 1,800 samples of milk entering Manchester had been examined annually. The percentage of samples in which tubercle bacilli were found varied from 10.57 in 1933 to 7.12 in 1941. In the case of samples of pasteurized milk it was only during the last two years that any tubercle bacilli had been found at all, and then only to the extent of 1.11% and 0.45% of the samples, whereas the figures for samples of milk coming from tuberculin-tested herds had varied from 8.7% to 2.27%. The appearance of bacilli in pasteurized milk during the last two years was no reflection on pasteurization, but only on the way in which it was carried out during the war, with the withdrawal of skilled workers.

Prof. W. H. TYTLER, who represented the National Association for the Prevention of Tuberculosis, said that its council had unanimously recommended the extensive application of pasteurization. There still seemed to be an impression that the role of milk in causing tuberculosis in human beings was controversial, but in fact it was as well established as the case against the mosquito as the carrier of malaria. He also mentioned an investigation into the outbreak of meningitis in 1941 with a view to ascertaining whether there was an increase in the proportion of bovine infection, and whether this was traceable to milk or was due to the movements of evacuated children affecting a particular locality. The results were rather indefinite, but there was some suggestion that there was a relative as well as an absolute increase in the amount of bovine infection causing meningitis, and that milk was responsible for at least a part of the meningitic wave.

Sir ALFRED WEBB-JOHNSON said that he had thought it his duty as President of the Royal College of Surgeons to join the deputation because of the enormous importance of the prevention of surgical tuberculosis. A moral, if not a legal, responsibility attached to the Government as controllers of the organization and sale of milk to take adequate steps to prevent infection. Prof. HARRY PLATT (Manchester), Dr. J. A. STRUTHERS (M.O.H., Holborn), and Dr. HARLEY WILLIAMS also spoke in support of the objects of the deputation.

Dr. C. O. HAWTHORNE, speaking for the People's League of Health, said that the public was attracted and misled by the use of such terms as "clean" or "pure" milk; and even "accredited milk," which had received a certain amount of official countenance, did not escape reproach. The term he preferred was "safe milk," meaning pasteurized milk, which was the only label guaranteeing against infection. One factor to be borne in mind was the number of children who had been evacuated from towns, where they had mostly received pasteurized milk, to country districts where milk was not pasteurized. In these circumstances boiling ought to be emphasized as a means to the same end.

Lord Woolton's Reply

Lord WOOLTON expressed his gratitude to the deputation. He could not imagine a more influential one. He recognized fully the obligation of the Government to obtain a milk supply which could do no harm, or alternatively, if this was not possible, to issue instructions as to how people should obtain reasonable security in the process of drinking milk or giving it to their children. Miss Horsbrugh and he would report this conversation to their colleagues in the Government. He found it difficult to resist the weight of scientific and professional evidence which had been assembled. What the Government had the power to do was obvious, but it was of no use introducing legislation which was not effective. He was at present engaged in collecting all the necessary information regarding the available machinery and competent labour to undertake the work which would give to the public security on this question.

Correspondence

The B.M.A. and the Beveridge Report

SIR,—The B.M.A. is to be congratulated on its ready acceptance of Assumption B of the Beveridge report provided legislation on the lines of the whole report is carried through. However, if there are to be "comprehensive health and rehabilitation services for prevention and cure of disease and restoration for capacity for work available for all members of the community" at a standard rate, what inducement will there be for anyone to pay more than that rate for any part of the service? Or, looking at it the other way, if "the whole resources of modern medicine" are at the "disposal of every man, woman, and child in the country," what else will the medical profession have to offer anyone at any price?

The present National Health Insurance service is not comprehensive, and is not available to a large section of the community. Thus, theoretically at any rate, persons outside that service now pay for their own private treatment because that is the only way they can obtain medical benefits of any sort. But if the National Health Insurance service were open to everyone, and, in addition, were declared to provide "the whole resources of modern medicine," what inducement could there be for anyone to pay any more than was necessary to obtain such a service? On that very vital question hangs proviso (*b*) of the motion now under consideration by the B.M.A.

If the medical profession offers every citizen full medical services under the 100% proposal and at the same time announces that it is prepared to accept a higher rate of payment by private arrangement for the same services, the public must conclude either that we think it worth while to exploit the type of person who will pay £2 for what he can get for £1 or else that we are conniving at the suggestion that patients treated under the 100% proposal are not really "enjoying the whole resources of modern medicine" at all. There are no other alternatives, and either of these conclusions is equally disturbing to that sense of security and confidence that the whole Beveridge plan is designed to create.

The recipient of State service, particularly at times of severe illness, would wonder if a few shillings might induce the doctor to exert himself a little more, and the man who paid private fees would feel that he had the right to expect that "little more," in any case. You cannot offer a service or commodity at two different prices without suggesting that there are two different qualities available. The whole idea seems to embody all the evils of the tipping system and smack of a blatant commercialism which would lower the status of the medical profession for evermore. Even without admission of private practice doctors would still be free to accept tokens of gratitude. That in itself provides quite sufficient latitude for abuse without giving any open hint to the public that we have a "back room" and a "special welcome" for our more wealthy patrons.

Let the medical profession offer to "every man, woman, and child the whole resources of modern medicine" and see to it that every one in that profession is adequately paid for his services. Then set up no rival standards, but, by every possible means, induce every member of the community to believe that the best is always at his disposal, and that those who give it are satisfied that the community is paying them a fee worthy of their best efforts. Any Government could be relied upon to appreciate that to establish such confidence it was of prime importance that the just claims of the profession should be fully satisfied. See to it that this nation's medical services are so good that no patient or doctor feels that better can be obtained anywhere "for love or money." Let the public know that this, at least, is our endeavour from the outset, and that we are making no provision for nor are we permitting any other standard of service to be available to anyone.—I am, etc.,

Eye, Suffolk. J. SHACKLETON BAILEY.

SIR,—"The doctor must be the servant of his patient," you state in your leading article (Feb. 13, p. 193). Is this incompatible with his being the servant of the State? Your antithesis is surely false. The doctor, even if he were the servant of the State, would still in his own professional domain be his own master. He does not want to be the servant of his patient. He suffers from that too much already, and many patients think that they have only to whistle to make the doctor jump; and what is more, they have the power to do so, thanks to the isolationist and competitive atmosphere in which we work. So bad is this in some parts of the country in which I have practised that patients deliberately play off one doctor against another to obtain a reduction of fees.

It is time that the doctor was, professionally, captain of his own soul, and this he has the chance of being under a State Medical Service. No longer need his hand be forced by the ignorant, the capricious, and the dominating among his patients. In a wealthy town on the South Coast no fewer than 187 priority milk forms were received in one milk shop on the first morning of the priority scheme. One can draw one's own conclusions from that fact; they may be right or wrong.

As a profession we seem to get the worst of every bargain, and the portents would seem to indicate that we risk running true to form once again.—I am, etc.,

Hove G. LLEWELLYN DAVIES.

SIR,—The decision arrived at by the Special Representative Meeting and the Panel Conference summoned for March 31 will be momentous to the prestige of the medical profession and to the course of future negotiations. The resolutions on which these meetings will be called upon to vote are set out in the *Supplement* of Feb. 13 (p. 25), and we hope that every Division and Panel Committee will give serious consideration to the second proviso (*b*) which is recommended as a condition of co-operation. It runs as follows: "(*b*) That those members of the community who decide not to avail themselves in part or in whole of the benefits of the service open to them should not be precluded from obtaining the medical services they desire from doctors within the scheme, paying for such service privately, with the necessary safeguards to prevent abuse."

It may well be that the retention of some measure of private practice will be found desirable in the interests of the new medical service, and it will be the duty of the medical representatives conducting negotiations with the Government to watch the interests of the profession in this respect. But if we, as a profession, offer co-operation in the establishment of a comprehensive service we must surely put the efficiency of that service before all other considerations. To make our co-operation conditional on the retention of private practice, as proposed in proviso *b*, will lay us open to the charge by both the Government and the public that we are concerned primarily with the security of our own vested interests. The details of this new service have still to be worked out. To prejudice negotiations at this stage by the introduction of any conditions is surely undesirable if co-operation is to be obtained between all parties.

We hope, therefore, that both the Representative Meeting and the Panel Conference will vote unanimously for the deletion of proviso *b*.—I am, etc.,

J. W. E. CORY,
Hon Secretary, West Suffolk
Bury St Edmunds Division "Study Group"

SIR,—I protest strongly against the statement in your leading article (Feb. 13, p. 193) that the doctor must be the servant of his patient. This is a dangerous and invidious statement, especially as it has already been copied in the lay press. A doctor is the servant of his profession, and no man can serve two masters. Further, we are not all of the servant class.

No section of the community has more scope than ours for the exploitation of hypocrisy and dishonesty. And the fact that these have been so little exploited is one of the chief reasons why we have maintained our privileges and a certain respect throughout the ages. If, however, it is publicly decreed that we must accept the role of servant to our patients then servility must follow, while hypocrisy and dishonesty will soon be established as merely professional characteristics and perquisites.—I am, etc.,

New Buckenham, Norfolk. R. G. BLAIR.

A Member Resigns

SIR,—Your leading article (Jan. 30, p. 135) is unusual, alike in its choice of subject and in its treatment of that subject. The curious mixture of the self-assertive, the faintly deceptive, the slightly minatory, and the suddenly plaintive suggests a comparison—from which all right-minded B.M.A. members will instantly recoil—with the curious present-day gyrations of a certain totalitarian propaganda machine.

With your contention that many B.M.A. members are lukewarm in their support of the Association I am not at the moment concerned, true though it is in fact. It cannot, however, be doubted that Service members have had little or no voice in the planning of the future of our profession and, in the nature of things, this cannot, at the moment, be otherwise. The Secretary's account of his successful negotiations with the Director-General of the Army Medical Services, resulting in permission being granted to R.A.M.C. officers to record and transmit their views on medical planning, touches only the fringe of the subject. Such permission can be of value only to the R.A.M.C. officer serving in this country, and, in fact, its value is theoretical rather than practical. The R.A.M.C. officer, be he administrator, specialist, or humble general duty officer, is, contrary to popular belief, already fully occupied with the very necessary task of helping to win the war. So far as our armies over-seas are concerned, one hesitates to ponder the replies from colleagues in the jungles of Burma, the sands of Libya, or the mud of Tunisia to an inquiry on their views of the future of our profession. Such replies, we hazard, would be bright and brief, if not particularly brotherly. Incidentally, we are not told whether similar freedom to express their views has been accorded to our colleagues in the Royal Navy and the Royal Air Force.

Doubtless our naval friends, fighting their way round Murmansk in the teeth of the blizzard, and in the face of the unwelcome attentions of the Luftwaffe and the U-boat packs, are giving the matter their most serious consideration. Nor can we expect a carefully balanced judgment from the not inconsiderable number of our colleagues who are at the moment in enemy hands.

Your plea on behalf of a mythical centenarian covers only one side of the question. Every well-brought-up young man should be eager to profit from the advice of his elders, but it cannot be gainsaid that our venerable Nestors when talking to (or down to) their juniors are a little apt to dilate at length on the verdure of the fields of their youth and/or on the excellence of the Biblical injunction touching the matter of yokes and young shoulders. With particular reference to present, and to future, problems they tend to overlook the probability that post-war pastures will yield more thorns than grass, and that post-war yokes will be of a much heavier pattern than heretofore.

Planning now for the future of our profession is necessary, but the translation of the plans into action must be deferred until members of the profession, temporarily in the Forces, have returned home at the end of the war and have had time and opportunity to study the problem in all its aspects.—I am, etc.,

JOHN M. HENDERSON,
Major, R.A.M.C.

SIR,—I do not think the B.M.A. has ever made any serious attempt to find out why it is that seven out of every eight members are politically inarticulate. Does not this problem merit some attention at Headquarters? It is not enough for the Association to say that the machinery is there and that if members do not make use of it nothing more can be done.

The B.M.A., in appointing the Medical Planning Commission —without any mandate from its members—has assumed the responsibility of guiding the profession through the troublous times ahead. Very well then, is a C.O. who never leaves his office entitled to assume that his unit is a happy one because he never receives complaints from his personnel through the official channels? There is a reason for the apparent apathy of the average medical man towards his own political interests, but the Association will not find out what it is by sitting in Tavistock Square. I would suggest that "Centenarian" comes out into the Provinces and finds out for himself.

It is not that the ordinary doctor has no views on matters of vital importance to himself; it is that he cannot use the machinery provided to make those views known. Theoretically it should work very well, actually it does not, because a G.P. nowadays has no time to give to secretarial duties, Division meetings, visits to London, etc. Consultants and specialists can arrange their work to a large extent, but a G.P. is tied to the telephone in a way that is quite incredible to those who have not experienced it. And the ordinary G.P. represents two-thirds of the profession.

The A.R.M. is a clumsy and lazy way of canvassing the views of the profession. The political landscape changes from day to day; Representatives meet once or twice a year, and experience quickly shows a G.P. the futility of trying to put his views across through the official channels. No wonder he is exasperated into displays of the arrogance which so scandalizes "Centenarian." Let the Association take a lesson from the defence of Leningrad; during the siege Party members were in and out of the trenches day and night, encouraging, advising, and directing. They did not call men off work which they cannot possibly leave to hold meetings. The mountain will not go to Mahomet, and if Mahomet will not go to the mountain he will lose his status as a prophet. Association Representatives must contact the profession on the spot, and it is no good saying that it can't be done. Trade union officials and M.P.s do not find it impossible to contact their constituents.

G.P.s as a body are suspicious of the negotiations now proceeding; they are exasperated and may easily break away altogether. I forecast this eventuality in a letter to the *Journal* some months ago as the outcome of the appointment of the Medical Planning Commission. I should deplore this result as much as "Centenarian," and I should cordially agree with his expectation of being made a scapegoat.—I am, etc.,

Lancaster. C. J. STOCKER.

SIR,—I have often wanted to resign from the B.M.A. I have refrained because I considered that the head and not the heart was at fault; but how are you to remedy a mental defect in a corporation? You, Sir, claim that the B.M.A. merely represents its members' opinions. How can it represent some thousands of divergent ideas, especially when, as on most of the questions the last few years, which are basically financial, there are diametrically opposing groups of the "haves" and "have nots"?

Bacon observes that "truth is more likely to come out of error than out of confusion." Interpreted by Prof. Leonard Gamgee in his lectures: "The next best thing to being definitely right is being definitely wrong." Now, I do not advocate the Council acting rightly or wrongly in defiance of the members, but I do suggest that, given the very large agreement we have on very important minor matters—such as reasonable income, hours, facilities, etc., for medical men—it probably does not make much difference what major decisions are taken providing the Council does obtain a decision and act on it; but this would appear impossible when Representatives are sent from the local meetings with binding resolutions. They must come armed with the opinions they have formed at the local meetings but be prepared to formulate a policy of their own—i.e., of the Representative Meeting as a whole. How could Parliament carry on if each member could only vote on the majority instructions from his constituency?

As I would blame a clergyman for empty pews, so I would blame the B.M.A. (for the fault is too general for local blame) for lack of interest in its meetings. When a member can speak at the Divisional meeting knowing that even if his own resolution is not accepted it will bear some weight with his Representative, he will come to speak, but at present, unless he has exceptional and dangerous influence as a speaker, a man may justly say: "Why should I waste my time; the committee has everything cut and dried?" Finally, I would say that if this plan cannot be carried out, and if this stage of confusion is not to lead to an anaesthesia from which we wake to find that the Ministry of Health has removed not only our income but our independence, the only alternative is for the B.M.A. to remove our independence first, and then tell us exactly what we are to think and do.—I am, etc.,

Birmingham. W. BRIAN GOUGH.

SIR,—May I associate my name with those of your correspondents who are obviously dissatisfied with the present-day complacent attitude of the B.M.A.? I appreciate that we are ourselves largely to blame for not being more active members, but it is hard to attend meetings and follow the politics of the Association when the day is more than fully occupied with the professional side of one's life.

With post-war reconstruction and some form of State medicine imminent we must look to the Association to safeguard our interests—by interests I do not mean our pay, though this should be adequate and commensurate with our training, but our conditions of work and facilities for treating our patients. I am now referring to psychotherapy, which is in particular a long and exacting form of treatment. If this treatment is to become available for the quite large percentage of the population who are needing it, then it will have to be financed by the State; but how? And who will be responsible for advising the Minister of Health on these matters? Will there be a repetition of that state of affairs which was current after the last war, or will the present-day E.M.S. neurosis centres take over this responsibility?

It was while I was at one of these centres that I wrote two letters to the Editor, one for his own information and the other for publication, the former essentially dealing with the question of personnel and the unsatisfactory conditions at the centre where I was working. The latter was in response to a paper by Major Hadfield on war neurosis, and in this letter I was critical of the methods of recruitment and the general management of the neurotic soldier. As I had no acknowledgment of either of these letters, I concluded that I had touched on dangerous ground and that the B.M.A. was unwilling even to consider any criticism of Government procedure. So what of the future?—I am, etc.,

Bishops Stortford, Herts. D. N. HARDCASTLE.

*** In the *Journal* of May 18, 1940, the following editorial statement was made, and has since been repeated: "In view of the restrictions now imposed on the use of paper, and the increase in the rates of postage which came into operation on May 1, it will no longer be possible to acknowledge the receipt of letters and memoranda, etc., offered to the *British Medical Journal* for publication." Owing to heavy pressure on limited space it is possible to print only a selection of the large number of letters submitted for publication each week.—ED., *B.M.J.*

SIR,—May I take the liberty of congratulating you on your masterly exposition of the facts in your leading article "A Member Resigns"? I have seldom heard of such conceit and arrogance as shown in that member's letter. As a medical officer on active service in a fighting ship may I express the hope that the Service to which he belongs will in due course teach him manners. The B.M.A. is a boon, long may it live!—I am, etc.,

"NAVY."

Houses to Live In

SIR,—In your leading article entitled "Houses to Live In" (Jan. 30, p. 136) you review the memorandum on "Design of Dwelling Houses" drawn up by the Committee on Social and Preventive Medicine appointed by the Royal College of Physicians. In the course of this review it is stated: "The College believes it to be a sound principle not to segregate the tuberculous in colonies, but to have them in the general community, in houses in which at any rate one bedroom is favourably situated as regards access of sunlight and fresh air, and has special windows opening more widely than the usual pattern."

I doubt very much if the College as a whole believes anything of the sort. If the tuberculous, thus housed, never stirred outside their houses, there would be something to be said for this view; though how they would earn enough to pay the rent or to buy food I do not know. But if one assumes that these tuberculous people, who are to have special windows, are under the normal human necessity of finding work, is it suggested that they should work in the general community too, and travel to and from that work in public vehicles, which do not always have special windows?

Remembering that the Royal College would certainly not recommend this mode of life for sufferers from leprosy—a disease no more infectious and certainly less fatal than tuberculosis—I cannot think that it is recommended for the tuberculous; and I would venture to suggest that the Royal College might welcome an opportunity of dissociating itself from the somewhat eccentric belief which is attributed to it in the paragraph quoted. It is at any rate in strange conflict with the recent M.R.C. Report on Tuberculosis in Wartime.—I am, etc.,

London, W.1. W. LANGDON-BROWN.

*** The relevant section (p. 15) of the report of the College reads as follows:

> "(1) *Tuberculous Persons.*—A number of progressive communities in England and Wales have given special consideration to the needs of the tuberculous in their housing schemes and the College believe that this principle is sound and deserves to be widely extended. In their view, however, it is not desirable to segregate tuberculous patients under any sort of colony conditions. They should be housed in the general community but subject to certain special safeguards. It is of great importance that, where a reduction of rent for tuberculous patients is permitted, or in the letting of houses to such patients, they should be subject to the following conditions of tenure:
>
> "(*a*) That the patient and his family agree to accept regular clinical supervision by attendance at a tuberculous clinic or such other arrangements as the Medical Officer of Health may require.
>
> "(*b*) That the family agree to regular visitation by the health visitor and to accept such measures of protection as the health visitor may suggest—e.g., the occupation of a separate room by the patient.
>
> "It is neither necessary nor desirable to make these houses conspicuous, but they should be placed in such a way that one bedroom, at any rate, is favourably situated as regards access of sunlight and fresh air. Arrangements can also be made for the provision of a special type of window which can be opened much more widely than the usual pattern. Nothing should be done, however, to mark out such families as infectious persons and so give them an unenviable place in the general community."

Dietetics of Pregnancy

SIR,—Those who do not refer to the reports of the Toronto experiment, that of the People's League of Health, and that of the meeting at the Royal Society of Medicine may be misled by Mr. R. B. Fisher's letter (Jan. 30, p. 145) on the effects of diet in pregnancy. Had he been content to criticize the faults of the papers of the Toronto workers and the uncritical enthusiasm of the writer of the leading article of Jan. 2 he would have done useful service. But he has gone on to draw conclusions without presenting or considering the more satisfactory evidence of the Toronto workers. For example, they give in both their papers the clinical rating, at various stages of pregnancy, by an obstetrician who did not know to which group each patient belonged; in the second paper they give the percentage, in each group, who had no complications. If these data had not been given, Mr. Fisher's criticism that there is no way of telling how many patients exhibited complications would be justified. The average duration of labour was five hours shorter in the group whose diet was supplemented; 86% of the women in this group were suckling their babies at six weeks after delivery, as compared with 59 of the poor-diet group. These differences in favour of the supplemented group may not be significant in view of the smallness of the groups, but they cannot be ignored.

Mr. Fisher bases an argument on one of the meanings given to the word "miscarriage" in this country. However, Toronto is not in this country, and the *Journal of Nutrition* and the *Canadian Medical Association Journal*, in which the work was reported, are not English journals. One of the meanings given to the word "miscarriage" in America is interruption of pregnancy between the 20th and 28th weeks; abortion then means interruption before the 20th week, and premature birth interruption after the 28th week. As the Toronto workers wrote of abortion, miscarriage, and premature birth, in this order, and did not mention the occurrence of abortion after the 4th and 5th (or 5th and 6th) months, it is evident that they used the words in these senses. Mr. Fisher's argument that "miscarriage" occurs far more frequently before than after the end of the 4th month, and that "any effect on the frequency of miscarriages must have been more magical than nutritional," falls to the ground. Had he taken the trouble to look up the meanings attached to the word in America he would have saved himself from writing several lines of argument based on an invalid premise. It is difficult to understand how he could write that "the frequency of miscarriages in the period of the experiment is surprisingly high, even in the supplemented group," when, as he reports correctly, only 20 lines further on, the incidence, during the period of the experiment, in the supplemented group was 0%.

Mr. Fisher writes that "the work of the People's League of Health has been dealt with ably and forcibly by Doyne Bell in a discussion at the R.S.M." Either Mr. Fisher is wrong in describing the report of this meeting in the *Proceedings* as "full" or Dr. Doyne Bell did nothing of the sort. He criticized one of the conclusions but said nothing about the other—that concerning the effect of diet on the frequency of puerperal toxaemia, of which the authors wrote: "The findings . . . assume a significance which it is hardly possible to over-estimate."

It is hard to believe that Mr. Fisher intended his statement that a demand for the better feeding of pregnant women "is tantamount to an act of sabotage of the first magnitude" to be taken seriously. All the pregnant women in Britain could have double rations for the full nine months of pregnancy without seriously affecting the amount left for the rest of us; while the technical difficulties of allowing special food for this group have already been overcome.—I am, etc.,

Bishops Stortford. JOHN MARRACK.

Help for the Shipwrecked

SIR,—After the sinking of s.s. *Titanic* I carried out experiments with Dr. Argyll Campbell on the preservation of life in rafts and boats after shipwreck, the work being done at the National Institute for Medical Research and at the request of the Board of Trade. The results of the research were published in 1923 in the M.R.C. Spec. Report Series No. 73 on the katathermometer in studies of body heat and efficiency. The results proved that it was essential to keep the body from being over-chilled if rescue could be effected fairly soon. It was shown that a one-piece waterproof dress, designed for us by Sir Robert Davis, offered very great protection from sea-water and wind.

In the appointment of a committee to consider this subject the Medical Research Council seems to have taken no notice of this work. With the aid of Mr. Martin Hill, secretary of the Liverpool Steamship Association, I got in touch with the Ministry of Shipping and Transport two years ago and was able to advise the Ministry to provide a suitable protective dress, and to urge the supply of water above all, and biscuit as the best food, food being of least importance. The Ministry, in place of the one-piece dress of Sir Robert Davis, designed one consisting of overall trousers, a tunic, and a hood, the whole being made of light, yellow oilskin, and packed into the hood to be carried on the back by the sailors just as a gas-mask is carried. Of these dresses 200,000 have been issued, and the highest commendation has been made of their use, not only as a protection from cold but also in the Tropics; the bright yellow colour is seen from the air, and the hood has been found useful for catching rain. Gloves are provided for the tillerman, while others can for warmth withdraw their hands within the sleeves, which have an elastic cuff. The protective dress has "zip" openings in the legs, which allow the legs to be massaged if they become numb.

I have had submitted to me the detailed instructions given to the shipowners for provision of boats; the only new point, I think, stated in the recent report of the M.R.C. Committee is that foods rich in protein, because they increase the need for water, should be avoided. One of the most important provisions made by the Ministry is a lamp carried by each sailor which allows him to be picked up by the boats in the dark. One rescue ship made for what was thought to be a ship on fire and found numbers of sailors floating about with their red lamps glowing, buoyed up as they were by their life-belts.—I am, etc.,

Chalfont St. Peter LEONARD HILL.

Pyogenic Skin Infections and the Skin-carrier Rate

SIR,—My address is, I hope, adequate apology for my delay in replying to Dr. George Discombe's letter (Sept. 26, p. 378). The controls were healthy personnel who had not suffered from impetigo to their knowledge. They were drawn wherever possible from the same units as the patients and were living under the same conditions. The swabs were taken on admission, the patients having had no treatment for the preceding 24 hours. All group A patients were suffering from impetiginous lesions of the face and/or neck. They were not suffering from boils.

In the original more extensive notes from which my article was compiled, I did, in fact, calculate percentages as Dr. Discombe has done. I agree that they appear more striking. In that they could be extracted by anyone interested from the table I gave, I preferred to return all figures as percentages of the whole group, a more direct and, I believe, more just method of presentation. I knew full well that it would be less dramatic.

I have not my original notes with me, and, therefore, must accept Dr. Discombe's statistical corrections of the percentages for the β-haemolytic streptococci. I know Dr. Bradford Hill's book well. I confess at the time of writing the article I was more interested in the distribution of the pathogenic staphylococci. I hope I have answered his questions.—I am, etc.,

NICHOLAS H. MARTIN.

Filaria Worm in the Eye

SIR,—When I was in N.E. India over 40 years ago worm in the eye was very common in horses, and I had quite a collection which I removed myself. It was necessary to immobilize the horse, which was no easy matter but essential if you did not wish for a possible disaster to your operation or yourself, cocainize the eye, then wait, while kneeling on the horse's neck, for the worm to appear in the anterior chamber, and plunge a well-guarded knife slantwise into the anterior chamber. The worms varied in length from 1½ to 2 inches.

The eye was always inflamed and the cornea opaque with a milky fluid before operation, but cleared up in a few days with the application of yellow oxide and atropine ointment. This inflammatory condition was the first warning of eye trouble, the syce remarking that the eye was "sick with running water." The condition frequently destroyed the eye. It was believed that the disease "kumree," then very common among horses, was caused by these worms becoming encysted in the spinal cord, the symptoms being progressive paralysis and dragging of the hind quarters, culminating in complete paralysis.

Later in Nigeria I found filaria very common, and I was myself a sufferer with worm in the eye, which at times caused me some inconvenience. I have frequently seen it wriggling in my eye and under the skin of my temple. The trouble lasted six years and was preceded by a calabar swelling. The worms are also common in antelopes. I have removed some of several inches from the pleurae; the animals never appeared to be out of condition.—I am, etc.,

Bournemouth. E. A. CHARTRES.

Aetiology of Lung Cancer

SIR,—In the leading article "Aetiology of Lung Cancer" in the *Journal* of Feb. 13 (p. 194) there is some criticism of my paper on "Lung Tumours in Mice and Man" (p. 179). I tender the following reply.

After referring to the high incidence of lung cancer in the Schneeberg and St. Joachimsthal miners, attention is drawn in the leading article to the differences between the mouse and human lung tumours. It is stated: "The first and most obvious [difference] is that lung tumours are exceptionally common in some strains of mice; their incidence in control animals in some of these experiments was 20%." I cannot see how this differs from the condition in the above-mentioned miners. Surely, it is a resemblance, not a difference, between the mice and human beings. Further, it is stated that in mice the lung tumour is usually an adenoma in which malignant change is the exception. This was certainly not the case in the experiments with the dusts, where the malignant tumours were more numerous than the simple adenomas.

I have not stated that nodular silicosis gives rise to cancer of the lung. My mice did not develop nodular silicosis of the lung during the dusting with silica, although the incidence of lung tumours was definitely increased and there were silicotic nodules in the tracheo-bronchial lymph nodes of about half the mice. In a previous paper I have suggested that when silicosis of the lung—i.e., the nodular condition—develops it may inhibit cancer development. Further, silicosis itself may be considered a type of multiple tumour, although not malignant, of course. In my experiments with iron oxide dust the resulting tumours were more numerous and more malignant than those produced by silica dust. I consider iron oxide at least as active as silica in the case of mice and man.

At no time did we find the dusting experiments tedious, since we were the first (1932-4) to obtain positive results. This is due to paying proper attention to the time and other factors. Other researches obtained negative results because their experiments were of too short a duration or they used non-susceptible animals as subjects. The main object of our experiments was to obtain clues to prevention or cure of lung cancer —a difficult problem and not easy to approach.—I am, etc.,

London, N.W 3. J. ARGYLL CAMPBELL.

Small-pox in Scotland in 1942

SIR,—At a meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine on Jan. 22 I did not state, as reported in the *Journal* of Feb. 13 (p. 199), that encephalitis following vaccination did not occur in infancy, but merely emphasized its rarity during that period, and referred to a paper (*Brit. J. Child. Dis.*, 1930, **27**, 245) by Dr. T. F. McNair Scott, who could find only 41 cases of this kind. It is, therefore, most desirable that vaccination should be performed during the first year of life.—I am, etc.,

Kensington, W 8. J. D. ROLLESTON.

The Measure of Night Vision

SIR,—Mr. N. Bishop Harman (Jan. 9, p. 43) has rightly emphasized the importance of a standard degree of illumination in the estimation of night vision. This need has also been recognized by military ophthalmologists, and all Army night-vision sets are tested by a photometer and the calibration of individual instruments determined in relation to a fixed standard.

Two facts should be differentiated in the investigation of night vision—namely, the rate and degree of adaptation. I am interested to note that Mr. Harman's figures are similar to mine in that there is a deterioration with age, although it is probably more in rate than in degree.

Mr. Harman credits me with the Army test, which I hasten to disclaim. It was devised by Dr. Craik of the Psychological Laboratory, Cambridge, under the auspices of the Medical Research Council, and is in general use throughout the Army. —I am, etc.,

B. W. RYCROFT,
London, W Major, R A M C

Artificial Respiration

SIR,—May I answer some points made by both private and public correspondents? Dr. W. J. Burns Selkirk (Feb. 6, p. 173) writes that when the Schafer operator withdraws his pressure gravity causes the viscera to resume their former position, and that the more toneless the viscera the more vigorous will be their resumption. If he will try Schafer on a dead body he will see how much "vigorous resumption" there is compared with a live and bouncing patient. My article (Dec. 26, p. 751) was based on practice because of the conflicting figures of theorists and of the lack of scientifically controlled work on drowned men. But in theory Eve's method is also far superior. Schafer admits the necessity for raising the hips to allow water to drain out of the upper chest; this is done throughout rocking, not just for a preliminary moment. But rocking scores most during inspiration. Gravity, acting on heavy organs at 45 degrees, pulls down the diaphragm by the visceral ligaments. Is it not likely to be superior to a method which depends on almost non-existent elasticity and on the effects of gravity acting—owing to the displacement of the viscera by manual pressure—through only 5 or 10 degrees? In Schafer the viscera can do no more than roll gently back into their original position; in rocking they slide strongly down towards the pelvis, exerting a powerful diaphragmatic pull and positive inspiration.

I have good reason to believe that statistics of the results of artificial respiration during this war will come as an unpleasant shock. If, as has been said, this is due to faulty technique, Schafer's method must be far from simple, for it is applied at sea by specially trained and practised doctors and first-aid men. If these men cannot apply it properly, why teach only Schafer to quickly trained men when there is such a very simple alternative?

It appears from preliminary work that Eve's method is likely to be superior in its effects on the circulation also. Rocking asphyxiated babies has been the method of choice of many obstetricians for years. Although the baby may be wrapped in blankets and rocked in the arms, it may be better to use a warm old-fashioned rocking cradle. As both circulation and respiration are stimulated without producing shock, it may prove as applicable to "white babies" as it is to blue ones.

Finally, may I beg enthusiasts not to imperil the method again by inventing special apparatus. A stretcher and some support is quite enough. (A possible exception to this may be the fitting of a foolproof clutch to the tilting system of operating tables so that "anaesthetic asphyxias" may be rocked.) For ten years—during three of which hundreds of men have drowned—this life-saving method has been in abeyance because of the impression that apparatus is a necessity.—I am, etc.,

G. H. GIBBENS,
Surgeon Lieutenant, R N V R

Starvation in Europe

SIR,—The public and the medical press within recent months has drawn attention to the gravity of the food situation in the occupied countries of Europe. Leading articles on the subject have appeared in the *British Medical Journal*, in the *Lancet*, and in several newspapers (e.g., *Manchester Guardian* and *Sunday Times*). It is doubtful, however, if the true proportions of the emergency are yet generally realized. From many and authentic sources there is pouring into this country a mass of information which leaves no doubt that in some regions (e.g., Belgium, Greece, and France) a state of virtual famine exists. Much of this information comes from trained neutral observers (Swedish and Swiss) who have in many instances been engaged in Red Cross relief services in the countries concerned. From Greece, for example, there is conclusive evidence that large numbers of the population have been reduced to the state of "living skeletons," that many have died in the streets, and that in some districts of Athens 9 out of every 10 children born have died within six months. In Belgium the position is also grave. Dr. E. J. Bigwood, a distinguished public health worker, whose investigations for the League of Nations are well known, has given striking evidence in a recent memorandum (Dec. 4, 1942). He points out that a major factor in determining the famine situation in Belgium is that, whilst this country in pre-war days derived about 70% of its bread cereals from over-seas, the blockade has shut down this main source of bread and of the cereal feeding stocks for animals. These have had to be slaughtered with a consequent wholesale reduction in meat, milk, cheese, and other dairy produce. Dr. Bigwood has shown that the mortality rate is rising steeply, due mainly to a spread of tuberculosis and to the deaths of infants from infectious diseases, especially bronchopneumonia, and that among the survivors deficiency diseases, such as hunger oedema, scurvy, anaemia, and rickets, are common. Even as early as 1941 in Brussels there was a stunting of growth in 56 to 78% of children of pre-school age and in 51 to 84% of school-age children, whilst for the adolescent the situation is described as tragic. According to the main infant clinics in Brussels the infantile mortality had increased by 300 to 400% even before April, 1941. The condition of mothers is equally grave. During pregnancy women fail to gain their proper increment of weight, and, as the four chief university obstetric clinics in Brussels, Ghent, Liége, and Louvain have shown, by January, 1942, the incidence of premature births had increased by 300%. The incidence of tuberculosis in pregnant women had increased by 100%. The poor nutritional state of the nursing mothers is exemplified by the fact that the mortality was as high in breast-fed as in other infants.

It is apparent that the famine is affecting with tragic emphasis the mothers and children of Belgium and Greece and, as

Dr. Kershner has shown, of France. To these countries some Red Cross relief is being conveyed by Swedish, Swiss, and Turkish agents, but the shortage of materials on the Continent generally imposes a serious restriction on these efforts.

It is for these reasons that the Famine Relief Committee has sought permission from the Allied Governments for "navicerts" to send 2,000 tons of dried milk and vitamins each month to Belgium and Greece in neutral ships to be devoted especially to the succouring of the starving mothers and children. Their estimate is based upon an assessment of the needs of these countries drawn up by an influential committee containing such distinguished authorities as Dr. Harriette Chick and Prof. J. C. Drummond. It is understood that the foodstuffs and ships are available, that the Governments of Belgium and Greece are willing to defray the cost of materials and transport, and that the Red Cross Societies can make the appropriate arrangements with the occupying Power and the other Governments concerned. Recently the Prime Minister of Belgium stated that his Government had decided to ask the Allies for "navicerts" for these moderate quantities of foodstuffs to save the lives of the young people of his country. It is understood that the Famine Relief Committee, whose chairman is the Bishop of Chichester, has the support of the Archbishops of Canterbury and Westminster.

The object of this communication is to draw the attention of the medical profession of this country to the catastrophe which is rapidly overwhelming Europe and to the urgent need for an impartial consideration of measures directed to the relief of those members of the community who always suffer severely in a famine area—namely, the pregnant and nursing women and the children. To realize the measure of the emergency it is only necessary to remember that the area covered by the blockade is many times greater than that which existed during the last war. During that war the situation in Northern Europe, moreover, was ameliorated by the large relief shipments of food (100,000 tons a month) to Belgium under the Hoover Scheme.

This plea for an unprejudiced consideration of a moderate relaxation of the blockade before the tragedy of irretrievable disaster breaks upon Europe is made with a full consciousness of the sanction inherent in the blockade as a potent instrument for speeding the downfall of Nazi tyranny and the time when the starving peoples will be re-fed. It is based upon the conviction shared by the Famine Relief Committee and others who have studied the question closely that a considerable and perhaps critically important amount of relief can be conveyed to Europe and distributed under adequate Red Cross control without endangering the military efficacy of the blockade.

There is conclusive evidence from the neutral Red Cross agents in the occupied countries that the relief food materials already sent are controlled for the benefit of the local populations, and there is implicit in their reports the conviction that the additional shipments which they so earnestly demand would be distributed under equally secure control. This conviction must be shared by the starving peoples themselves. There is the risk that refusal on our part to send relief to the utmost of our power, within the restrictions necessarily imposed by the blockade, will tend to rouse a just indignation in those who are despoiled of aid which their own Governments in this country are anxious to send, and which they are entitled to expect. Further, as the *Manchester Guardian* points out, "to refuse 'navicerts' for this purpose would be to add wantonly to the difficulties of post-war recovery."

—I am, etc.,

JAMES YOUNG,
Professor of Obstetrics, University of London.

London, W.12.

Obituary

W. J. TURRELL, M.D., D.M.R.E.

We regret to record the death recently at the age of 77 of Dr. W. J. Turrell, consulting physician to the department of physical medicine at the Radcliffe Infirmary, Oxford.

Walter John Turrell, the son of the Rev. H. J. Turrell, was born in 1865 and was educated at Turrell's Hall and Exeter College, Oxford. He pursued his medical studies at the London Hospital, and took the M.B., B.Ch. of his university in 1890, proceeding to the M.D. two years later. In 1921 he took the D.M.R.E., Cambridge. After qualifying he was house-surgeon at the Radcliffe. In the war of 1914-18 Dr. Turrell served as a major in the R.A.M.C.(T.), and was in charge of the physiotherapy department of the Third Southern General Hospital at Oxford. Dr. Turrell did much to develop his specialty in this country, and his distinction in this field was recognized by his transatlantic colleagues when in 1933 he was awarded the Golden Key for research in electrotherapy at the American Congress of Physiotherapy. He was president of the Duchenne Society for the Advancement of Physiotherapy, which he founded in 1934, and was at one time president of the Electrotherapeutic Section of the Royal Society of Medicine. At the Annual Meeting of the B.M.A. at Oxford in 1936 Dr. Turrell was president of the Section of Physical Medicine, having previously served as vice-president of the Section of Radiology and Electrology at the Portsmouth Meeting in 1923. He was a member of Council, 1912-13. He contributed an article on electrotherapy to the 13th edition of the *Encyclopaedia Britannica*, and wrote widely on the subject.

We are indebted to Dr. P. BAUWENS for the following appreciation: The sad news of Dr W. J. Turrell's death must have filled the hearts of his friends and colleagues with the deepest sorrow. Some will remember him as a teacher, others as a research worker bent on putting medical electrology on a scientific basis. Yet others will think of him as one whose ingenuity enabled him to put to use such prosaic objects as skewers, primus prickers, funnels, inner tubes, or jam jars, and convert them into effective electromedical apparatus. He will live in the memory of all who knew him as a great man. The furtherance of his branch of medicine was his constant concern. To this end he founded the Duchenne Society for the Advancement of Electrotherapy in 1934. The members of this society will wish to pay the highest tribute to the memory of their late president. A short monograph entitled *John Wesley, Physician and Electrotherapist* he ended with the words: "There are some men whose voices echoing through the past we still seem to hear, and whose past deeds and writings continue to influence the future." Such words could not have been more appropriate had he himself been the object of the monograph.

Dr. F. HOWARD HUMPHRIS writes: The loss that we have sustained by the death of Turrell of Oxford is difficult to assess properly or to appreciate at its true value. He was a great-souled English gentleman, single-minded, with an abiding purpose—that purpose, the aim and object of his life, was the putting of England in the forefront of nations in the use and practice of electrotherapy. That his knowledge of that science qualified him so to do, and made him a leader of it who could have accomplished that object, his writings and his book on the subject afford ample proof. In the U.S.A., a country more enlightened than most in the art and science of electrotherapy, Turrell's greatness was liberally and generously recognized. He was one of the first three European medical men to be awarded the Golden Key for distinguished service to electrotherapy. His place cannot be filled. His loss to medicine in general, and to electrotherapy in particular, is irreparable.

G. W. CRILE, M.D., LL.D.

Prof. GREY TURNER writes: George Crile will always be associated with what is so often spoken about as "surgical" physiology, for in his early days he spent most of his energies trying to find out how the body reacted to disease and especially to the traumatism of surgical intervention. His early work on shock is apt to be forgotten, but his idea of trying to control the peripheral circulation by the wearing of a rubber suit was certainly a notable contribution. His name ought always to be remembered in connexion with the revival of blood transfusion, for in that field he was an early worker and taught us a practical method of making the direct connexion between the arteries of the donor and veins of the recipient. It was Sir Henry Butlin who insisted on the necessity for removing the corresponding lymph nodes when operating for malignant disease of the tongue, but it was Crile who taught us the most convenient way of carrying this out by the plan of operating which is now universally known as "Crile's method." His idea of "stealing the thyroid" was an important feature of the management of the worst cases of hyperthyroidism in his hands. None of those who visited his clinic will ever forget the arrangements that were made for carrying out this plan. Each thyroid patient was nursed in a separate room and the ritual associated with the early stages of general anaesthesia was gone through on several successive days, until finally on the selected morning, which was not known to the patient, anaesthesia was carried to completion and Crile operated in the patient's room. Several of these operations would be carried out on any one day, and Crile fairly ran about from room to room operating in each and with great success. His interest in the suprarenal was greatly stimulated by his experience as a surgeon with the American Army during the last war. It was in furtherance of his interest in the ductless glands that he and Mrs. Crile made a game-hunting expedition to Africa not long before this war with the object of collecting, examining, and carefully weighing the suprarenals and other ductless glands obtained from the animals that fell to his gun, the idea being to correlate these facts with the size and habits of the animals concerned. It was a wonderful evidence of his resilience that when he had to retire from the Lakeside Hospital on attaining the age limit of 65 he at once transferred his energies to the large private institution known the world over as the Cleveland Clinic, where he continued to work almost to the time of his death. Always a good friend to this country, he acted for years as a sort of liaison officer between the surgical profession here and in America, and he never lost an opportunity of keeping those relations warm. He was tremendously elated at his election to the Honorary Fellowship of our own Royal College in 1913 and was most enthusiastic about what he called the delightful ceremony at the time of his admission during the presidency of Sir Rickman Godlee. In his own beautiful home in Cleveland he was the perfect host, and those who had the privilege of staying there must also cherish vivid recollections of those wonderful week-ends spent at his country estate, where he seemed to find such relaxation in the saddle. He had a great gift for friendship, which he followed with as much enthusiasm as the pursuit of his profession, and he will for long be remembered by hosts of surgeons the world over.

We regret to announce the death on Jan. 9 of Dr. **MICHAEL BEHR** of Swindon at the early age of 41. Dr. Behr was born in South Africa and came to this country to complete his medical studies at the Middlesex Hospital, qualifying M.R.C.S., L.R.C.P. in 1926. He was appointed an assistant medical officer to the G.W.R. Medical Fund Society of Swindon in 1927, and for the past 16 years has been one of the most popular members of the staff. He was especially interested in midwifery, and conducted ante-natal clinics for the Borough of Swindon and was on the staff of the maternity hospital, where his services as obstetrician were in great demand. His ability, his courtesy and kindness endeared him to all his patients, and he was held in high esteem by his professional colleagues. He regularly attended meetings of the local Division of the B.M.A. and was a member of its executive committee. His untimely death, following an attack of coronary thrombosis ten months before, has robbed the medical profession and community of Swindon of an outstanding personality, whose services will long be remembered with gratitude and whose place it will be difficult to fill. He adhered faithfully to his Jewish religion and closely followed its observances. Dr. Behr leaves a wife and young son of 13, to whom sympathy will be extended in their tragic loss.—J. L.

We regret to announce the death on Jan. 13 after a long illness of Dr. T. L. **DRAPES** of Chepstow. Born at Enniscorthy, Co. Wexford, in 1877, Thomas Lambert Drapes was educated at Epsom College and Sidney Sussex College, Cambridge, of which he was a scholar. He took his B.A. with first-class honours in the Natural Sciences Tripos of 1900, and then went to St. Mary's Hospital, where he won the Meadows prize in obstetrics in 1903, and qualified M.R.C.S., L.R.C.P. in 1904. He later held the post of house-surgeon, and in 1906 graduated M.B., B.Chir. In the same year he went to Chepstow to join the practice of Dr. Lawrence, eventually succeeding to it on the latter's retirement. He was also medical officer of health to the Chepstow Urban and Rural District Councils. Dr. Drapes was a keen member of the B.M.A., which he joined in 1909, and only resigned when he became ill in 1935. He was chairman of the Monmouthshire Division in 1931-2. He was awarded the M.B.E. for his services during the war of 1914-18. Interested in sports generally, he found his chief relaxation in a day's racing, of which he was very fond. Dr. Drapes was the kindest of men, unsparing of himself in his patients' interests, and possessed of much charm of manner; these, combined with marked professional ability evoked the affection of all his many patients in a very large practice. He was the ideal general practitioner.

The Services

The King has approved the following appointments and awards in recognition of gallant and distinguished services in the Middle East during the period May to Oct., 1942:

K.B.E. (Military Division): Major-Gen. P. S. Tomlinson, C.B., D.S.O., late R.A.M.C.

C.B. (Military Division): Brigadier A. J. Orenstein, C.M.G., C.B.E., South African Forces.

C.B.E. (Military Division): Major-Gen. D. C. Monro, late R.A.M.C.; Brigadier (temp.) E. Phillips, D.S.O., M.C., late R.A.M.C.; Col. H. G. Furnell, D.S.O., Australian Military Forces; and Col. T. D. MacG. Stout, D.S.O., O.B.E., New Zealand Military Forces.

O.B.E. (Military Division): Col. (acting) D. Bluett, R.A.M.C.; Cols. (temp.) N. Cameron, A. T. B. Dickson, and J. Morrison, M.C., R.A.M.C.; Lieut.-Cols. J. Chandra and W. E. R. Dimond, I.M.S.; Majors (temp. Lieut.-Cols.) H. S. Allen, M. R. Burke, G. A. H. Buttle (Reserve of Officers), R. K. Debenham, and C. B. Levick, R.A.M.C.; and Major A. E. Porritt, R.A.M.C.

M.B.E. (Military Division): Capts. (temp. Majors) A. H. R. Champion, J. W. A. Dennis, E. B. Hacking, R. J. Kellar, W. H. Purves, H. L. W. Sixsmith, and B. C. Tate, R.A.M.C.; Capt. (temp. Major) J. Revans, I.M.S.; and Capt. B. De Burca, I.M.S.

M.C.: Capts. (temp. Majors) C. H. George and M. S. Williamson, R.A.M.C.; Capts. B. A. M. Brown and W. Darby, R.A.M.C.; Capt. V. F. Siqueira, I.M.S.; and Capt. S. Kapila, I.M.S. (Reserve of Officers).

CASUALTIES IN THE MEDICAL SERVICES

Prisoners of War.—Capt. J. R. Gibbs, R.A.M.C., Capt. J. H. Gibson, R.A.M.C., Temp. Major J. W. D. Goodall, I.M.S., Capt. J. W. Lillico, I.M.S., Capt. J. F. McGarity, I.M.S., Capt. F. E. McLaughlin, I.M.S., Temp. Major R. Stuppel, R.A.M.C.

Wounded.—Capt. W. K. Badgett, R.A.M.C., Capt. R. W. Davidson, R.A.M.C., War Subs. Capt. R. C. Meek, R.A.M.C., Lieut. D. T. Milnes, R.A.M.C., War Subs Capt. S. D. V. Weller, R.A.M.C.

Missing.—Capt. G. F. Allan, R.A.M.C.

Wounded or Injured.—Prob. Temp. Surg. Lieut. A. E. de la T Mallett, R.N.V.R., Temp. Surg. Lieut. G. R. Walker, R.C.N.V.R.

DEATHS IN THE SERVICES

Lieut.-Col. **DONALD DE COURCY O'GRADY**, D.S.O., R.A.M.C. (ret.), died on Jan. 28. He was born on May 31, 1881, the son of Capt. S. de C. O'Grady, and was educated at the Naval College, Eltham, and at Dublin, where he took the L.R.C.P.&S.I. and the L.M. in 1905. After holding a house post at the Royal City of Dublin Hospital he entered the R.A.M.C. and became a specialist in dermatology while serving in India. During the war of 1914-18 he was mentioned in dispatches and was awarded the D.S.O. and the Croix de Guerre. After his retirement he settled in practice in East London. He leaves a widow.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The Raymond Horton-Smith Prize for the best M.D. thesis during the academical year 1941–2 has been awarded to E. T. C. Spooner.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

A meeting of the Council of the College was held on Feb. 11, with Sir Alfred Webb-Johnson, President, in the chair. A resolution of condolence was passed on the death of Sir Arbuthnot Lane, past member of the Council. Mr. W. H. Bowen and Mr. P. J. Moir were re-elected members and Mr. N. F. Sinclair, Mr. W. D. Doherty, Col. A. H. Whyte, Surg. Cmdr. J. B. Oldham, Brig. H. C. Edwards, Mr. B. H. Burns, and Surg. Capt. L. C. Rogers were elected members of the Court of Examiners for one year from March 11, 1943. Miss Alice Bloomfield was elected an Examiner in Midwifery under the Examining Board in England for the remainder of the year 1942–3. It was decided to recognize the post of resident surgical officer at the Chelmsford and Essex Hospital for the six months' surgical practice required of candidates for the Final Fellowship Examination. Mr. H. S. Souttar was appointed Bradshaw Lecturer and Mr. J. Johnston Abraham Thomas Vicary Lecturer for 1943. Mr. H. E. Griffiths was appointed a Hunterian Professor for 1943 in place of Mr. W. Bremner Highet. It was reported that new by-laws had been approved giving the College power to make the Primary Fellowship Examination solely postgraduate and to add pathology as an additional subject. Revised regulations will be published at a later date and the new regulations are likely to come into force in 1944. In view of the many inquiries which had been received it was decided to continue the opposition of the College to the extension of the scope of the Mrs. Emily Wilson Barkworth Trust. A letter was received from the Winnipeg Medical Society thanking the Council for a relic of Museum furniture which had been converted for use as a gavel. Dr. J. Newman Morris, F.R.A.C.S., was introduced and conveyed a message of greetings from the Royal Australasian College of Surgeons. In return the President handed to him, as a token of friendship to the sister College, a first edition (1664) of Willis's *Anatomy*, the illustrations of which are by Sir Christopher Wren.

Diplomas of membership were granted to J. M. Titcombe and Mary W. P. Huddart and to the 221 candidates whose names were printed in the report of the meeting of the Royal College of Physicians of London in the *Journal* of Feb. 20 (p. 238), and Diplomas in Public Health were granted to the 9 candidates whose names were printed in the same report.

Medical Notes in Parliament

Beveridge Report: Health Provisions

Sir JOHN ANDERSON, on Feb. 16, speaking on a motion proposed by Mr. Greenwood welcoming the report of Sir William Beveridge on social insurance, said he would deal first with the proposal for a comprehensive medical service. This implied the reorganization of the panel practitioner system of National Health Insurance, existing general and specialized health services of local authorities, the major hospital and institutional services, and so on, and their development into one unified and comprehensive service covering the people as a whole. The Beveridge report viewed this as a service organized not by the proposed Ministry of Social Security but by the Health Departments and designed for positive health and prevention of disease as much as for treatment and cure.

The Government welcomed this conception of a reorganized and comprehensive health service. It was the consummation of a process which had been going on steadily under successive Governments for many years—a constant movement to improve and make more comprehensive the personal health services. Some 18 months ago the Minister of Health had announced the general lines of a plan for reorganizing the hospital services. The Health Departments had given attention to other aspects of the personal medical services, including, particularly, the draft interim proposals of the Medical Planning Commission of the B.M.A. It would be premature to attempt now to formulate details of the new scheme, and the Beveridge report made no such attempt. On all these matters the Health Departments would seek the help of the main organizations—local authority, voluntary, or professional—on whose active participation the success of any reorganization must depend. In consultation with these the shape of a new service would be worked out and then necessary legislation would be prepared.

Main Features

For the moment it would suffice to indicate some of the main features which, in the Government's opinion, must determine the general nature of the reorganization. The object was to secure through a public, organized, and regulated service that every man, woman, and child who wanted it could obtain, easily and readily, the whole range of medical advice and attention through the general practitioner, the consultant, the hospital, and every related branch of professional up-to-date method. The fullest possible use must be made of existing resources, such as the tuberculosis, cancer, and other services of the local authorities. The principle of the new service must be one of co-operation of public authorities, voluntary hospitals, and other voluntary agencies, and of the profession towards one common end. There must be no doctrinaire scrapping of good existing resources, nor must there be overlapping. Responsibility for seeing that in any area the service was full and efficient must be ultimately on one public authority. Experience justified putting this ultimate responsibility in any area on to the local government machinery, working often over larger areas and certainly in consultation and collaboration with voluntary agencies.

Private Practice and the Family Doctor

Professional interests, the well-being and integrity of the medical profession, not only one of the oldest and most honourable, but one on which the success of any scheme would inevitably depend, must be amply and properly safeguarded. The Government recognized that the profession was approaching this major reorganization in the progressive spirit which was expected of it. Most important of all it was necessary to maintain to the greatest possible extent the principles of free choice of doctor and of the family doctor relationship as the background of general medical practice, to create the least possible disturbance of existing association between doctor and patient. In the view of the Government this need not be inconsistent with group public practice and well-equipped clinical centres, a project which underlay most of the current thought on the future of family practice. The Government had no intention of forcing the new services on those who preferred to make private arrangements for medical attendance or hospital treatment. Equally the position of the great voluntary hospitals must be safeguarded.

In general the public health services of this country could already challenge comparison elsewhere. But with the war and the chances of post-war reconstruction there was an opportunity to pull together many loose strands and to build up the whole service until it justified in every sense the word "comprehensive." This opportunity would be quickened by the mass return of young doctors from the Forces. The Government did not intend to let that opportunity be missed. For certain forms of treatment—notably dentistry and ophthalmology and possibly also obstetrics—there was a marked deficiency of personnel, and it must inevitably be many years before this shortage could fully be made good.

Dr. HADEN GUEST asked whether the unified and comprehensive medical services were to be available for all members of the community, irrespective of their income. Sir JOHN ANDERSON said the scheme was comprehensive in two senses: it would cover all forms of treatment and it would extend throughout the community. That was the decision of the Government. Dr. GUEST then asked whether the Government could announce any plan for increasing the number of medical personnel. What was it doing to increase the number of women doctors? Sir JOHN ANDERSON said that matter was under discussion.

Children's Allowances

Continuing, Sir John Anderson said that before the publication of the Beveridge report the Government had concluded that whatever might be decided about children's allowances in cash, the most effective measure was full development of child welfare services, which brought benefits directly to the children. As a matter of current policy some 2,000,000 out of 5,500,000 children in grant-aided schools would be provided with dinner before long. It was the view of the Government that cash allowances to parents, if granted, should not be at a rate which would prove an obstacle to the fullest development of the welfare services, and the Government was ready to consider extending these benefits free of cost as part of its scheme. It saw no difficulty in providing services equivalent in money value to 2s. 6d. a head, or even more, per week, as against the 1s. assumed by Sir William Beveridge. For that and for other reasons the proposal of the Government was that the rate of children's allowances should be fixed at 5s. for the second and other children instead of the 8s. recommended in the Beveridge report.

Approved Societies

On what he termed the controversial question of the approved societies, Sir John said that under the existing system of health insurance the sickness risk was separated from other insurance risks with which it would be associated under the Beveridge plan, and there was a voluntary segregation of risk on a large scale within the field of sickness insurance itself. The question now was whether the continuance of approved societies as independent financial units was compatible with a unified system of social insurance under which uniform contributions provided for uniform rates of benefit. Inasmuch as the approved society system was one of unequal benefits for equal contributions, there could be only one answer to that question. It was no light matter to discard institutions which had become part of the social system, and if any method could be devised whereby the societies could continue as agents in administration of the national scheme the Government would gladly consider it. The Departments were considering alternative suggestions.

The Government agreed that what was called in the report a funeral grant, but which it preferred to call a death grant, should be a benefit under the unified system of social insurance. The amount of the benefit required further consideration. Sir John concluded by pointing out that there could be at present no binding commitment. Subject to that, the Government adopted the scheme in principle, and no reservations which he had made would affect the speed and vigour of its preparations. The Government would press forward the preparation of a Bill or group of Bills. When this work had been completed it would review its policy, and Parliament would have an opportunity of pronouncing on the scheme as a whole in relation to other schemes and in the light of the financial situation as it could be estimated at that time.

"A Revolution in Medical Ideas"

When the debate was resumed on Feb. 17 several members criticized the statement of Sir John Anderson on the ground that it should have indicated a Government decision to take immediate steps to carry out the recommendations of the report. Sir **Kingsley Wood** reaffirmed the declaration of Sir John that immediate pledges could not be given. He said the setting up at this moment of a Ministry of Social Security would retard the preparation of schemes arising out of the report. Responsibility for the comprehensive medical service must lie with the Minister of Health, and if they tried to interpose a new Minister they would only hamper and hinder the machine. In the future they might find a place for a Minister of Social Security, but his duty would not be matters like a comprehensive medical service, but rather such matters as the collection of contributions and things of that kind.

With regard to the comprehensive medical service, Mr. Brown and Mr. Johnston would immediately begin negotiations with the medical profession on the lines set forth in the Beveridge report. As one who went through the negotiations in 1911, Sir Kingsley said the task of these two Ministers was considerable. If, as they all hoped, they could bring about the changes which had been outlined already it would mean considerable adjustment as regards general medical practice and all that went with it. Almost a complete revolution in medical ideas and prospects was outlined. In 1911 great hopes were pinned upon the panel system. He did not think many people would pin so many hopes upon it to-day. They would like to see that comprehensive range of services which had been forecast by Sir William Beveridge and many others. These negotiations by the two Ministers and the setting up of this new system would take a considerable time. When dealing with a great and honourable profession such as the medical profession matters had to be settled with the utmost amount of good will on both sides.

Voluntary Hospitals

On Feb. 18 Mr. **Herbert Morrison** wound up the debate. He said the Government accepted the six fundamental principles of the Beveridge report save for the subsistence basis. It accepted the assumption in the report of a comprehensive health service and children's allowances. The health service was on the basis of universality, free benefit, no means test, medical reorganization, and so on.

Dr. **Morgan**: And popular control of hospitals? Does the Government accept representative control of hospitals?

Mr. **Morrison** replied that he had had a good deal of relationship with voluntary hospitals and had started on the principle that he rather wished them to be taken over. But this was a country in which there would always be voluntary effort, voluntary social service, voluntary public service. If that died in this country British democracy would be dead. That was not to say that voluntary hospitals ought necessarily to be preserved. He nearly had the offer to take them over in London but found they were doing good work, and that to take them over would cost the ratepayers a 1s. 6d. county rate. He had said the transfer could be postponed. Was a voluntary hospital necessarily wrong? There were voluntary hospitals in mining communities to which the miners often attached the utmost value. The Government thought it right to intimate that it did not propose to destroy the institution of voluntary hospitals. If it had declared that it would destroy them controversy would certainly develop. The Government had committed itself, subject to certain reservations, to a very big change—a comprehensive public health service. It was working hard to get to the next stage. Mr. Johnston was meeting his Medical Advisory Committee for Scotland to discuss the report with them. Mr. Ernest Brown was likewise going ahead straightway with his negotiations. Other discussions would also go on and not only with doctors. Local authorities, voluntary hospitals, and all sorts of people, including the trade unions, would rightly wish to be consulted.

By 335 votes to 119 the House rejected the Labour Party's amendment expressing dissatisfaction with the declared policy of the Government toward the report and calling for early implementing of the Beveridge plan. It then adopted Mr. Greenwood's motion welcoming the report as a valuable aid on which developments and legislation should be pursued.

Regional Organization of Health Services

Speaking before Mr. Herbert Morrison in the debate on Feb. 18, Mr. **Storey** said he feared there had been a tendency to treat as a matter which could be shelved the creation of a health and rehabilitation service. This could not be shelved. The preparatory work done by the Ministry of Health, the Nuffield Provincial Hospitals Trust, the Rushcliffe Committee on Nurses' Salaries, and the Tomlinson Committee on Rehabilitation must be intensified so that a start could be made with a real health and rehabilitation service. They must take every step to reduce the number of claims for illness and the length of the claims. He disagreed with Sir John Anderson's statement that it was intended to put the ultimate responsibility for the health services on the local authorities. He admired their administration and their hospitals, but co-operation between public authorities, voluntary hospitals, voluntary agencies, and the medical profession would not be easily attained if one of the partners in the co-operation had overriding powers. To place responsibility upon local authorities would require complete reorganization of local authority areas. A health service must be based on an area not conterminous with any present local government area. It must be centred upon a key general hospital, often a teaching hospital, where there were available research, consultative, specialist, and technical facilities, and from which the service would radiate out through other general, lesser hospitals and health centres to the general practitioner and his patient. Already, under the auspices of the Nuffield Provincial Hospitals Trust, local authorities and voluntary hospitals had formed in many areas regional councils, which co-ordinated hospital policy and took action on common problems without interfering with the day-to-day administration or the individuality of the constituent hospitals. By some extension of that system, by widening the representations on these councils, by granting them some authority, Parliament could contrive a more flexible administration of the health services than by placing the whole responsibility on the local authorities.

Pasteurization Processes—Vitamins in Milk

In a series of replies on Feb. 11 to Mr. Purbrick, Mr. **Ernest Brown** said two processes of pasteurization were prescribed in the Milk (Special Designations) Regulations, 1936–42: a "holder" process whereby the milk must be retained at a temperature of not less than 145° F. and not more than 150° F. for at least 30 minutes and be immediately cooled to a temperature of not more than 55° F.; and a high-temperature short-time process whereby the milk must be retained at a temperature of not less than 162° F. for at least 15 seconds and be immediately cooled to a temperature of not more than 55° F. New proposals in connexion with the control of heat treatment were under consideration. He was advised that the temperature and periods of application necessary to destroy tubercle bacilli ranged from about 135° F. for 40 minutes to boiling point for a fraction of a second. He was satisfied that tuberculosis in cows was infectious through the milk to human beings. Mr. Brown added that pasteurization caused no loss of vitamins A and D; the amount of vitamin B_1 destroyed was too small to be detected by the usual methods of analysis. The loss of vitamin C, which was present in milk only in small quantities, was negligible, and was no greater than would result in raw milk exposed to sunshine for a few minutes before delivery. The effect on vitamin E, which was also present only in small quantities, was not known.

Venereal Diseases: Cost of Propaganda Campaign

Mr. **Brown** on Feb. 11 told Dr. Summerskill that the receipts of the Central Council for Health Education for education in the prevention of venereal disease in the current financial year by way of grants from the Exchequer and from local authorities were estimated at £19,000, made up of Exchequer grants not exceeding £5,000 and £6,000 for general and venereal disease work respectively, and local authorities' grants of about £1,000 and £7,000 respectively. The Central Council's function was to provide facilities for the use of local authorities and other local bodies. Its grant income of £13,000 for venereal disease educational work represented working capital for local efforts in support of the Ministry's central propaganda. It was only part of the total expenditure from public funds on education in the prevention of venereal disease.

Treatment of Syphilis in the Army

Mr. **Arthur Henderson** in a reply on Feb. 10 said the drugs used in the Army for the treatment of syphilis were neoarsphenamine, bismuth, and in some cases mapharside. Instructions about the use of these drugs were contained in the specific and general instructions issued to medical officers employed in the treatment of venereal diseases. The Army medical authorities received suggestions from time to time for improvements in this treatment and these were carefully considered.

X-ray Apparatus.—Mr. **Peat** is aware of the shortage of therapy and diagnostic tubes for *x*-ray apparatus. Steps have been taken both in this country and in the United States to remedy the position so far as the exigencies of the war will permit.

Medical News

"Calcium Metabolism and some Present-day Problems in Nutrition." will be the subject of a paper by Dr. J. D. Robertson of the Courtauld Institute of Biochemistry, to be read at a meeting of the Royal Society of Arts, John Adam Street, Adelphi, London, W.C.2, on Wednesday, March 3, at 1.45 p.m. Lord Horder will preside. A sandwich lunch, which should be ordered in advance, can be procured between 1 and 1.30 at 1s. 6d. per head.

A meeting of the Wireless Section of the Institution of Electrical Engineers will be held at Savoy Place, Victoria Embankment, W.C., on Wednesday, March 3, at 5.30 p.m., when a paper by Mr. G. Parr and Mr. W. Grey Walter on "The Amplifying and Recording Technique in Electrobiology, with Special Reference to the Electrical Activity of the Human Brain" will be read and discussed.

The seventh annual medical conference of the Ex-Services Welfare Society will be held at the Waldorf Hotel, Aldwych, W.C., on Thursday, March 11, at 10.30 a.m., when there will be a discussion on "War and the Neurotic and Psychotic." The proceedings will be opened by Lord Horder.

On account of the sudden indisposition of Dr. A. H. Harkness, who had arranged to address the Medical Society for the Study of Venereal Diseases on "Drug Resistance in Gonorrhoea," the meeting arranged for Feb. 27 has been postponed to some future date.

Medicated (lethane) hair oil for the eradication of head lice is being added to the *National War Formulary.* It consists of equal parts of lethane 384 special and a white oil of high boiling-point. Only one application is necessary, especially if the hair is not washed for one week afterwards, but the instructions must be carefully followed. The oil does not cause any undesirable secondary effects. A uniform pack with instructions for use will shortly be available at all chemists' shops. In future the vitamin content of caps. liq. vitamin A et D conc. (*National War Formulary*) will be reduced; each 3-minim capsule will contain 4,500 units of vitamin A and 450 units of vitamin D.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* the notifications of measles showed the largest increase—2,762—in any week since the beginning of 1941. The figure for dysentery was only half that of the preceding week; scarlet fever was down by 153, and whooping-cough by 95 cases; the incidence of diphtheria went up by 88.

The fall in the notifications of scarlet fever and of whooping-cough was fairly general, the only big change from the totals of the previous week being a drop of 54 for whooping-cough in Lancashire. The incidence of diphtheria showed a small general rise in the North; there was no change in the trend of this disease in the South.

During the past month the incidence of measles has been steadily mounting in the South but dropping slightly in the North. As a result there has been an appreciable change in the proportionate distribution: during the week ending Jan. 9 the North Midlands, North-Western, Yorkshire, and Northern divisions accounted for 65% of the total notifications, but during the week reviewed these divisions had only 49% of the total. The largest rises during this week were: Yorks West Riding 348, Glamorganshire 280, Gloucestershire 267, Essex 216, Middlesex 215, Durham 200, Staffordshire 166, London 112.

Dysentery was down by 89 cases, but in Cheshire there was an outbreak of 9 cases, and in Northumberland they went up from 3 to 9.

Five more cases of paratyphoid fever were reported from the outbreak in Sussex, Hastings C.B., which began last week with 27 cases.

In *Scotland* primary pneumonia went up from 363 to 466 notifications: 247 cases, an increase of 61, were reported from Glasgow. The small weekly rise in the incidence of cerebrospinal fever that has occurred this year has been due mainly to the experience of Glasgow, where 21 out of 32 cases were recorded during the week reviewed.

In *Eire* diphtheria notifications rose from 95 to 126. The principal centres of infection were the cities of Dublin 46 cases, and Cork 17.

Returns for the Week Ending February 13

The notifications of infectious diseases during the week in England and Wales included: scarlet fever 2,073, whooping-cough 1,596, diphtheria 895, measles 17,308, acute pneumonia 1,542, cerebrospinal fever 124, dysentery 85, paratyphoid fever 4, typhoid fever 1. In the great towns 131 deaths were attributed to influenza.

No. 5

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Feb. 6.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	110	9	32	2	9	181	11	31	3	6
Deaths		1	1				1	6		
Diphtheria	897	31	233	126	43	920	43	197	62	32
Deaths	35	3	1	6	—	29	2	6	—	1
Dysentery	89	12	31	—	—	115	32	46	3	—
Deaths		—		—	—		—	—	—	
Encephalitis lethargica, acute	—	—	1		—	6	—	—		—
Deaths		1					—			
Erysipelas			67	11	—			46	11	2
Deaths		—	—				—	—		
Infective enteritis or diarrhoea under 2 years				20						
Deaths	54	10	6	14	—	42	6	6	6	3
Measles	15,363	933	380	17	65	1,611	147	140	97	26
Deaths	20	2	1	—	—	—	—	—	—	1
Ophthalmia neonatorum	85	3	28		1	83	2	17		—
Deaths										
Paratyphoid fever ..	8	—	1			9	—	—	—	
Deaths	—	—	—		—	—	—	—	—	
Pneumonia, influenzal*	1,530	86	36	1	4	1,366	88	23	8	9
Deaths (from influenza)	109	15	19	1	—	84	15	5	1	1
Pneumonia, primary ..			466	19				361	26	
Deaths		—		7	9		—		14	11
Polio-encephalitis, acute	2	—				1	—			
Deaths		—					—			
Poliomyelitis, acute ..	3	1	1	4	1	7	—	—	—	—
Deaths		—	—		—		—	—		—
Puerperal fever ..	—	2	27	1	—	2	2	14	1	—
Deaths		—					—			
Puerperal pyrexia ..	183	6	16		3	176	15	15		2
Deaths		—					—			
Relapsing fever ..	—	—			—	—	—			—
Deaths										
Scarlet fever	2,119	159	318	60	52	1,113	39	208	33	31
Deaths	3	—	—	1	1	—	—	1	1	—
Small-pox	—	—	—	—	—	—	—	—	—	—
Deaths	—	—	—	—	—	—	—	—		
Typhoid fever†	9	2	2	7	—	11	2	8	6	2
Deaths	1	1	1	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths			—	—	—			—	—	—
Whooping-cough ..	1,695	114	122	51	11	1,251	159	31	41	34
Deaths ..	14	2	1	1	—	7	2	2	—	1
Deaths (0–1 year) ..	440	53	63	40	19	374	49	103	24	23
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	5,236	832	719	221	139	5,730	905	852	231	143
Annual death rate (per 1,000 persons living)			16·2	14·5	‡			19·2	15·4	‡
Live births	6,599	807	890	423	283	5,324	478	802	311	199
Annual rate per 1,000 persons living ..			18·2	27·8	‡			16·6	20·8	‡
Stillbirths	224	9	49			212	21	37		
Rate per 1,000 total births (including stillborn)			52					44		

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes paratyphoid A and B for Northern Ireland.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

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ANY QUESTIONS?

Cheiropompholyx

Q.—*Is it accepted that cheiropompholyx is caused by a fungous infection in distant parts of the body?*

A.—The term "cheiropompholyx" is more significant if reserved for an eczematous eruption of itching, deep, tense vesicles which erupt, periodically or episodically, without obvious cause, although nervous factors and local irritation are provocative, as in other types of eczema. If cheiropompholyx extends to the forearms the eruptions there are frankly eczematous, and not infrequently cheiropompholyx develops as part of an extending eczema. Relapses are common. A similar vesicular eruption occurs on the hands in some cases of epidermophytosis of the feet and should be called an epidermophytid. This is an allergic reaction to the epidermophytoxin, and it clears up when the foot infection has been eradicated and does not relapse unless reinfection is established.

Treatment of Parkinsonism

Q.—*A married woman aged 54 has suffered from muscular rheumatism all her life. Nine years ago she noticed weakness and dragging of her right leg, and inability to raise the arms above the head following a "chill." During the past three years she has developed the symptoms of Parkinsonism: shuffling gait, mask-like expression, and rigidity of limbs. She had a special examination five years ago, when nothing abnormal was found. Examination to-day shows generalized muscular tenderness and rigidity. She complains much of pain in the back of the neck on exposure to cold, reflexes and disks normal, and nothing unusual found in cardiovascular system. Would radiant heat, massage, passive movements, or any other treatment be of value in this case? The symptoms are temporarily relieved by stramonium.*

A.—In the first place, there is no cure for Parkinsonism, but some of the symptoms can be alleviated by suitable means. Massage or electrotherapy is of no help; but passive movements to straighten the limb, and particularly the trunk, often help to overcome the discomfort of the bent attitude. Because of the muscular rigidity there is apt to be pain in the region of certain joints, particularly the neck and the shoulders, and free passive movements should be carried out twice daily to prevent the onset of pain or to relieve it if it is present. The muscular rigidity itself can usually be diminished by drugs of the hyoscine, stramonium, or belladonna group. A useful way to prescribe stramonium is in the form of the tincture, beginning with a dose of 15 minims in water thrice daily after meals, the dose to be increased by 5 minims weekly until the patient complains of dry mouth or misty vision. Then a dose just short of that should be continued with. Very occasionally stramonium, like hyoscine, may give rise to mental confusion in submaximal doses, and if so the drug should be stopped. In certain cases hyoscine acts better than stramonium and should be given as tab. hyoscine hydrobromide gr. 1/150 under the tongue, thrice daily

Treatment of Paratyphoid Carrier

Q.—*A young woman who had an acute attack of paratyphoid over 5 months ago is still a carrier. After many and varied medical treatments the faeces are persistently infective. What can be done to clear this up?*

A.—Convalescent patients who have been carrying typhoid or paratyphoid bacilli for five months are likely to become permanent carriers. There is no known method of curing them medically. It is worth while, however, trying the effect of iodophthalein and of succinyl sulphathiazole. Soluble iodophthalein should be given orally in a dose of 4 g. three times a week for thirteen weeks. The patient should be kept on a low-fat diet to avoid unnecessary contractions of the gall-bladder, and the dye should be given in the early morning so that the maximum concentration in the bile is reached at night, when rest and absence of food should help to keep the gall-bladder quiet. Succinyl sulphathiazole should be given in a dose of 0.25 g. per kilo body weight in four daily divided doses for five to fourteen days. If neither of these drugs succeeds in freeing the patient from infection with paratyphoid bacilli, excision of the gall-bladder should be considered. This should not generally be undertaken until the patient has been carrying for at least a year. It is wise, also, to make certain, so far as possible, that the organisms are present in the bile. Cholecystectomy usually cures about 75% of chronic biliary typhoid carriers.

Bacteriology of Diarrhoea

Q.—*Has any work been done on the bacteriology of the recent epidemic of diarrhoea? Is there any reason to believe that it was caused by a virus?*

A.—Sonne dysentery has as usual been widely prevalent recently. There have also been cases of enteritis, mild in adults but severe in infants, in which examination of the faeces has failed to show any of the recognized bacterial causes of such a condition. In these circumstances its cause can only be the subject of speculation. There is no evidence that a virus is concerned, but so far as we are aware no experiments which would test this hypothesis have been undertaken.

INCOME TAX

Travelling Expenses, Residence Abroad, etc.

P.'s inquiries may be sufficiently clear from the following replies.

⁂ (A) Where a single appointment involves attendance at more than one place, any expense "wholly, exclusively, and necessarily" incurred in travelling between them is allowable.

(B) The basis of assessment of the income from an appointment is normally the amount of the previous year. But as the appointment held by P. ceased at Dec. 31, 1941, the assessment based on the previous year's earnings is adjustable to the actual earnings of the nine months ending on that date.

(C) Whether the result of P.'s professional activities when abroad in 1942, whether profitable or the reverse, came within the income-tax field is a matter of some difficulty, and would depend for decision on all the circumstances of his case. In so far as judicial authority goes (Davies *v.* Braithwaite, decided in 1933), the answer is probably in the affirmative.

(D) The fact that P.'s wife has not received a notice of assessment would not invalidate the deduction of tax from her salary. If she is unable to obtain a reply from the inspector of taxes to whom she sent a declaration of income, we suggest that a complaint should be sent to the Board of Inland Revenue, Somerset House, London, W.C.2.

War Damage Contribution

L. inquires whether it is correct that premiums payable for war risk insurance of professional equipment cannot be regarded as deductible for income-tax purposes.

⁂ Yes. The point is explicitly covered by statutory provision and is beyond dispute. The *raison d'être* may perhaps be said to lie in the fact that it is contemplated that the Exchequer may have to contribute directly from the national funds, and therefore bars the indirect contribution resulting from the loss of income tax which would follow from admitting the deduction of premium.

LETTERS, NOTES, ETC.

Pasteurization of Milk

Dr. H. G. Williams (Chalfont St. Peter) writes: In my letter (Jan. 23, p. 112) the figures I gave for the bacteria per millilitre of T.T. milk and pasteurized milk are for Scotland. In England and Wales there is no bacterial count done for T.T. milk, but the methylene-blue test must be passed. The bacterial count for "T.T. pasteurized" milk must not be 30,000 per millilitre and for "pasteurized" milk 100,000 per millilitre. The cooling temperature should be 55° F. and not 50° F. I apologize for this omission and mistake.

A Disclaimer

Dr. D. B. Craig (Redhill County Hospital, Edgware) writes: I wish to disclaim any knowledge of a notice in the *Hendon and Finchley Times* dated Feb. 12, which mentions my name in connexion with work at this hospital. This was entirely without my authority or knowledge.

Correction

In the report of an investigation into the standard of milk supplied to children in the *Journal* of Jan. 30 (p. 140) the footnote marked by an asterisk under the first table should read: "Double the number of cases of meningitis in 1941 as compared with 1938."

BRITISH MEDICAL JOURNAL

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THE PROBABLE INFLUENCE OF HEALTH EDUCATION ON THE IMPROVING APPENDICITIS MORTALITY RATE

BY

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These observations are based mainly on experience with the approximately 17 million industrial policy-holders of the Metropolitan Life Insurance Company in the United States and Canada—men, women, and children mostly in the wage-earning sections of the population. They are sufficiently representative, in number and geographically, of the populations of the two countries to be indicative of general conditions. Frequent mortality, morbidity, and other comparisons have confirmed this statement.

Among these millions of policy-holders the performance of appendicitis has been of an arresting and definitive character during the last 30 years or so. After a steady rise in the death rate since 1911, levelling off about a decade ago, the fatality rate started a fairly marked, consistent, and recently accelerated decline. This decline occurred despite a reported increase in the incidence of the disease. We are, in fact, concerned in this analysis with appendicitis as a cause of fatalities and with influences that seem to have affected the prevalence of serious and fatal complications. We are not aware of any new approaches affecting the incidence of the initial disease itself.

The Improvement in the Mortality Rate

That there has been a marked improvement in the death rate from appendicitis is evidenced by the records of industrial policy-holders as well as by those for the general population. There were indications that a maximum level in the mortality rate had been reached during the period 1929 to 1932. Since 1933 the decline has been consistent, and should probably be considered in two phases—1933 to 1939, and 1940 to date. It is believed that the decline in the first of these periods reflects in substantial part certain health educational activities undertaken with increasing intensity during those years. Since 1940, however, while the educational work has continued, subsequent therapeutic interventions have apparently produced an even more pronounced mortality improvement.

We are primarily concerned in these analyses with the first period mentioned above, when for the industrial-policy-holder group the appendicitis mortality rate decreased from 13.2 per 100,000 in 1933 to 10.3 in 1939—a reduction of approximately 22%. If in this group we go back to an earlier peak year (1929), when the rate was 14, the decline by 1939 is 26.4%. It may be safely said that during this period the picture has been influenced by no great new medical discoveries, such as toxoid in diphtheria or other striking immunization or therapeutic procedures, although there may have been some modest advances in surgical skill, some stimulus to hospitalization through voluntary prepayment insurance plans, and other minor influences. Yet the chief variables in the picture seem to be the mortality rate and the cumulative health educational effort to be subsequently described.

Can Health Education be Measured?

It must of course be admitted that one can never "isolate" health education or any other single factor in such a complex picture and give it a specific value. Conditions and results are influenced by other tangible as well as intangible factors, such as the prevailing medical opinion, hospitalization facilities and practices, nursing influences (such as the nursing service which the Metropolitan Life Insurance Company provides for its industrial policy-holders who are under medical care and acutely ill in their homes). Yet one may say that, of all the influences at work upon appendicitis in this instance, health education stands out as an essentially new ingredient. This health education factor seemingly influences not only Metropolitan experience but, as implied above, that of the general population as well. For instance, a drop of over 29% in appendicitis mortality in the Metropolitan experience in 1933 to 1940 is equalled by an improvement to the same degree for the general population in this period.

Health Education plus Sulphanilamide

In passing we should also make a brief reference to the second period—1940 to the present time. This period, as stated, has shown an acceleration in mortality improvement, and there is little doubt as to the reason. The health educational work has been continued and intensified, especially during 1940, but the new factor is the introduction of the sulphonamide drugs, and particularly the use of sulphanilamide intraperitoneally in cases of appendicitis with perforation and peritonitis. In fact, taking the period from 1933 to the first half of 1942, the insured group showed a mortality rate decline from 13.2 to 5.5, or 58% (general population figures are not yet available beyond 1940). The influence of chemotherapy on the last two or three years' experience is brought out by recent hospital reports dealing with deaths from peritonitis following appendicitis. Actually the number of deaths from appendicitis itself has always been relatively small. Perforation and peritonitis are the principal fatal factors. It has been estimated that more than 80% of the deaths from appendicitis are caused by this complication. It is also true that the peritonitis death rate and the incidence of the complication itself have been improving for some time, apparently reflecting the educational efforts during the earlier years. Hospital studies in Philadelphia, for instance, showed a decline in perforated appendicitis from 43% in 1928-9 to 19% in 1937. Now, current reports on acute appendicitis with perforation in certain New York City hospitals show very striking contrasts. One of these reports refers to 742 cases in 1935 to 1939, with about 3% fatal. In 1940 and 1941 this study covered 400 cases, with the use for the first time of sulphanilamide given intraperitoneally where the appendix had ruptured, with *no deaths*. Another series indicates 741 cases of appendicitis with perforation and peritonitis, with 2.7% fatal before the use of the drug. Since beginning the intraperitoneal injection of sulphanilamide these observers record 642 cases with *no deaths.*

Savings in Death Claims

From the point of view of the insurance company, we are interested not only in deaths but also in death claims. The Metropolitan Life Insurance Company in its total death claim experience shows a decline in death claims from appendicitis from $3,032,000 in 1933 to $2,000,000 in 1941, in spite of a marked growth in the size of the company and the amount of insurance in force during that period. In fact, the Metropolitan insurance in force in 1933 was $18,802,984,818, as compared with $25,433,226,148 for 1942. While it is difficult to appraise the cost of health educational and special therapeutic efforts, it can undoubtedly be said that this improvement in death claims represents a saving in one year alone of many times the cost of all the educational activities carried on throughout the whole period in question.

The Health Educational Approach

What specifically were the health educational approaches to the problem? It may be said that a number of agencies have participated in the activity in a rather isolated way. The Health Council in one city, a medical society in another, have taken an interest in the appendicitis problem from the educational angle. However, there has been in the United States and Canada no national sponsorship for this movement, such as one sees for tuberculosis, venereal diseases, cancer, poliomyelitis, etc. The official public health authorities have not been active until recently, though about a year ago the United States Public Health Service published its first bulletin for popular distribution among industrial workers on the subject of appendicitis.

Co-operation of the Medical Profession

The Metropolitan Life Insurance Company was the first nation-wide agency to take a major interest in this problem, and presumably some of the details in the approach made will be of interest. At the start it may be said that an attempt was made to present a simple message, briefly and clearly, to the lay reader. The burden of this was that in case of persistent severe abdominal pain *the doctor should be called* and *no laxatives or cathartics* taken in the meantime. Contrasting experience was presented as to mortality, among those taking cathartics and not taking cathartics, among those receiving *hospital attention early* and hospital attention late. Every effort was made educationally to join hands with the medical profession in stressing the avoidance of self-diagnosis and treatment. One of the leaflets used in the campaign may be quoted in this regard as follows:

> "Appendicitis is one of the leading causes of death among children, adolescents, and young adults, thus taking life during the most productive years. *Self-treatment is responsible for a large number of the 16,000 to 18,000 deaths which occur yearly in the United States through appendicitis.* If a doctor is called promptly and skilled surgical attention obtained when necessary, nearly all such deaths can be prevented."

Aid of the Insurance Agents

Numerous methods and devices were used to arrest the attention of the policy-holder and to give him simple advice in concentrated, dogmatic, and emphatic form. The insurance company, as in its past efforts, made special use of its own field staff of more than 20,000 men—agents who enter thousands of industrial homes periodically, many of them weekly, for premium collection and other business purposes. These men have had a long training not only as insurance agents but also as health educators, and co-operated admirably in the appendicitis educational effort. As a matter of fact, in 1940 alone 93% of the men were active and took an aggressive part during that year. Many of them of course have had personal experience with appendicitis in their own families. Properly equipped with educational material, they serve admirably as health advisers for the families with whom they are in contact. Indeed, the company has hundreds of letters from parents, teachers, physicians, and others expressing gratitude for the part played by Metropolitan literature or the Metropolitan field representative in protecting or saving a life from the hazards of appendicitis. For instance, a New Jersey physician wrote the company the following letter:

> "I wish to call your attention to the admirable attitude of one of your agents in regard to a boy who was stricken with a severe case of acute gangrenous appendicitis. Your agent, who happened to walk into the boy's home, immediately became aware of this situation and, due to his efforts, saw to it that he did not waste any time, communicated with me, and had the boy at Christ Hospital, Jersey City, in a very short time. The agent about whom I write is entirely unknown to me, but, whoever he is, I feel that he played an important part in this affair and deserves an endless amount of praise."

Another report from a Pacific Coast agent is typical of much field experience in this effort:

> "The mother was about to administer a laxative. I opened one of our appendicitis pamphlets and showed it to her, and she immediately called a doctor. A blood count was taken and the baby was found to have appendicitis."

One of the company's assistant managers from a Middle West district wrote in as follows:

> "While I was out with Agent —— I came into a home and found that the baby was sick with a stomach-ache. The mother was about to administer a laxative. I opened one of our appendicitis pamphlets and showed it to her, and she immediately called a doctor. A blood count was taken and the diagnosis of appendicitis made. This certainly was a wonderful help to her, and she appreciated it very much."

Messages Brief and to the Point

During the last concentrated effort with educational literature the agents were equipped with a simple leaflet, which consisted of four pages of text in colour and large type, and with a summary phrased and set as follows:

APPENDICITIS!!
NEVER BELITTLE THESE SYMPTOMS:
Pain or tenderness anywhere in the abdomen
Fever and nausea

. . .

IF SUCH SYMPTOMS PERSIST:
Do not take a laxative
Do not resort to massage or exercise to "work off" the pain
Do not take enemas
Do not take food or drinks

. . .

JUST BE SURE TO DO THESE
COMMON-SENSE THINGS:
Call your doctor without delay
Remain quiet and apply an ice-bag at the site of the pain

In addition to other educational materials the company's leaflets are also liberally provided for distribution by health and educational agencies with a recognized programme in this field. In fact, 1,200,000 copies of one of the company's appendicitis leaflets were distributed in one year, and since the beginning of the organized educational campaign a total of 6,400,000 pieces of educational literature on appendicitis have been placed in American homes. At the same time this campaign was carried out also by nurses employed by or representing the company, who make 3 million visits a year to insured families to furnish bedside care and to teach personal and community hygiene. Nurses and agents of the company were urged to discuss this programme with physicians and other professional and community leaders in their districts. They were asked to study the literature themselves so as to be able to interpret it clearly. The agents were asked to leave copies in at least 50 homes in their areas.

Use of Commercial Advertising Space

The company has also utilized space in its national magazine welfare advertising series—space that monthly reaches approximately 27,000,000 readers, which naturally include all types of policy-holders, as well as a certain percentage of those in the industrial group. This appendicitis advertisement has been repeated since its first presentation, and reprints of it have been made available for distribution by co-operating organizations or individuals, especially physicians, medical societies, and nursing and public health agencies. The text of a recent appendicitis advertisement, under an illustration presenting a physician and mother at the bedside of a small boy, may be quoted in part as follows:

> "HOW INNOCENT IS A 'STOMACH-ACHE'?
>
> A 'Stomach-ache' means *something's* wrong.
>
> True, it may be nothing dangerous But, because it *can* be very serious, no one should treat such a warning signal lightly. . . .
>
> *1. Call a doctor.*
>
> *2. Apply an ice-bag and remain quiet.*
>
> *3. Do NOT take a laxative, food, or medicine.*
>
> The importance of prompt medical attention is clearly indicated in a recent survey of appendicitis cases made by medical authorities. It reveals that the death toll, among those who delayed going to hospital from two to three days, was from *three to four times greater* than among patients admitted to a hospital within the first 24 hours. The survey further shows that fatalities among those who had taken a laxative after pain developed were more than *three times greater* than among those who had taken none. . . .
>
> When in any doubt whatsoever about abdominal pain, call your physician for *safe* guidance—and call him in *time*. Then if serious disease is indicated an early diagnosis and treatment may speed recovery, reduce the cost of illness, and decrease the possibility of dangerous complications.
>
> Send for Metropolitan's helpful free booklet, 'Appendicitis.'"

The effect of such an advertisement on the casual reader is indicated by a copy of a letter in the company's possession, written by a Canadian traveller to the Pullman Company, which reads as follows:

> "About three weeks ago I was travelling on one of your crack trains, and was stricken with a severe stomach-ache. The porter in one of your Pullman cars was most accommodating, and I asked him for, and he was glad to provide me with, some bicarbonate of soda in an endeavour to relieve my pain. He, however, brought me from the club car a bottle of a well-known cathartic, and told me that the conductor in charge suggested that I take a dose of the same.
>
> Very fortunately, I had a recent institutional ad. of the Metropolitan Life Insurance Company that was running in the leading magazines. This ad. was headed, 'How innocent is a stomach-ache?' and advised that you do three things: '(1) call a doctor; (2) apply an ice-bag and remain quiet; (3) do not take a laxative, food, or medicine.'
>
> Now I do believe that if I had not read this advertisement (I am not a medical men, and unfortunately have not been interested too much in physiology) I would have taken this strong cathartic and have had a ruptured appendix.
>
> I decided to get off the train at 4.45 a.m. instead of going through to my destination. I was operated on around 6 a.m., and the surgeon told me that if I had taken the cathartic I would have had quite a gamble with my life."

The Druggists Step In

Posters have also been used—notably a poster for display in drug stores, with the co-operation of the druggists and pharmacists. The national organization representing the drug and pharmaceutical business was perhaps the second major national agency to participate in this effort in a consistent way. The public spirit and leadership of the druggists have met with wide and merited acclaim. The drug-store poster referred to carries an illustration of a man in some distress at the prescription counter evidently seeking medical aid, with the druggist indicating doubt and saying:

> *"It might be appendicitis—*
>
> You should see your doctor.
>
> 16,000 to 18,000 people in the United States die yearly from appendicitis. Many of these deaths could be prevented if the doctor were called at once.
>
> *Self-treatment for abdominal pain is dangerous!*
>
> Do not take a laxative, food, or medicine.
>
> Remain quiet and call your doctor."

This organized effort to combat self-medication has been strengthened through other lines, for in Jan., 1940, the United States Federal Food and Drug Administration put into effect a ruling making it obligatory to print on the label of laxative drugs a warning statement regarding their injurious use.

The Press, the Radio, Lectures, etc.

The education effort included many other methods and instruments, such as the distribution of news releases, the preparation of radio scripts and the use of radio stations, the furnishing of lecture outlines, with statistical data and case experience, and the encouragement of talks to lay groups of many kinds throughout the country. Here again there came in the active co-operation of the medical profession, as these talks were usually given by local physicians—often medical examiners of the company, urged to take an active part in the programme by the company's Medical Division. Groups addressed included women's clubs, parent-teacher associations, community and service clubs, employee groups, schools, churches, etc. In nearly 300 of the company's district offices, where groups of agents are employed, the agents were addressed by the company's medical examiners, stressing the vital points in the programme and urging active participation in this activity for the benefit of the policy-holders. At the same time special articles appeared periodically in the company's "Statistical Bulletin," which goes monthly to thousands of physicians, surgeons, educators, health authorities, public officials, and others.

Conclusion

This experience as a whole seems to stand out in support of the value of health education. It encourages the belief that organized effort to instruct the lay public, including those with comparatively little economic and educational advantage, can be productive of concrete results. Success depends on the use of a few simple facts, forcibly and dramatically presented. It involves the co-operation and co-ordination of many agencies and influences, and the use of a variety of approaches. Experience seems to demonstrate a degree of cause-and-effect relationship between an educational programme and a contemporary improvement in the fatality rate from appendicitis, augmented by therapeutic advances as well.

It may be added that this experience is another seemingly clear-cut demonstration that "public health is purchasable," and that purposeful, timely, and specifically "aimed" investments in this field produce definite, measurable, and substantial returns.

EFFECT OF THE *p*H OF THE BLOOD ON HAEMOLYSIS

WITH SPECIAL REFERENCE TO BLACKWATER FEVER

BY

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AND

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The Problem of Intravascular Haemolysis

In the course of observations on 16 subjects of blackwater fever, of whom 5 died and 11 recovered, we were naturally faced with the problem of the arrest of the haemolysis. This is of course the basic problem in all the acute haemolytic diseases, and very little is known about it. Many haemolytic toxins and poisons are known, but in no haemolytic disease has the haemolysin been isolated. In other diseases, notably paroxysmal haemoglobinuria and march haemoglobinuria, the factors which precipitate the breakdown are known (such as the influence of cold and syphilis in the former, and severe muscular strain in the erect position in the latter). We know, of course, that chronic malaria certainly, and big doses of quinine almost certainly, are the precipitating factors in blackwater fever, but we still do not know why in one case these factors produce the fever and in another do not.

Experimental Work

We have made a few observations which shed some light on the problem of the wide diurnal variation in the fragility of red blood corpuscles and the relation between the fragility and *p*H. We have shown that the fragility of red blood cells is capable of changes within very wide limits and can vary from hour to hour. Furthermore, our experiments have proved that the red cell fragility is increased in blackwater fever at the onset, and that this is due, in part, to a lowering of the *p*H of the blood. It should be noted that Israëls, working on paroxysmal haemoglobinuria, also observed that a low *p*H is connected with attacks of haemoglobinuria in that disease, but he does not connect this with alterations in the red cell fragility. The method used in these experiments on fragility was quantitative, the blood being diluted 1 in 200 in 0.4% saline in a haemocytometer pipette, and the number of cells remaining counted after half an hour in the counting chamber.

The first observation was that one subject showed wide variations if tested at different times on the same day. Counts were therefore done at close intervals throughout a 24-hour period, on both healthy and malarial subjects, and it was found that in all subjects there was a wide variation in red blood cell resistance. Examples are 600,000 at 8.30 a.m. and 2,850,000 at 2.30 p.m., 770,000 at 10.15 a.m. and 4,450,000 at 3 p.m., without change in the total red cell count. The period of increased resistance is from 11.30 a.m. to 8.30 p.m., with a peak at 3 p.m., and during the night the resistance remains low throughout. The red cell fragility is increased in blackwater fever—that is, the variations are below the limits observed in normal subjects.

One example of a physiological variation may be given in full:

Time	Cells Unhaemolysed	Time	Cells Unhaemolysed
8 30 a.m.	940,000	8 30 p m.	1,280,000
9 30 ,,	762,000	10.0 ,,	920,000
10 30 ,,	1,950 000	11 30* ,,	1,740,000
11 30 ,,	2,200,000	1.0* a m	1,055,000
1.0 p m.	2,150,000	2.30* ,,	920,000
2 30 ,,	2,460,000	4 0* ,,	980,000
4.0 ,,	1,560,000	5 30* ,,	923,000
5.15 ,,	1,485,000	7 0 ,,	1,500,000
6 30 ,,	885,000	8 30 ,,	1,300,000

*Sleeping.

All possible factors of experimental error were considered and excluded, and the experiment was repeated until we were satisfied of the constancy of the result. A rigid technique was observed throughout the series of experiments, which were carried out only with CO_2-free solutions. It was found that the variations in fragility were unaffected when the tests were made in the incubator at 37° C., at room temperature, and on ice.

Dacie, Israëls, and Wilkinson (1938) have shown that the red blood cells in cases of haemoglobinuria are susceptible to a haemolysin of unknown nature, present in normal serum, which exerts its greatest effect between *p*H 7 and 7.2. They have also shown that during sleep the *p*H of the blood is decreased. It therefore occurred to us that the increase in fragility which had been observed during the night hours might be related to this lowering of the blood *p*H. Experiments *in vitro* were done, using a 0.433% solution of saline buffered to the *p*H levels of 6.8, 7.5, and 8.2. The results obtained were: (1) At the lowest *p*H the cells were more fragile, as judged, not only by the number of cells surviving but also by the wide difference in size and shape. These cells were all markedly spherical and swollen, and their appearance suggested that they were almost at the point of haemolysis. (2) At *p*H 7.5 intermediate figures and appearances were observed, and (3) at *p*H 8.2 all the surviving cells were singularly healthy and normal in appearance. The actual numbers of surviving cells counted at these levels depended, of course, on the time of day that the experiment was performed. (This work is being continued.) The application of these results to the treatment of blackwater fever is discussed under "Treatment."

Certain Clinical Features of Blackwater Fever, based on Personal Experience

The remarks that follow are based entirely on personal observations, and we are quite aware that more extensive experience might well lead to a modification of some of the views expressed.

Blackwater fever can be considered as an intense haemolytic anaemia of sudden onset, occurring in association with malignant tertian malaria. The mechanism of the haemolytic process is not known, but it is thought by many that the haemolysin results from some metabolic breakdown which is precipitated by the administration of quinine or synthetic quinine substitutes. Lysis of the corpuscles occurs, with liberation of oxyhaemoglobin into the plasma. This is converted into methaemoglobin and other pigments. Fairley and Bromfield (1937, 1939) have shown that the serum contains oxyhaemoglobin, methaemoglobin, and methaemalbumin. This last pigment has a large molecule, is impermeable to the kidney, and is never found in the urine.

The appearance of the urine in blackwater fever is characteristic. It is of a port-wine colour, with a pinkish froth on shaking. A heavy brownish sediment collects on standing. Albumin is present, and microscopy shows absence of cells. Later in the course of the disease, when some renal necrosis may have taken place, a few red and white cells may be present.

Clinically, blackwater fever in our experience presents certain differences from the disease described in the textbooks as occurring almost exclusively in "old coasters" with a long history of numerous attacks of self-treated subtertian malaria. Our cases have all been in unusually good types of soldier, which, from the Army point of view, made their recovery all the more important. In only one case was there reason to suspect carelessness in the taking of suppressive quinine, and this case also had the greatest number of attacks of malaria —five: the other patients were regular quinine-takers and were in good general condition. Alcoholism, venereal disease, dysentery, and lack of a reasonable standard of education were not factors in this group of cases. The "pre-blackwater" state as described in the textbooks was not present. The statement made in some books that the disease is almost confined to light-haired men was also found untrue for our cases. In fact, we think the majority of these cases—certainly the last five—were of the type with black hair, rather pale complexion, and brown eyes.

The onset of all our cases of blackwater fever was characterized by a rigor. This is worth mentioning because definite rigors occur in less than a third of our series of cases of subtertian malaria. The only unusual symptom preceding the rigor was a sense of intense general fatigue for two or three days. After the rigor vomiting was a constant feature, and these three symptoms—fatigue, rigor, and vomiting—should lead to careful examination of the next specimen of urine. It is essential to examine it microscopically before making the final diagnosis. Acute pyelitis, with an unusual degree of haematuria, associated with acute bacillary dysentery, imitated the onset of blackwater fever in one case, and illustrates the importance of microscopical examination. When blackwater fever occurs during quinine treatment of an attack of subtertian malaria it often does so on the third or fourth day. It is safer to give the quinine hydrochloride in six doses of 5 gr. than in three of 10 gr. Quinine must of course be stopped completely if blackwater fever occurs. Slight jaundice associated with albuminuria is also an indication for stopping quinine. In treating malaria the urine should be rendered alkaline as a routine and the patient kept in bed. Cases of blackwater fever should not be moved unless circumstances make this absolutely essential. It is tempting at the onset to send these patients to hospital, as their general condition is often quite good; but within 36 hours they become extremely pale and obviously too ill to move. Very deep jaundice did not occur in any of our cases, but a lemon-coloured tinge appeared on the first day and deepened as the haemolysis continued.

It has been calculated that a man may lose the equivalent of 4 to 6 pints of blood by intravascular haemolysis in 36 hours in this condition. The liver, like the reticulo-endothelial system generally, has an enormous capacity for dealing with liberated haemoglobin by splitting haematin into bilirubin and haemosiderin, the first being excreted in the bile and the second being stored, chiefly in the liver and spleen. The appearance of haemoglobin in the urine is therefore an indication more of the rapidity of the breakdown than of its extent. Nevertheless, at best it means the loss of several pints of blood, and the condition is comparable (but not exactly similar) to that of traumatic haemorrhage. The pallor and sweating and the thin running pulse are very similar to those of wound shock, and the general treatment has much in common with that of shock. The factor which is absent is that of the effects of a wound—with the possibilities of sepsis, absorption of products of tissue breakdown, etc. The factor which is present in blackwater fever and absent in traumatic haemorrhage is that of the rapid accumulation of the breakdown products of intravascular haemolysis and the serious damage which can result to the kidneys from attempts to excrete these products.

The older theory that the chief, and likeliest, cause of kidney damage is the accumulation of crystals of acid haematin in the tubules is now largely discarded. Sections of the kidney show microscopically that the tubules are blocked, but it seems more probable that this material is a plug of methaemoglobin, with the debris of broken-down red blood cells and damaged renal-tubular cells, etc. It is possible that the first step in this process is the early degenerative change in the epithelial lining of the tubules due to the severe anaemia, with resulting nutritional deficiency of these cells. That the cells lining the glomeruli are much less and much later affected may be taken as supporting evidence of this theory, since these cells receive a more plentiful blood supply than do those lining the tubules. However this may be, the fact is that the tubules do tend to become blocked, and one of the most important points in treatment is to prevent this blocking. We therefore should consider the factors causing this renal obstruction, and how they can be avoided or minimized. These factors are: (A) the pigments and cellular debris resulting from continued haemolysis; (B) the tendency of these products to obstruct the renal tubules; (C) the severe degree of anaemia, damaging the kidneys' excretory function; (D) the production of acid haematin crystals in the kidney tubules; (E) the existence of living subtertian malarial parasites in the blood.

Treatment of Blackwater Fever

Factor A

The first problem in treatment, therefore, is how to check the haemolysis. The application of the results of the experimental work on fragility mentioned above is obvious. Alkalis must be given in such amounts as actually to increase the *p*H of the blood plasma. The value of this was most strikingly illustrated by two of our cases. In the first an attack of tetany, with a major convulsion, occurred after administration of 2% sodium bicarbonate in normal saline by slow intravenous drip. This patient passed clear urine immediately afterwards and the haemoglobinuria never recurred; his general condition also improved considerably and the attack of tetany appeared to be the turning-point to recovery. He was a young man whose acid-alkali balance was easily upset. During his attack of tetany the *p*H of the blood would be raised well over normal physiological limits, and the effect was presumably to raise the resistance of his corpuscles and cause the haemolysis to cease. In a second case the urine had become clear and remained so for 36 hours, when a recurrence of haemoglobinuria occurred in two specimens. Alkalis were given in concentrated form (3M sodium lactate 40 c.cm. intravenously and 60 g. each of sodium bicarbonate and sodium citrate by mouth). The next specimen was clear, and the proof of hyperalkalinization was to be seen in the production of Trousseau's sign when a sphygmomanometer was applied to the arm.

For the prevention of haemolysis and the rendering of its products as harmless as possible we have given alkalis by mouth as follows: Sod. bicarb. gr. 20, sod. citras gr. 20, aq. ad 1/2 oz.—two-hourly, or double that dose four-hourly. This is not a particularly high dosage, but there is another and most important means of alkalinization at our disposal—the use of 2M or 3M solutions of sodium lactate intravenously. As a routine 20 c.cm. of this solution has been given three times a day at equally spaced intervals, using a 20-c.cm. syringe and a fine hypodermic needle. In our opinion double this dose might easily be used with advantage. It can be made up in a saturated solution of sodium bicarbonate, but without the latter it has the inestimable advantage of being sterilizable by boiling, and since a saturated solution of sodium bicarbonate is only about 11%, the amount thus given is small, and we have discontinued its inclusion. Intravenous administration of concentrated solutions of sodium lactate is strikingly effective in producing rapid alkalinization and stopping haemolysis. It has, however, the disadvantage of causing thrombosis of veins, and one should therefore avoid the use of veins which may be needed later for blood transfusion.

Factor B

The problem of ridding the kidneys of the products of haemolysis is met by the intake-and-output balance of fluid. In the Tropics sweating is responsible for perhaps half of the excretion of the intake of fluid by mouth and thus tends to concentrate the urine. Sweating therefore is a danger in blackwater fever, and the nurses should be instructed to keep the patient's skin cool: we have always ordered tepid sponging to reduce temperatures surpassing 103° F. At the onset nearly all the cases show an excretion of urine of two-thirds of the intake of fluid by mouth, and this is quite satisfactory. We have become concerned only when the output has fallen below half the intake. It is a point in prognosis that cases showing a poor excretion from the start have a poor chance of recovery; and, conversely, patients in whom the output of urine remains high in quantity still have a good chance of recovering even though the urine remains dark and bloody and the blood count falls below 2,000,000 cells.

The administration of fluid by mouth probably cannot be overdone, but, from the evidence of a fatal case, it can be easily overdone by intravenous drip administration. This case developed oedema of the dependent parts, and on performing the necropsy the tissues throughout the body were found to be saturated and swollen with water. The excretion of water is the function of the healthy kidney, and to pile up the "head" of water behind the kidney in the hope of "flushing out" that organ is unscientific. It is much more reasonable, in our opinion, to try to sustain the efficiency of the kidney by attending to its nutritional needs—i.e., by the judicious use of blood transfusions. This is referred to under the next heading. On this question of excretion a final word may be said on the subject of uraemia. One of our patients certainly died of acute kidney failure. We gave the orthodox treatment, which is really an attempt to make the kidney and bowel take over the excretory functions of the kidney; but it is probable that by so doing we only made bad worse, by concentrating the urine and increasing the already extensive blockage of the renal tubules.

Factor C

The blood picture at the onset is invariably characterized by a considerable degree of anaemia. A typical series of red cell counts is as follows: 3,500,000 at the onset, 2,800,000 after 24 hours, 2,200,000 after 48 hours (the urine is often clear by this time), 1,800,000 after 72 hours. The fall in haemoglobin percentage is parallel with that of the red cells, and a colour index of unity is maintained, using mean standards.

During the stage of haemolysis the leucocyte count was invariably found to rise, a relative and absolute increase in monocytes being responsible: in one case the monocyte count was 47.5% of the total leucocyte count of 18,000. They are presumably liberated to deal with cell debris, such as "ghost" red corpuscles. The bone-marrow picture is that of a normoblastic hyperplasia, the majority of the normoblasts being of a large variety showing early eosinophilic staining reactions. At a later stage in the disease—i.e., during the recovery period—these are replaced by a smaller form of normoblast with an intensely basophilic cytoplasma, probably indicating an acute iron deficiency. As the haemolysis abates there is a marked fall in the number of circulating leucocytes, and in three of our cases a leucopenia (in the region of 4,000) developed.

Treatment of the anaemia is therefore mainly the administration of iron, and the iron salt at our disposal was ferri et ammon. cit., which was given in a dose of 30 gr. t.d.s. This was started very soon after the urine had cleared. In order to make sure that no dietetic deficiency should slow up the response of the bone marrow it was our practice to give liver extract intramuscularly at the same time.

In some cases of blackwater fever there is a tendency for a slow marrow response, and the haemolytic toxin responsible for the disease may possibly exert a toxic effect on the marrow. In one case alarm was felt at the possibility of a marrow aplasia occurring. In all cases the total red cell count does not begin to rise until three clear days after haemolysis has ceased, and it may be as long as six days. It must not be forgotten that the fact that the urine has ceased to contain haemoglobin does not mean that haemolysis has ceased. It may be going steadily on—and when parasites persist and the temperature remains up, haemolysis certainly is going on, just as it does in any severe case of subtertian malaria.

A good deal of attention has recently been paid to blood transfusion in blackwater fever and many papers have been published on it. It is almost universally praised, and some authors advocate frequent transfusions of whole blood from the onset of the disease. Our own experience has caused us to modify this view; we now regard the problem as follows:

Blood transfusion would be of tremendous value if the normal plasma given contained any antihaemolytic substances which would cause the intravascular haemolysis to cease. In fact, in our experience there is no evidence that it does so. This would not matter much if it were not that blackwater fever patients seem to be particularly liable to violent reactions during or after the transfusion—especially in the first two days. This may be connected with the tendency to acidaemia, and is therefore a further reason for early and thorough alkalinization. The problem of compatability is particularly acute in blackwater fever, and cross-matching—both ways—is essential. Moreover, the suspensions of cells should be tested not only at room temperature but also on ice in an ice-box for a full 24 hours. It often happens that out of a dozen donors, all of the same group as the patient, only one or two—and sometimes none at all—are really compatible when subjected to this stringent test. Even when one is found, unpleasant reactions have occurred during transfusion, and the best method is probably to give minute quantities, and to give them slowly—e.g., 20 drops in the first ten minutes, after which the transfusion may be proceeded with more quickly.

For these reasons we have given up using blood transfusions in the first two days. We, however, acknowledge their great importance in preventing a profound anaemia from developing, and when the red cell count is steadily falling and is approaching 2,000,000 a pint of blood should be given. It is useful to remember that whenever a needle is safely fixed in the patient's vein, for either blood or sodium-bicarbonate-and-saline transfusion, the opportunity is present to add slowly 20 or 40 c.cm. of the concentrated sodium lactate solution mentioned above.

Transfused red blood cells undergo intravascular destruction just as do the patient's own cells, and for this reason alone it seems wise to avoid transfusions in the early stage of the disease, when, as previously noted, our efforts should be directed at checking—not increasing—intramuscular haemolysis.

Factors D and E

The question of preventing the formation of acid haematin crystals has already been mentioned, and it suffices to say that the high degree of alkalinization advocated will certainly prevent this happening.

Finally, there is one aspect of blackwater fever which tends to be forgotten. In the constant watch which must be kept over the intake and output, the reaction and appearance of the urine, the blood picture, and so on, we are apt to forget that the patient is suffering from a severe attack of subtertian malaria. It is an attack, moreover, which cannot be treated by quinine or quinine substitutes. High temperatures on the first, third, and fifth days are therefore not a matter for surprise, and an attack of typical malaria is common enough about 10 days after the blackwater has ceased. In one case parasites persisted in the blood from the onset of the disease; the urine cleared up, but the temperature persisted; and finally, 14 days after the onset, the patient died of cerebral malaria. Looking back on this case, it is now felt that we should have given quinine courageously instead of in the minute doses we used. Our present plan is to give a half-tablet of mepacrine 48 hours after haemoglobinuria has ceased. If no ill effect ensues we give a half-tablet twice a day for a week, and thereafter two tablets every Sunday and Wednesday in the approved "suppressive" manner.

Discussion

This paper claims that the fragility of red blood cells varies considerably throughout the 24-hour period. Further, it advances the theory that the *p*H of the blood plasma is the factor responsible for these alterations in fragility and claims that this is demonstrable *in vitro*, using solutions of saline varying in *p*H from 6.8 to 8.2. An immediate criticism is that the *p*H of the blood plasma never varies to anything like this degree; and a second criticism might be that *p*H estimations of the blood were not done at the same time as the fragilities were estimated. This latter procedure was not possible—to the necessary degree of accuracy—owing to the conditions under which the work was performed. The former objection is perhaps fairly met by the assumption that in cases which developed clinical tetany the plasma *p*H actually would approach 8.

Case reports have not been included in detail, and a short account of the series should therefore be given. The original 10 cases were seen by one of us (F. S.) and treated on the lines given by the textbooks. It is well known that blackwater fever varies in severity from place to place and in different years. Three consecutive deaths occurred early in the series, and it was realized that we were confronted by a particularly bad type of the disease. In the cases numbered 7 to 10, therefore, an attempt was made to improve this high mortality by using early and repeated blood transfusions—a method which has been advocated with enthusiasm in recent years. In only one case did we feel satisfied that this procedure saved the patient's life. In the other cases blood transfusion was clearly not without its dangers, even though the greatest care was exercised in matching.

Cases 11 to 16 occurred in a different colony, where laboratory conditions were considerably better. The second of these cases coincided with the observation of the variation of fragility of red cells. It is referred to earlier on in this paper as the case in which tetany occurred followed by cessation of haemolysis. The suggestion that alkalaemia was responsible for this was obvious, and led to the experimental work *in vitro* which confirmed this. Cases 13, 14, and 16 were treated successfully by the method described, enough alkali being given to produce Trousseau's sign. Cases 10 and 15 both had suppression of urine from the onset and died of uraemia.

The final case illustrates the points which it is desired to bring out, and the following notes are therefore included:

Case Notes

B. H., British, aged 24; 14 months' service in Tropics. Blood group O. Admitted 9 p.m. Sept. 28, 1942.

Previous History.—In U.K., no serious illness. In the Tropics: General lassitude for three months; headaches for four weeks; no temperature, sweating, shivering attacks, or other symptoms to suggest malarial infection. He has been sleeping within a few hundred yards of a native village. He observes antimalarial precautions and takes a daily dose of quinine hydrochloride 5 gr. Occupation, indoor and sedentary. For three months has been on duty three nights each week, but does not remember being bitten by mosquitoes. Smokes 20 to 30 cigarettes and has one or two bottles of beer a day. Walks about two miles daily.

History and Progress.—An attack of shivering, followed by sweating, occurred on the evening before admission. On Sept. 28 he complained of headache and pains in the joints and muscles of legs and arms. Felt hot and sweated freely, and in the late afternoon vomited seven times in two hours. Bowels opened normally. Temperature 103.8°, pulse 124, respirations 18. Spleen enlarged 1 in. below left costal margin. The skin over the chest and back affected by prickly heat. No signs of anaemia, jaundice, or oedema. Herpes labialis not present. Conjunctivae suffused. Urine dark in colour but contained no albumin; reaction acid. Examination of all systems showed no sign of disease other than the splenic enlargement and the existence of an attack of subtertian malaria. On admission given potass. citras and sod. bicarb. āā 30 gr., and nursed in blankets.

Sept. 29.—Blood film positive for parasites. Quinine hydrochloride 10 gr. b.d. Alkalis as above t.d.s.

Sept. 30.—Felt well. Temperature 100° at 7 p.m. Treatment continued, with quinine increased to 30 gr.

Oct. 1.—Felt well. Bowels open twice. Urine alkaline to litmus. Temperature normal until 7 p.m., when it was 99.6°.

Oct. 2.—At 3 a.m. vomited. Got up and passed "dark-coloured" urine, which was not saved. Returned to bed without reporting this. Awakened at 5 a.m. feeling shivery. Urine again passed, and later reported as containing "haemoglobin, albumin, much debris, occasional epithelial cells, and very occasional erythrocytes." It was alkaline in reaction. Conjunctivae and skin showed slight jaundice. Liver and spleen tender on palpation. At 6 a.m. temperature 100.2°, pulse 86. Treatment by abundant fluids and alkalis started immediately. Quinine stopped. 8 a.m.: night urine was 7 oz. plus one lost specimen. Fluid taken by mouth, 31 oz. 8.15 a.m.: 3M sodium lactate 40 c.cm. intravenously. 11 a.m.: Hb 60%; R.B.C. 4,000,000; W.B.C. 6,000—polymorphs 62%, lymphocytes 28%, monocytes 10%. 12.45 p.m.: Complained of aching pain in lower abdomen, accentuated after passing urine. 1.50 p.m.: B.P. 120/80; 3M sodium lactate 20 c.cm. intravenously. 7.20 p.m.: 3M sodium lactate 40 c.cm. intravenously; carpal spasm present on application of pressure to arm. 8 p.m.: Intake of fluid since 8 a.m., 155 oz. by mouth plus 12 oz. alkaline mixture (360 gr. pot. citras, 360 gr. sod. bicarb.) plus 100 c.cm. sodium lactate solution intravenously; urinary output, 80 oz.; the urine remained "black" throughout the day. 8.45 p.m.: A slight rigor; complaint of cramps, and jaw felt stiff; Trousseau's sign easily elicited; specimen of urine definitely lighter in colour.

Oct. 3.—2.55 a.m.: Urine practically normal in appearance. 4.55 a.m.: A "black" specimen of urine. 8 a.m.: Urine again normal in appearance. Since 8 p.m. on Oct. 2 intake of fluid has been 128 oz.; output of urine, 58 oz.

Later details show a rapid improvement in urinary output and there was no further haemoglobinuria. Blood examinations on Oct. 3 showed Hb 50%, R.B.C. 2,500,000; and on Oct. 4 Hb 45%, R.B.C. 2,500,000—illustrating the rapidity with which a severe degree of anaemia may be reached. There was gradual improvement on the succeeding days.

Summary

Certain aspects of the pathology and treatment of blackwater fever are discussed. An account is given of experimental work which shows that the fragility of red blood corpuscles is increased at low *p*H levels and decreased at high levels. A new rationale for the treatment of intravascular haemolysis is therefore suggested, and the methods of giving alkalis are described. The value of intensive alkali therapy is illustrated by reference to cases. A discussion on the clinical and haematological features of blackwater fever is given, with an account of the treatment.

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DELAY IN DIAGNOSIS AND SANATORIUM TREATMENT OF PHTHISIS

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It is generally accepted that delay occurs before the diagnosis of pulmonary tuberculosis is established. Most authors are agreed that part of this delay is due to the development of tuberculosis in the absence of symptoms. For this reason mass radiography has been advocated for the detection of the early asymptomatic case (N.A.P.T., 1942, and others). Following this period of early or latent disease there is a phase in which the signs or symptoms may or may not suggest phthisis. Indeed, there is such a wide variety of non-specific symptoms that the condition may often be erroneously diagnosed as anaemia, debility, bronchitis, influenza, atypical pneumonia, etc. It is with this latter phase—the phase of partially defined signs and symptoms—that this paper is concerned.

The Investigation

A total of 300 patients, consisting of 165 males and 135 females, were investigated. A careful history was noted, with especial emphasis on haemoptysis, pleurisy with and without effusion, a recent history of contact (two years) associated with debility, and a loss of weight of over 4 lb. associated with debility. These symptoms and signs were taken as criteria because, while not pathognomonic, they can be regarded as strongly suggestive of phthisis. In each case the total period of delay from the time those "suggestive" signs or symptoms occurred until the date of admission for sanatorium treatment was analysed under three headings. (1) Time-lag elapsing between suggestive signs or symptoms occurring and the patient's seeking medical advice from his practitioner; (2) time-lag elapsing between the patient's seeking medical advice and being referred by his doctor for consultant or dispensary opinion (or notified by the practitioner himself); (3) time-lag elapsing between the patient's first dispensary consultation and his admission to sanatorium for treatment.

In this way some attempt was made to ascertain statistically where the principal delays in final diagnosis took place after it could *reasonably* have been established. The average total delay between suggestive symptoms occurring and admission to sanatorium was found to be 9.27 months. Of this, 3.64 months was the average delay before the patient with suggestive symptoms consulted his practitioner. A further average of 3.28 months occurred before the patient was referred for dispensary or consultant opinion; and a final delay averaging 2.35 months took place before treatment was initiated in sanatorium.

Those time-lags were then classified according to age and sex groups, with the following results.

TABLE I

Age Group (years)	Males		Females	
	No.	Average Time-lag before Patients consulted Practitioner (months)	No.	Average Time-lag before Patients consulted Practitioner (months)
5–9	1	0	0	0
10–14	0	0	1	0·75
15–19	14	1·58	18	2·097
20–24	25	2·5	33	3·0
25–29	31	2·92	28	3·95
30–34	26	3·26	21	3·88
35–39	19	4·17	17	5·12
40–44	17	3·63	8	6·55
45–49	9	3·56	5	7·33
50–54	11	3·27	1	7·0
Over 55	12	8·0	3	4·66
Totals	165	3·42	135	3·90

There was an average delay of 3.9 months in females and 3.42 months in males before consulting their own practitioner. In almost every age group this delay was more prolonged in females. Furthermore, there was a progressive increase in the period of delay shown by every female age group up to 50–54 years of age. A similar delay in seeking medical advice was noted in males up to 39 years of age.

Results

Haemoptysis.—In the course of investigating 300 histories, haemoptysis was found to be present on 101 occasions—i.e., 33.6%. Fishberg (1919) in this regard says: "Happy, then, is that patient who suffers an early haemoptysis, for this usually ensures early examination. It is doubtless on account of its startling character that an initial haemorrhage has earned a reputation as a good prognostic sign." A somewhat more cautious attitude is taken by Ellman (1940), who states that haemoptysis is "a fortunate accident from the patient's point of view in that a dramatic manifestation enforces him to undergo early treatment . . . or at some period of the tuberculous course." Lloyd (1940) goes even further, and suggests that haemoptysis "occurs as the earliest symptom in only a small percentage of cases, but each case calls for the fullest investigation." The average time-lag in the 101 cases showing haemoptysis was 3.64 months before such patients consulted their own practitioner. A further delay of 2.64 months occurred before the patient was referred by his own doctor for consultant opinion or before a final diagnosis was made. Thus, on the whole, haemoptysis does not appear to suggest to the patient an earlier visit to his doctor, and the patient's practitioner sends a case only 0.6 month earlier than the "ordinary" case (i.e., a case revealing any of the four significant signs or symptoms taken as suggestive of phthisis) for dispensary investigation.

Pleurisy.—A history of idiopathic pleurisy was noted in 129 cases (43%). This compares with Fishberg's figures of 30–40%, Pierce's 35% and 52% in two series of investigations, and Meachen's (1941) 13.8%. In 92 out of the 129 patients there was definite evidence of effusion, which was confirmed by radiological findings or aspiration. The remaining 37 had a history of "dry pleurisy," which diagnosis had been made by the practitioner in charge. In this condition the average time-lag before the patient attended the doctor for investigation was 3.07 months, and before being referred to the dispensary for consultant opinion a further 3.3 months elapsed. Thus in pleurisy both patient and doctor appear to have called for earlier examination than in the case of all the other symptoms or signs here considered as suggestive of pulmonary tuberculosis.

Sputum.—An analysis was made of the 300 cases with special reference to the frequency with which sputum examination was carried out by the patient's own doctor. The results are noted in Table II.

TABLE II (*300 Cases*)

No sputum present for examination	50
Sputum sent by practitioner for examination	54
Sputum not forwarded by patient for examination	1
Sputum present but not examined by practitioner	195

Thus, in only 22% of cases was sputum sent for examination by the patient's own doctor.

Family or Contact History associated with Debility.—In 99 cases there was a history of contact associated with general debility. Of this total, "exposure" outside the intimate family circle—viz., father, mother, brother, sister—occurred in 14 cases. In the remaining 85 contact took place in the same household. Beal (1940) noted 30% of his cases as showing a contact or family history, and Lloyd and Macpherson (1936) in a series of 1,000 young adults found that 39.6% had a history of contact.

Loss of at least 4 lb. in Weight associated with Debility.—Of the 300 cases 206 gave a history of a loss of at least 4 lb. in weight associated with debility.

Discussion

The object of the present survey was to determine the duration of the delay before patients suffering from symptoms "suggestive" of phthisis received sanatorium therapy. The reasons for the patient's delay before seeking medical advice are not difficult to appreciate. Antagonism to the medical profession born of ignorance and fear pervades almost all sections of society. There appear to be immense possibilities for education and intelligent propaganda among the public on the lines indicated by the N.A.P.T., with especial emphasis on the education of females in the middle-age group of the population. How far the possibilities of propaganda have been neglected is seen in the tardiness with which patients with haemoptysis or pleurisy consult their own practitioners.

So far as the general practitioner is concerned there is room for more rapid diagnosis. According to Varrier-Jones (1933) the reason is because "in the first place the vast majority of students qualify and enter practice without seeing possibly a single early case of infiltration. They are thus unable to detect tuberculosis at its onset." This view is held also by Gregory Kayne *et al.* (1939). There seems to be a strong case for better education in tuberculosis in both the undergraduate and the postgraduate stages of medicine. A student residency in a sanatorium is advocated by Nelson (1939), but it would appear preferable that such a period of time should be spent examining the early cases of phthisis which are to be seen at the dispensary.

In patients with a history of haemoptysis there should be no further delay by the practitioner before the case is notified or is referred for specialist examination. In a number of instances "streaks" of blood in the sputum were not regarded as "suggestive" of phthisis.

Again, after an attack of pleurisy, there should not be a further delay before the case is satisfactorily diagnosed. This delay is needless, because, as Burrell (1937), Wynn (1940), Maxwell (1941), and others have suggested, in all cases in which acute pleurisy appears to be "primary" it is well to assume that the cause is tuberculosis unless definite proof of some other cause is forthcoming. There is much to be said for the opinion which urges that "primary" or idiopathic pleurisy should be made a non-specific notifiable disease which could be referred to a chest or tuberculosis dispensary for observation and final diagnosis. This would avoid the danger of branding some non-tuberculous pleurisies as phthisis and would close the avenues whereby such cases escape consultant opinion. At the same time the general practitioner would have the satisfaction of having been instrumental in finding a potential case of pulmonary tuberculosis.

Sputum.—As already observed, sputum was sent for examination by the patients' doctor in only 22% of the 250 cases in which it was present. This suggests that practitioners fail to make use of the existing free public health facilities for the examination of sputa—a failure that may in some measure be responsible for the delay in diagnosis.

Sanatorium.—The time-lag which elapsed between a patient's being notified or referred to the tuberculosis dispensary and his admission to sanatorium is to some extent a reflection on wartime conditions. In part these deficiencies appear to be due to the inadequacy of both nursing and domestic personnel in fulfilling the needs of the sanatoria (Heaf and Rusby, 1942; Snell, 1942). The corollary is that serviceable wards in satisfactory condition are out of use because of staff difficulties while patients clamour for admission. Another factor is the lack of sanatorium beds in certain areas of the country owing to "blocks" being reserved exclusively for the boarding of troops. Moreover, the existing problems have been accentuated by the wartime rise in the incidence of phthisis.

History of Contact associated with Debility.—Of the investigated cases 99 (33%) were noted to have a history of phthisis associated with debility. Thus the field of contact examination appears to provide an early and very fruitful means of finding cases.

General.—It should here be stressed that such measures as are suggested for the limitation of delay in the diagnosis of pulmonary tuberculosis and the initiation of sanatorium therapy are on no account an alternative to mass radiography. They merely re-emphasize certain well-established principles in case-finding, with a plea for their application to the public and all branches of the medical services.

Summary

Three hundred cases of phthisis were investigated with special reference to the time-lag occurring before treatment at sanatorium was started and after symptoms "suggestive" of phthisis had been established. The delays were classified according to age and sex. Particular note was taken of the delay in diagnosis following pleurisy and haemoptysis. The number of sputa sent for examination by practitioners was the subject of analysis. The following reforms are advocated.

1. A more generous plan of public education on tuberculosis on the lines pursued by the National Association for the Prevention of Tuberculosis.
2. A revision of existing undergraduate and postgraduate medical teaching, with greater emphasis on the "early" case.
3. The notification of pleurisy (primary or idiopathic) as a non-specific disease, with facilities for the reference of such cases to the tuberculosis or chest dispensaries for a more adequate and final diagnosis.
4. The more extensive employment of existing public health facilities for sputum examination.

I wish to record my thanks to Doctors H. Raeburn, V Ryan, R. Watson, and especially Dr. G. S. Johnston of the Tuberculosis Department of the West Riding C C., for permission to publish this investigation and for their assistance.

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LYMPHADENOMA AND LEUKAEMIA

BY

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There are many evident clinical similarities between lymphadenoma and the leukaemias, and the suggestion has been made that a close relationship exists between these diseases. This suggestion is supported by the observation that occasionally both may occur in the same patient. The case now described appears to have been such an example.

Case History

A girl aged 18, unmarried, was first seen in April, 1940, complaining of general weakness, enlarged glands on both sides of the neck, in the right axilla and the left groin, with attacks of suffocation and dyspnoea at night suggesting mediastinal involvement. The spleen was not palpable. A blood count showed: Hb, 82%; R.B.C.s, 4,450,000; C.I., 0.92; W.B.C.s, 9,375—polymorphs 58%, lymphocytes 38%, monocytes 1%, eosinophils 3%. The family history disclosed that the patient's two sisters had died in infancy from unknown causes, and the mother suffered from anaemia of undetermined type

Radiographs of the patient's chest revealed a mass surrounding the aorta in the upper mediastinum. A supraclavicular gland was removed. This showed the histological features of lymphadenoma. There was reticulum-cell hyperplasia with the formation of numerous Sternberg-Reed giant cells. Eosinophil leucocytes were scattered throughout the gland, and occasional plasma cells were seen. Some areas of the gland were replaced by dense collagen, and in the more cellular areas there was a fine reticular fibrosis.

Treatment by deep *x* rays (Dr. C. Bellamy) resulted in rapid disappearance of the superficial glands, considerable diminution of the intrathoracic mass, and complete relief of all symptoms. Other blood counts revealed no significant alteration. Further irradiation was given at intervals during the next two years, during which period the general health remained excellent.

In March, 1942, a sudden and dramatic change was evident. Extreme anaemia developed. Blood counts were as follows:

April 18, 1942—Hb, 34%; R.B.C.s, 1,650,000; C.I., 1.03; W.B.C.s, 49,800—polymorphs 2.5%, lymphocytes 94.5%, monocytes 0.5%, lymphoblasts 1%, metamyelocytes 0.5%, neutrophil myelocytes 1%. Anisocytosis and slight polychromasia were present. No nucleated red cells were seen. In this and all subsequent counts platelets were very scanty.

May 24, 1942.—Hb, 40%; R.B.C.s, 1,950,000; C.I., 1.03; W.B.C.s, 29,800—polymorphs 0.5%, lymphocytes 98%, lymphoblasts 1.5%. Anisocytosis ++. No nucleated red cells were seen. The only granular cells seen were 1 myelocyte and 1 polymorph.

May 26, 1942.—Hb, 22%; R.B.C.s, 1,270,000; C.I., 0.8; W.B.C.s, 180,000—polymorphs 2%, lymphocytes 75%, myelocytes 1%, premyelocytes 1%, lymphoblasts 20%.

No enlarged superficial glands were found, the spleen was not palpable, no external haemorrhages occurred, and the mediastinal shadow was not increased. There was an irregular pyrexia, which, however, showed no tendency to periodicity of the Pel-Ebstein type. Blood transfusions were given on three occasions with slight improvement. Thereafter deterioration was rapid, with the onset of uterine haemorrhage, which persisted for two weeks despite ergot, progestin, vitamin K (kapilon), and ascorbic acid.

The rapidly developing anaemia associated with scanty platelets and the increasing leucocyte count now seemed to us to establish a diagnosis of acute leukaemia. The high proportion of lymphocytes appearing in the later blood counts suggested that the leukaemia was lymphoid in type. The primitive cells observed were identified as lymphoblasts after supravital staining with janus green and neutral red. The mitochondria thus demonstrated in these cells were large and heavy and of the lymphoblastic type; these cells showed no peroxidase granules. In Romanovsky-stained films the nuclear membrane was well defined and the nucleoli distinct. Of the cells classified as lymphocytes a number showed immature characteristics in that the chromatin pattern was much finer than that of mature lymphocytes and a suggestion of nucleoli was sometimes present. Occasionally Rieder forms of lymphocytes were seen. Smear-cells were not so numerous as is usual in lymphoid leukaemia.

The above observations were regarded as confirming the diagnosis of acute lymphoid leukaemia.

Death occurred on May 29, but unfortunately no necropsy was allowed. Blood films were examined by Prof. L. J. Witts, who confirmed the diagnosis of lymphoid leukaemia. Dr. A. H. T. Robb-Smith examined a section from the lymph gland and confirmed the diagnosis of lymphadenoma.

Previously Recorded Cases

Watson (1938) has fully discussed the association of lymphadenoma with leukaemia. One of the earliest cases in which the diseases were thought to coexist was described by Fabian (1908), who observed myeloid leukaemia and chloroma, with histological changes suggesting lymphadenoma. Dietrich (1912) described his case as showing lymphadenoma and "mixed-cell" leukaemia. More recently Warthin (1931) described six cases of lymphadenoma which ultimately developed the blood picture of lymphoid leukaemia, and two further cases terminating in myeloid leukaemia. McCartney (1928) thought his case showed lymphoid leukaemia, lymphosarcoma, lymphadenoma, and endothelioma, but Ewing (1928) doubted the diagnosis of leukaemia. Hittmair (1928) maintained that transitional forms between lymphadenoma and leukaemia occurred; he described a case of lymphadenoma with "leukaemic reticulo-endothelial reaction."

A case in which the occurrence of lymphadenoma and acute myeloid leukaemia appears to have been quite clearly established was recorded by Skworzoff (1930). The leukaemia responded well to irradiation before the existence of lymphadenoma was discovered. Dubberstein (1931) recorded the simultaneous occurrence of lymphadenoma and subleukaemic lymphoid leukaemia, and a similar case was described by Craver (1936). In two cases cited by Watson (1938) lymphadenoma was observed with a subleukaemic blood picture of lymphoid type, and histological evidence of leukaemic infiltration was found.

Unless the blood is frankly leukaemic the coexistence of the two diseases must sometimes be doubtful in the absence of a necropsy, for it is recognized that a high leucocytosis may occasionally be found in lymphadenoma (Hirschfeld, 1925). A further point requiring notice is that lymphadenomatous lesions in the marrow, which were observed in 50% of lymphadenoma cases examined by Symmers (1924), may cause immature white cells to appear in the blood. In our case there was no necropsy, but we do not think that the blood changes could be regarded as a leuco-erythroblastic reaction.

In some of the published cases both conditions have been present when the patient was first seen, and in others leukaemia has appeared in a patient already suffering from lymphadenoma. It is more difficult to be certain that lymphadenoma has ever developed in a patient suffering from leukaemia. Dietrich (1912) thought this sequence occurred when lymphadenoma was found at necropsy on his patient, who had developed leukaemia 19 months previously. No biopsy was, however, done on this case, and it is possible that lymphadenoma may have existed before the development of leukaemia and escaped detection.

Irradiation Therapy

Forkner (1938) thought there was some evidence that irradiation might be one factor, perhaps in especially susceptible individuals, in the production of leukaemia. The question therefore arises whether the treatment of lymphadenoma by irradiation has any influence in inducing leukaemia in these cases. This possibility cannot be completely excluded, but it may be observed that although irradiation is almost universally used in the treatment of lymphadenoma, leukaemia occurs very infrequently in these cases. It is noteworthy that in six cases of lymphadenoma described by Warthin (1931) leukaemia developed in the absence of radiotherapy, and that Craver (1936) was unable to find any evidence that the development of leukaemia in cases of lymphosarcoma was attributable to irradiation therapy.

Lymphadenoma, Leukaemia, and the Reticuloses

Observations on the pathological processes that may affect the reticulum cell have resulted in the introduction of the term "reticulosis" to include "all conditions in which there is generalized enlargement of the spleen, lymph nodes, and liver, due to hyperplasia of differentiated or undifferentiated mesenchymal cells" (Hadfield and Garrod, 1938). It is clear that the leukaemias and lymphadenoma are both included within this definition, and the close generic relationship between these diseases has been repeatedly and strenuously argued by Warthin (1927, 1928, 1931), and was supported by Pullinger (1932).

In the classification of the reticuloses suggested by Robb-Smith (1938) the leukaemias and lymphadenoma are designated "haemic reticuloses" and "fibro-myeloid reticulosis" respectively. The name "fibro-myeloid reticulosis" had previously been suggested by Pullinger (1932), who pointed out that lymphadenoma began as a proliferation of reticulum cells, which were the root-cells of the haemopoietic tissues. She thought that differentiation of some of the reticulum cells to haemic cells occurred, as shown by the finding of myeloid cells in lymphadenomatous lesions. The leukaemias, on the other hand, were characterized by proliferation of cells which were the more-differentiated progeny of reticulum cells, and which were already determined to leucopoiesis before the proliferative process started. Pullinger's views are supported by the occasional association of lymphadenoma and leukaemia.

It appears reasonable to adopt the suggestion that lymphadenoma and leukaemia are members of a larger group of closely related diseases—the reticuloses. This serves to emphasize the close relationship between the cell-types which characterize the two diseases, though it does not imply that the stimuli which initiate lymphadenoma and leukaemia are necessarily identical.

Summary

A case of lymphadenoma confirmed by biopsy is described. There was a good response to *x*-ray therapy, and no abnormality was found in the blood.

After two years of good health, maintained by careful irradiation, the clinical picture and blood findings of acute lymphoid leukaemia developed.

Other examples are quoted in which established cases of lymphadenoma have terminated with leukaemia or in which lymphadenoma and leukaemia have been present simultaneously.

The generic relationship between the two diseases is emphasized, in conformity with the view that both should be regarded as members of the group of reticuloses.

The evidence available does not suggest that the treatment of lymphadenoma by irradiation is responsible for a leukaemic termination in this disease.

We wish to express our thanks to Prof. L. J. Witts and Dr. A. H. T. Robb-Smith, who were kind enough to examine material from this case.

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Medical Memoranda

Successful Treatment of Influenzal Meningitis with Sulphonamides

Pfeiffer bacillus meningitis is usually regarded as a fatal disease. The following report summarizes the case notes of a patient who recovered comparatively rapidly from influenzal meningitis with sulphonamide therapy.

CASE REPORT

A boy aged 5¼ years fell ill suddenly on May 30, 1942, with headache and vomiting. Next day his doctor, suspecting meningococcal meningitis, requested immediate admission to hospital. There was no history of any febrile attack among his family or immediate contacts prior to his illness.

On admission the patient's temperature was 101°, pulse 160, and respiration rate 22. He was conscious and intelligent, and complained only of headache. Physical examination revealed no abnormal findings apart from slight neck rigidity and a positive Kernig's sign. Lumbar puncture yielded a turbid cerebrospinal fluid, pale yellow in colour and under slightly increased pressure. The laboratory report was: protein, 165 mg./100 c.cm.; chlorides, 670 mg./100 c.cm.; sugar, absent. Cells, 387: neutrophils 64%, lymphocytes 30%, arachnoidal cells 6%. R.B.C.s, occasional. Culture showed *Haemophilus influenzae*.

Sulphapyridine 1.5 g. was given by mouth immediately, and was repeated after four hours; thereafter 0.5 g. was given 4-hourly. Because of the troublesome vomiting before admission nicotinic acid 50 mg. was given with each dose of sulphapyridine. The patient's general condition improved, vomiting ceased, and, apart from slight cyanosis, no new sign or symptom appeared. Lumbar puncture was repeated on June 5, when pressure was normal, and the laboratory report was: protein, 50 mg./100 c.cm; chlorides, 670 mg./100 c.cm.; sugar, diminished. Cells, 267: neutrophils 72%, lymphocytes 24%, arachnoidal cells 4%. Culture gave a slight growth of *H. influenzae*. On the same day the W.B.C. count was 10,000 per c.mm., 58% being neutrophils.

Unlike the typical course of meningococcal meningitis, the temperature took six days to settle to normal, but on June 9 it was judged safe to discontinue sulphapyridine when a total of 30 g. had been given. All signs of meningitis had gone, and the child's general condition was excellent. However, on June 11 it appeared that a recrudescence of infection had occurred. The temperature rose to 102°, and the pulse to 124; the child was irritable and photophobic, and had slight neck rigidity again. Lumbar puncture showed the C.S.F. to be under slightly increased pressure and just opalescent to the naked eye. Culture did not confirm our clinical diagnosis of a renewed meningeal infection. The laboratory report was: protein, 60 mg./100 c.cm.; chlorides, 670 mg./100 c.cm.; sugar, considerably diminished; culture, sterile. Cells 76: neutrophils 14%, lymphocytes 62%.

As soon as the recurrence of pyrexia was reported sulphathiazole was prescribed in large doses: 2 g. being given immediately and 1.5 g. 4-hourly thereafter, with nicotinic acid 50 mg. and mist. alk. 1/2 oz. The dose of sulphathiazole was reduced to 1 g. on the second day and 0.5 g. on the fourth day, and was discontinued on the seventh day at a total of 32 g. By this time the child was afebrile, bright, and normal in every way. Subsequent convalescence was rapid and without further setbacks. The patient was discharged home in excellent health on July 3.

There have been several reports published within the last twelve months of the sulphonamide treatment of Pfeiffer bacillus infections, with variable success. It would appear that a primary meningitis responds favourably to chemotherapy. Two important factors in the successful outcome of this particular case were undoubtedly the early institution of treatment and adequate dosage with the drug employed.

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Reviews

BIOCHEMISTRY AND MORPHOGENESIS

Biochemistry and Morphogenesis. By Joseph Needham, F.R.S (Pp. 787; illustrated. 52s 6d.) Cambridge: The University Press. 1942.

Dr. Needham seems to have read all that has ever been written about embryonic development, normal and abnormal growth, tumours and grafts, regeneration of tissues, etc., and the influence on all of these of the internal and external chemical environment. Moreover, he is blessed with an amazing memory and a laudable desire to give to every worker his meed of credit. The result is a volume which is a mine of well-documented (in fact, too well documented) information in which it is sometimes difficult to see the wood for the trees. Nevertheless, the determined reader who tackles the 677 pages with the aid of the table of contents, the glossary, and the series of well-planned indexes will find a mass of information on any aspect of the subject of cell growth and differentiation which happens to interest him.

One of the best sections of the book, and one which will appeal to medical readers, is that which summarizes the work on the chemical nature of the "organizer." When the fertilized egg of the amphibian reaches the stage at which the uppermost layer of the cells of the blastula start to invaginate to form the gastrula, certain elongated cells appear on the dorsal lip of the blastopore. At the location of these cells there now develop the neural folds, which give rise to the neural tube, the forerunner of the spinal cord, and below them the notochord, the forerunner of the backbone. The axis of symmetry of the embryo is thus laid down and the position of the other organs as they develop is fixed in relation to this axis. By means of highly skilful microsurgery it has been shown that in normal development the stimulus to the morphological differentiation of the neural tube and notochord comes from these special cells at the tip of the blastopore. By excising these cells and grafting them into another blastula, invagination and the laying down of the embryonic axis can be made to take place at any position on the surface, and by inserting two or sometimes three grafts into the same gastrula the same number of embryonic axes can be made to develop. The discovery was later made that the organizer cells can induce growth even if killed by boiling, though the development induced is chaotic, and that extracts of dead cells from adult organisms can induce the same effect. Moreover, extracts from the tissues of one species can induce differentiation in the embryo of another. The growth stimulant (the evocator) is therefore a chemical substance; it appears to be a sterol and closely related in chemical structure and properties to the male and female hormones and to the carcinogens. It is present not only in the embryo but throughout all the tissues of the adult body, though normally maintained by some means in an inactive form.

The idea that normal differentiation (as distinct from mere cell proliferation) is also based on the presence of certain definite chemical substances and that these are located in definite regions in the egg cell is borne out by Swedish work on the developing egg of the sea-urchin. In this work it is shown that definite localities in the egg pass to definite cells in the early cleavage stages and that, up to the 16-cell stage, the cells of one or more embryos can be separated and re-combined in a number of permutations and combinations. Provided that the different zones of the original egg are present in a certain ratio in the reconstituted embryo a normal development will follow in spite of the drastic microsurgical history of the embryo. If, however, an abnormal quantity of any one zone is present (or if the zone is missing) abnormal development follows. Dr. Needham develops the thesis that normal growth and differentiation depend on the action of a stimulus (a definite chemical substance) acting on a tissue which is in the correct condition to receive it. The stimulus acting on a tissue not in the correct condition will lead to disordered growth, resulting in the formation of pathological abnormalities, among which teratomata are listed. In considering growth and development, the important influence of the genes—which certainly has a chemical basis—is not overlooked, certain pathological conditions, such as the absence of the brain in the fully developed foetus, being due to the presence of a particular gene.

Dr. Needham's book has been beautifully produced, the printing and the production of the plates being of the high standard associated with the Cambridge University Press. Perhaps it is ungracious to suggest that it is far too long. The subject is fascinating, and a book written in a more rigorously selective fashion would have commanded a large number of readers who would have read it for the story it has to tell. As it is, it seems likely to be used by a much smaller group of workers as a book of reference. But perhaps that is what Dr. Needham meant it to be.

LEGAL MEDICINE IN SOUTH AFRICA

Medical Jurisprudence: A South African Handbook. By W. F. Rhodes, M.B., Ch.B., D.P.H., I. Gordon, M.B., Ch.B., and Major R. Turner, S.A.M.C. With a foreword by the Hon. Mr. Justice H. S. van Zijl (Pp. 218; illustrated. No price given.) Capetown: Stewart Printing Company, Ltd.

Although a great deal of medico-legal practice is common to all countries, yet every country needs its own textbooks to deal with local peculiarities of law, physical conditions, weapons, poisons, and so forth. This book is the work of three members of the pathological staff of the Union Health Department in Capetown, teachers of medical jurisprudence in the University. Dr. Rhodes is senior pathologist and professor of medical jurisprudence. As Mr. Justice H. S. van Zijl says in his foreword, this is a book for medical practitioners and students who wish for practical guidance in their problems. It is not intended to be exhaustive, but none the less covers a very wide field. The study of skeletal remains, the early signs of death and appearances after death, are dealt with concisely but thoroughly. An interesting table from Drennan (1937) compares the characteristics of the European, Bantu, and Bush types. The mechanism of death is described, deaths of medico-legal importance are classified, and separate chapters are given to death by suffocation and drowning, and acute poisoning by carbon monoxide, hydrocyanic acid and its compounds. Sudden and rapid deaths due to natural causes are dealt with together—a better arrangement than splitting throughout the book the differential diagnosis from unnatural death. The chapter on anaesthetic deaths contains useful advice to anaesthetists and surgeons about their legal duties. British anaesthetists will be interested to note that the troublesome question which deaths associated with operations should be reported to the coroner is governed by statute in South Africa; but the decision whether the anaesthetic has contributed to the death seems left to the practitioners concerned. Poisons are not dealt with at any great length, and indeed a long section on them is practically useless to a general practitioner.

An outstanding feature of the book is the close attention which the authors have paid to all the aspects of the law governing their subjects. It is dealt with adequately in the appropriate places, and a late chapter contains extracts from statutes to which the reader is likely to have to refer. Some useful forms are added. The photographs are grouped at the end and include some revolting but valuable studies of persons who have died from various sorts of violence, and some interesting comparison pictures of bullets and cartridge-cases.

AVIATION MEDICINE

Aviation Medicine. By Ernst Jokl, M.D. (Pp 213. 10s 6d) Unie-Volkspers Beperk, Capetown. 1942.

This book contains a sketchy, anecdotal collection of published material dealing with high altitude, acceleration and of course deceleration, blind flying, and parachute jumping. Dr. Jokl's apology for the book is that "to my knowledge no textbook exists which presents the subject of aviation medicine in the light of the entire available evidence." This observation is fortunately true, since the knowledge of the physiology and pathology of flight is advancing so rapidly that a textbook is inevitably out of date, but Dr. Jokl's book does not in any way remedy the situation. There has been no attempt to select material critically, nor has the author used any restraint in wandering from the point to introduce sections under such headings as "Russia Can Fight" and "German Defeats." The text is copiously illustrated. There is no index and, although the book is intended to review modern work, no bibliography. Much of the reproduced material has historical interest, and the volume makes entertaining reading. It does not compete with existing textbooks of the same title, and it cannot be recommended as a serious guide for practitioners of aviation medicine who have access, through Service departments, to a wealth of knowledge which has accumulated in the past four years, but which will not be available for publication until after the war. This in itself would restrain the more conservative and well informed from attempting such a review at present.

Notes on Books

The revised fourth edition of the pamphlet *Physical Exercises for Asthma*, approved by the honorary Medical Advisory Committee of the Asthma Research Council, has been published by H. K. Lewis and Co. at the price of 1s. A feature of this useful publication is the wealth of excellent photographs showing how the exercises should be done.

The 84th issue of the *British Journal Photographic Almanac* has just been published by Henry Greenwood and Co., 24, Wellington Street, Strand, W.C.2. It is edited by Mr. Arthur J. Dalladay, and contains 392 pages, including a 32-page pictorial supplement of photogravure reproductions of works by well-known photographers It can be obtained from the publishers at 3s. 6d. (paper covers) and 5s. (cloth bound).

Preparations and Appliances

A SUBSTITUTE FOR THE FLOWMETER IN OXYGEN THERAPY

Lieut. MARTIN WRIGHT, R.A.M.C., and Prof. RONALD V. CHRISTIE, St. Bartholomew's Hospital, write:

A special Y-tube has been designed to enable two patients to be supplied with oxygen from one cylinder with certainty that each is receiving practically the same amount. If the rate of flow of oxygen to one of the patients is measured by means of a flowmeter, it can be assumed that the amount received by the other is nearly the same. This halves not only the number of flowmeters required, but also the number of pressure-regulating valves, which are even more expensive and difficult to obtain and quite impossible to improvise. This consideration is only likely to be of importance if poison gas is used in this country, when the demand for oxygen therapy may be great and the equipment required may exceed that at present available.

The Y-tube is an ordinary metal one of standard pattern, and in each upper arm is inserted a brass disk about 1/10 in. thick, and having a central circular orifice exactly 1/32 in. in diameter. These pinhole orifices provide a high resistance to the flow of oxygen, so that any resistance due to the method of administration or the length of connecting tubing is negligible compared with it. Using this Y-tube, two patients can be supplied with oxygen from one cylinder—one through a B.L.B. mask, which has negligible resistance, and the other through nasal tubes or a spectacle-frame mask, both of which have high and unpredictable resistances; and the flow to the two patients will not differ by more than 0.75 litre a minute at a flow of approximately 5 litres a minute to each patient. The pressure in the tube leading from the cylinder to the Y-tube will be about half of one atmosphere, but this is well within the capacity of any ordinary rubber tubing. The resistance produces a rather unpleasant hissing noise, but this is not likely to be a matter of importance in the circumstances under which the device is likely to be used. Another disadvantage is that, as two patients are being supplied from one cylinder, it may be necessary to check the rate of flow twice as often as with one patient, and if a pin-valve is used the rate of flow to each patient cannot exceed 5 litres a minute without producing irregularities in the flow due to freezing up of the valve. If a proper pressure regulator is used, however, these difficulties will not occur.

Instructions for Use.—(*a*) The lower limb of the Y-tube should be connected to the oxygen cylinder and the upper two limbs to the patients. (*b*) If a flowmeter is inserted between the Y-tube and one of the patients it can be assumed that the other patient is receiving practically the same amount of oxygen. (*c*) The rate of flow to each patient should not exceed 5 litres a minute unless a pressure-regulating valve is employed. (*d*) A pressure-regulating valve should be used, if available, for this reason, and also because otherwise the rate of flow will have to be checked frequently. (*e*) As the pressure within the tubing between the Y-tube and the cylinder is considerable the tubing may blow off; it should therefore be a good fit and be well pushed on to the stem of the Y-tube. (*f*) It is preferable that the same type of equipment for oxygen administration should be used with each patient, but it is not essential. (*g*) This Y-tube resistance should be employed only if a sufficient number of flowmeters are not available.

This Y-tube resistance is manufactured by the British Oxygen Company.

THE OUTBREAK OF SMALL-POX IN GLASGOW

SOME COMMENTS, A CRITICISM, AND A COMPARISON

BY

C. KILLICK MILLARD, M.D., D.Sc.

Ex-M.O.H. for Leicester

The outbreak of small-pox in Glasgow last summer, a report on which has been published in the *Journal* (1942, **2,** 627), was an exceptionally interesting one and calls for some comment. First, I would draw attention to the following points:

1. The outbreak probably would never have occurred but for the unfortunate mistake in diagnosing the first case—the electrical engineer on board the ship from Bombay—as one of measles. It is often difficult to distinguish the eruption of confluent small-pox (as this case was) from measles at the outset, while it is still in the papular stage, but after 48 hours, when the eruption becomes vesicular, there is usually no real difficulty. In this instance the diagnosis of small-pox was not made until after the arrival of the vessel at Glasgow on May 29, five days from the first appearance of the eruption.

2. The great majority of the ship's crew of over 200 had been recently vaccinated (in 1940). Not one of these contracted the disease. But of 37 members of the crew who had never been vaccinated, seven contracted the disease and one of them died. This is fairly conclusive evidence of the value of recent vaccination, and of the desirability of all those sailing to or from the East—the home of small-pox—being protected by it.

3. On the other hand, of two passengers who contracted the disease, one was a Polish officer aged 23, who had been vaccinated in infancy and again at the ages of 7 and 14—evidence that even three vaccinations, if not recent, are insufficient to protect from attack.

4. One of the "ship" group of cases was a boarding medical officer, aged 34, vaccinated in infancy but not since. It seems surprising that a medical man, specially appointed to board ships, and presumably for the purpose of looking out for cases of small-pox, should neglect to take the elementary precaution of adequately protecting himself by recent vaccination.

5. Not one secondary case of small-pox (apart from the "city" group) resulted from the 10 cases in the "ship" group which were infected from the original case—striking testimony to the efficacy of modern routine measures.

The "City" Group of Cases

There were 25 cases in this group, of which 21 were primary. Of the latter, all except the last three occurred in a close bunch in the space of 16 days. Allowing for variations in the incubation period, it is possible, the report suggests, that they were all infected in the short space of 10 days—June 9 to 19. This is a point of some importance, as I shall show later. It clearly points to a common infecting cause of strictly limited duration. When that cause, whatever it was, ceased to be operative the outbreak collapsed.

A remarkable feature of the "city" group was that in not one of the 21 primary cases was any clue discovered as to the source of infection. Their occurrence within a month of the arrival of the ship points, of course, to there having been some connexion with the ship cases; but, whatever its nature, it was not discovered. The authors of the report suggest that it was either (1) a "missed" case which left no trace behind, or (2) aerial convection from the small-pox hospital. They are inclined to favour the former because of the distance from the hospital. The four secondary cases in the "city" group were all direct contacts, and the fact that there were only four and that these gave rise to no further cases again indicates the remarkable success of modern preventive measures.

It is interesting to note that of the 25 cases in the "city" group, eight had never been vaccinated, 13 had been once vaccinated, three had been twice vaccinated, and one (a woman aged 49) had been vaccinated three times (1, 17, and 27 years). As is almost always the case, those patients who had never been vaccinated suffered more severe attacks than those who had.

The Mass Vaccination Campaign

We now come to a debatable and very important practical question, the mass vaccination campaign: Was it really necessary, and what effect did it have in controlling the outbreak? It is no light matter to inflict vaccination and all that it entails upon 500,000 persons—men, women, and children. The report states fairly the grounds which led the authorities to decide on June 28 (four weeks after the arrival of the ship) in favour of the step. The determining factor was, of course, the occurrence of the "city" cases. On the date in question there had been nine such cases in the last four days, scattered over different parts of the city, and with no clue as to the source of infection. A war was on, and it was thought that this might make routine measures less effective. Also, a widespread epidemic would seriously affect war production. The history of past outbreaks had to be taken into consideration too. It is easy to be wise after the event, and nobody could then foresee that the outbreak was going to collapse so suddenly. On the basis of accepted theories and teaching about small-pox and vaccination, very many people will undoubtedly acclaim the decision as a wise and proper one—including, of course, all those who think "the more vaccination the better." All the same, there had been only 15 cases altogether in the "city" group up to the date in question.

This much can certainly be said: a vaccination campaign on such a great scale, involving the rapid opening of 25 emergency vaccination stations in various parts of the city, the provision of the necessary staff, medical and lay, the arrangements with general practitioners for private vaccinations, the obtaining from the Government of the very large amount of calf lymph required, together with all the publicity and propaganda necessary to secure the co-operation of the public and to induce them to come forward and submit to vaccination, was a great administrative effort, calling for much energy and ability in its successful execution. It must have entailed a vast amount of hard work upon the staff of the Glasgow Health Department, under the leadership of their distinguished M.O.H., Sir Alexander Macgregor.

It is only natural, human nature being what it is, that, having made this great effort, much if not most of the credit for the sudden termination of the outbreak should be attributed by many people to what was undoubtedly the most outstanding and spectacular—as well as the most expensive—of the measures taken to control the outbreak. Thus the authors of the report, after explaining the considerations which led to the decision to initiate the campaign, and after referring to previous outbreaks which had lingered on for many months, say: "The present experience is in strong contrast; and it may be said that the people themselves, by taking timely advantage of the advice given and the facilities provided, stopped the outbreak at its start." And Sir Leonard Rogers, in an address entitled "The Efficacy of Vaccination against Small-pox" (*Medical Officer*, Dec. 5, 1942), reprints of which are being issued free by the Research Defence Society for distribution to members of local health authorities, says: "The remarkable accomplishment of the Glasgow health authorities in vaccinating 500,000, nearly half the total population, saved the situation for the time."

I hope that it will not seem grudging or ungracious on the part of one who has himself spent the greater part of his professional life in administrative public health work if I express a doubt as to whether all this mass vaccination had anything whatever to do with the sudden termination of the outbreak. Was it really a case of "cause and effect"? Was it *post hoc* or *propter hoc*? Would not the "routine" measures (as the report calls them)—i.e., the prompt isolation of every case as it occurred, the surveillance and vaccination of contacts, together with other incidental precautions—have been just as efficacious without all the great effort of the vaccination campaign?

The issue is of much practical importance because the example of a great city like Glasgow is likely to be followed by other local authorities faced with outbreaks of small-pox; and especially so if it is believed that it was the mass vaccination campaign which really saved the situation. Moreover, since any outbreak of small-pox, once it gets a firm foothold, is a danger to the entire country, the issue raises the whole question of our national policy in regard to vaccination. Therefore the issue must be faced, and no personal considerations must stand in the way of free discussion.

The first point, then, which I wish to make is that although such a large number of persons were vaccinated in the Glasgow vaccination drive it only amounted to about half the total population; so that there were still some half-million persons who did not get vaccinated, and only a very small minority of these would be protected by recent vaccination already performed. Therefore there was an ample supply of susceptible material left for the infection to spread amongst, had it not been under control, and had the circumstances been otherwise favourable. But the chief argument against the campaign having had anything to do with the cutting short of the outbreak is to be found in a comparison of dates. If we refer to Table II in the report, which gives the date of eruption in each case, and if we allow 14 days for the incubation period, we shall find—excluding the last three cases of the outbreak (i.e., the case at the mental hospital, the contact case arising from it, and the patient who sickened in London)—that there was no case infected later than June 26 in the whole outbreak. But the decision to start the vaccination campaign was only taken on June 28, two days later. It is true that seven cases (three of these being contacts, and therefore under surveillance, and one the London case) developed the disease after June 28, but they were all infected before that date. It seems quite evident that the infecting cause, whatever it was, which led to the infection of the bunch of primary "city" cases during the 10 critical days, June 9 to 19, had ceased to be operative before the decision to start the campaign was taken. In other words, *the outbreak was virtually over before the vaccination campaign was started.* This is not intended as a criticism of the decision to launch the campaign, because, as we have already said, it was not possible on the date in question to foresee what was going to happen; but it *is* a criticism of the claim that it was the vaccination campaign which brought the outbreak so quickly to an end. I submit with confidence that the indications all point the other way. I suggest that if only the authorities had waited another week or two they would never have embarked on the campaign at all.

Experience of Other Towns

In order to view the Glasgow experience in proper perspective it is desirable to compare it with that of other towns where outbreaks of small-pox have occurred but where recourse was not had to mass vaccination; and I will take the case of Leicester, of which I can speak from personal experience.

In the year 1902, when there was a good deal of major small-pox in the country, the disease was introduced into Leicester on eight occasions. The first seven importations were successfully controlled, and only nine secondary cases resulted, making 16 cases in all. The type of disease was severe, and five of them proved fatal. Then at the end of the year a tramp, vaccinated in infancy, walked to Leicester and was admitted to the workhouse. He began to sicken the following day with a mild modified attack, which unfortunately was diagnosed as chicken-pox. No precautions were taken, and for six days he was not isolated, living in fairly close contact with 60 other inmates. Under these circumstances it is not surprising that 20 further cases occurred in the institution before the outbreak was suppressed. It is quite possible that the infection leaked out into the town, for a small number of cases kept cropping up throughout the first quarter of 1903. And then came the remarkable outbreak which I wish to set against the recent one in Glasgow.

The Leicester Outbreak, April, 1903*

On April 15, without warning, as there had been practically no cases for a fortnight, 4 cases were reported in various parts of the town. These were followed by 2, 2, 5, and 5 on succeeding days, and then no fewer than 14 cases occurred in a single day. For the first four weeks the figures were 53, 21, 34, and 48. What made the outbreak especially disconcerting was that in scarcely any of the cases could the least clue be obtained as to the source of infection, and no common factor in any way connecting the cases could be discovered. Thus in the first 11 days, before secondary cases began to occur, there were 65 cases, 62 of which were untraced, and these were scattered over two-thirds of the town, in 61 houses in 58 streets. Of the patients 37 worked in 32 different factories or workplaces; and 14 school children were attending 11 different schools. Bearing in mind that for 16 years Leicester had openly revolted against vaccination, that all prosecutions for default had entirely ceased and the compulsory vaccination law was virtually a "dead letter," and that the amount of vaccination performed had been almost negligible,† it must be admitted that apparently the circumstances attending this outbreak were exceedingly favourable for a devastating epidemic. Undoubtedly many people thought that Leicester's hour had now come; and some even considered that it might not be altogether a bad thing if the town were taught a salutary lesson. But it was not to be. After the first four weeks the outbreak began rapidly to decline, the number of fresh cases each week falling from 48 to 22, 14, 10, 4, 2, 1, and a fortnight later none was reported. Even a well-vaccinated town could hardly have done much better. The total money cost of the outbreak was estimated at under £3,000.

The Cause of the Leicester Outburst

The only two possible explanations, as at Glasgow, seemed to be: (1) "missed" cases, of which absolutely no trace was discoverable; and (2) aerial convection from the small-pox hospital. When the outburst began 20 convalescent cases were under treatment and the prevailing winds were favourable; but there was no special incidence on the side of the town nearest to the hospital. Also, the distance of the hospital—a mile from the outskirts—seemed against the convection hypothesis; but on the whole it seems the most probable explanation. But whatever the cause, it ceased to operate—as was the case at Glasgow—and then ordinary routine measures were effective in preventing further spread. Fortunately the death roll was very much smaller than might have been expected, and the unvaccinated child population escaped much more lightly than was feared would be the case. There was only slight evidence of "picking out" the unvaccinated.

The Measures Adopted: No Vaccination Campaign

The measures taken to deal with the outbreak were the routine ones now universally adopted. As M.O.H. I personally visited every case, confirmed the diagnosis, arranged for immediate removal to hospital, and used my best persuasive powers to induce other inmates of the household to get vaccinated at once. Usually I vaccinated them myself on the spot. No appeal was made to the general public to get vaccinated, and there was an entire absence of alarmist posters urging vaccination. The local press co-operated by not "writing up" the outbreak and by avoiding sensational headlines; consequently, business went on as usual and there was little interference with the trade of the town. Where it was thought desirable that contacts should not return to work, compensation was paid to them for loss of wages. One thing I think may safely be said: if Leicester had gone in for a vaccination campaign it would certainly have been hailed by many as a triumph for vaccination and would have been given the credit of having saved the town from a great disaster.

Just one thing remains to be added. While I think that the Glasgow vaccination campaign was unnecessary, I can imagine circumstances in which such a campaign would be called for—and that is, if a serious epidemic of major small-pox were really to get out of hand. Such an occasion happened at the town of Dewsbury in 1893 and again in 1894, and in the notorious Gloucester epidemic of 1895. At both these places there was a complete breakdown of the ordinary routine measures for dealing with small-pox; the local authorities were quite overpowered, and they were left to their fate by the old Local Government Board, so far as giving them any practical assistance was concerned. But this was half a century ago, and the likelihood of such a breakdown occurring to-day, with our so greatly improved health organization, both local and central, is comparatively small.

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* The abbreviated account which is here given is taken from my book, *The Vaccination Question in the Light of Modern Experience*, H. K. Lewis Ltd.

† The number of unvaccinated children in the town at this time would be about 70,000.

HEALTH EDUCATION AND VENEREAL DISEASES

At a Conference held last week by the Central Council for Health Education to discuss the educational campaign against venereal diseases, Dr. CHARLES HILL, chairman of the Central Council, said there was general agreement that the problem could not be effectively tackled until the curtain of secrecy which surrounded it was lifted. It was not enough to disseminate facts about venereal diseases, but a method and policy of dealing with the problem must be formulated, and a frank discussion on that subject was the purpose of the Conference.

The MINISTER OF HEALTH (Mr. Ernest Brown), after welcoming the delegates, said that Defence Regulation 33B, which was deliberately limited in scope, left unchanged the general voluntary basis of treatment. It was intended, he said, to stop a gap in the voluntary system which had existed for some time but had assumed much greater seriousness during the war. The regulation was a necessary wartime measure in the interests of public health, but it was only one item in the Government's programme for checking the increase in venereal diseases, and did not in any way reduce the need for a widespread intensification of education.

The Primate's Opposition to 33B

The ARCHBISHOP OF CANTERBURY, who is president of the Central Council, began by making clear his personal position. Early last autumn when he accepted the invitation to become president he was aware that one of the most immediate concerns of the Council would be educational propaganda on this subject in which he hoped he could take some useful part. When Regulation 33B appeared he was greatly disquieted, and submitted to the Minister his resignation of the presidency, saying that he could not hold the office and keep silent, while at the same time it seemed unfair to him to use the position as a vantage ground for criticizing the regulation. But the Minister asked him to retain his office while being free to criticize.

Venereal disease, said Dr. Temple, was communicated almost—not quite—entirely in illicit sexual intercourse. If men and women would abstain from fornication the problem confronting the Minister of Health would be negligible. The minute residuum would be a purely medical problem. But the evil in its present bulk was a moral problem. The object first to be aimed at was the practice of continence. All that could be done by the promotion of a healthy family life, by the influence of school, and by the attitude of authorities should be done. It was a fundamental principle that Governments affected the conduct of citizens far more by the principles implicit in their acts than by the requirements of legislation or the severity of penalties. But in dealing with venereal diseases the Government had systematically ignored this principle. Thus, in the Army instruction was given to recruits in the use of prophylactics, the implication being that the authorities expected a considerable number to practise fornication. He believed that this method by its inevitable suggestion caused an increase of promiscuous intercourse and therefore of the disease which it was designed to prevent. The moral problem was treated as if it were primarily a medical problem. His fundamental objection to 33B was on the same ground. Its existence tended to create the suggestion that infectious contacts were being dealt with, and that the concern of the Government was to make fornication medically safe. But to make venereal diseases compulsorily notifiable would be far worse than the regulation. It would lead to concealment of symptoms and would reduce the numbers seeking early treatment. His Grace mentioned seven points which he thought should be stressed in any instruction in the subject, the first being the sacredness of sex and the second the duty and possibility of chastity.

In the general discussion several speakers, medical and lay, challenged the Archbishop's point of view. Bailie VIOLET ROBERTON, a member of Glasgow Corporation, who spoke on the problems of a large port, said that she had been charged to say to the Minister that in her city they welcomed unreservedly his new measures; they congratulated him on the courage with which he had tackled this problem, and while they knew there were difficulties in administration, they felt that a definite step forward had been taken.

A Recantation

The first medical speaker, Dr. OTTO MAY, supported the Archbishop. He agreed that the medical part of the problem was subsidiary. If there was no promiscuity there would be no venereal disease. One of the "ten points" in the advertisement campaign declared that abstinence from sex irregularity was never harmful. It was a difficult topic, but personally he thought there was a great deal of exaggeration in the talk about a primitive urge. Mankind had learned to discipline a good many of its primitive urges in the course of evolution. One important point was the disharmony between the age of sexual maturity and that of economic maturity; the Beveridge plan would make early marriage more easy. But however much the importance of total abstinence from extramarital intercourse was taught it was useless so long as every possible incentive to the opposite was left to tempt young people, especially street prostitution. It might be that in some cases abstinence was a cause of neuroses and repressions, but it was necessary to educate for the majority, not for the medical exceptions. These cases might be tackled in the consulting room, but should not be talked about on the platform. Dr. May added that twenty years ago he wrote a book on prevention of venereal diseases in which he advocated the teaching of personal prophylaxis as an essential part of the campaign, but he was older now and had come to the conclusion that the advocacy of prophylaxis implied a sanction for misconduct which would be much more powerful than its deterrent effect.

Dr. MAITLAND RADFORD (M.O.H., St. Pancras) said that the difference between the secular and the religious approach did not constitute a barrier; the two different points of view supplemented each other. With great respect, he thought that a false antithesis had been put before the Conference. His Grace had said that it should be part of the educational campaign to teach the sacredness of sex, but it was untrue to represent it as a fact that sex was universally regarded as being sacred. The secular approach to sex allowed a wider latitude in sex behaviour than did the religious approach, and it did not seek to impose a uniform pattern. He was sure, however, that those who upheld the different viewpoints could work together. The differences between them were there and should be stated, but there was a common working platform. Whatever the formula accepted, irresponsible sexual behaviour was to be deplored.

Various Methods of Educational Approach

It would give a wrong impression to suggest that the Conference was wholly occupied with this controversy. Many excellent contributions were made on different educational aspects. Miss MANCHEE, chief almoner at St. Mary's Hospital, spoke of the need for the social worker at the V.D. clinic. Doctor, nurse, and social worker, she said, made the ideal triple partnership. If a clinic was too small to engage the whole of an almoner's services they should be shared with some other department of the hospital. Lord WINSTER spoke on work among seamen. The ports, he said, represented perhaps the main problem. The majority of cases occurred among foreign seamen. He regarded it as one of the good things which had come out of this war that the harmful and unhealthy atmosphere of fear, mystery, and hypocrisy which had prevailed too long in regard to these diseases was being dispelled. Dr. O. HAMILTON WILKIE, director of V.D. services, Leicester, described the scheme in operation in his city and county, in particular an extensive education campaign during which he had given 180 lectures. Dr. T. O. GARLAND complained that many pamphlets on health education, while they mentioned venereal diseases, did not mention the symptoms by which they could be recognized, and in none he had read was any information given on prophylaxis. There was some queer intellectual kink which made it appear right to teach people how to be treated, but wrong to teach people how immediately to disinfect themselves.

At the end of each of the two sessions many joined in a general discussion, but no resolutions were put, the Conference being for the exchange of opinions and experience.

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PARLIAMENT AND THE BEVERIDGE REPORT

Now that both Houses of Parliament have discussed the Beveridge report and the Government has explained its attitude to it, we may examine the situation in relation to the recommendation of the Council of the B.M.A. to the Representative Body. It will be recalled that the Council recommended that the Association should be willing to co-operate in the preparation of a scheme for comprehensive health and rehabilitation services available to all members of the community, provided three conditions were fulfilled. The first condition was that the Government should accept the assumptions of the report and should put into operation the proposals of the report taken as a whole. The focus of criticism of the Government's statement is on the fact that it has not decided immediately to act upon Sir William Beveridge's proposal that there should be a Ministry of Social Security. The failure to do this, or at least to appoint a Minister of Social Security, has been criticized by members of all political parties and has led to the general impression that the Government is planning to avoid action on the report as a whole. This is relevant to the attitude the profession will adopt to the proposals for a health service. In his exposition of the attitude of the Government, Sir John Anderson stated that it agreed that the administration of the insurance side of the entire social security scheme should be consolidated into one organization. It was a question whether such a unified organization should be a new Ministry or some kind of statutory board. Whatever it was, it would be set up as soon as legislation introducing the new scheme had been passed in Parliament. In the meantime it might be desirable, Sir John continued, to create the nucleus of the new organization now, to work with the Departments concerned in bringing the project as a whole into legislative form. This nucleus staff would be responsible to the Minister without Portfolio (described by Viscount Samuel in the Lords debate as "the Minister with Pigeon Holes," and by Archbishop Lord Lang as "becoming a sort of Mother Hubbard"). The general lines of development of the social insurances in the Beveridge report were those which the Government would wish to follow, and in considering its future financial commitments the Government's attitude was: "Let us not be deterred by doubt as to finance from putting our plans into shape." It cannot be denied, however, that Sir Kingsley Wood's speech implied that there were doubts in the Government's mind as to its financial ability to put plans into action. The Government, according to Sir John, had looked at the scheme as a single, coherent plan of social insurance, and the various parts of it quite clearly hinged together. The Government, too, accepted Sir William's three assumptions. On the evidence before them the Representative Body will have to determine whether the Government has decided "to accept the assumptions of the report and to put into operation the proposals of the report, taken as a whole."

Before referring to the other two provisos laid down by the Council, we may review briefly what appears to be the Government's attitude to Sir William's Assumption B. In the House of Lords the Lord Chancellor made the following statement: "The Government had every intention of carrying out the comprehensive health service." This, Sir John Anderson observed, implied the reorganization of the existing services—National Health Insurance, the general and specialist health services of local authorities, major hospital and institutional services, and so on. By "comprehensive" he meant first a service covering the people as a whole and, secondly, the inclusion of institutional treatment. The object was to secure, through a public, organized, and regulated service, that every man, woman, and child who wanted it could obtain the whole range of medical advice and attention. The fullest use was to be made of existing resources, and the idea of the new service must be one of co-operation of public authorities, voluntary hospitals and other voluntary agencies, and the profession towards one common end. There must be no doctrinaire scrapping of good existing resources, nor must there be overlapping. The responsibility for seeing that in any area the service was full and efficient must be on one ultimately responsible to public authorities. Experience justified putting this ultimate responsibility on to local government machinery. Perhaps it was most important of all, he said, to maintain to the greatest possible extent the principles of free choice of doctor and of the family-doctor relationship as the background of general medical practice. There should be the least possible disturbance of existing relationships between doctor and patient. In the view of the Government this need not be inconsistent with the principles of group public practice at well-equipped clinical centres. The third proviso of the Council—namely, that those who wanted to could make private arrangements for medical treatment—is satisfied by the unequivocal statement that the Government has no intention whatever of forcing the new services on those who wish to make private arrangements. The Lord Chancellor said: "As we conceive the scheme it is not a scheme that will automatically bring to an end a medical man's private practice, and, as we conceive it, it is not a scheme in which the voluntary hospitals will have nothing to do." In the same way both Sir John Anderson and Mr. Herbert Morrison made it clear that there was no intention on the part of the Government to "destroy the institution of voluntary hospitals."

The most important of the Council's conditions for co-operation was "that the character, terms, and conditions of the medical service are determined by negotiation and agreement with the medical profession." The details of the new scheme, Sir John Anderson said, would be worked out by the health departments with the help of other main organizations, local authority, voluntary, or professional, on whose active participation the success of any new organization must depend. The Ministry of Health has already been conducting discussions with the British Hospitals Association, and it has just asked the B.M.A. to lead a deputation representing the various branches of medical interest, for preliminary discussions, on March 9. There would, therefore, seem to be little ground for the suspicion on the part of some of our correspondents that a Machiavellian plot is being hatched by a Government which intends to keep the medical profession ignorant of its intentions until the last moment. So long as there are representation of the different interests involved, full freedom of discussion, and give-and-take in negotiation, we hope that those doctors who must perforce remain onlookers will give their wholehearted support to the various medical men and bodies who are determined to see that professional interests are maintained and promoted so long as they do not hinder the provision to the public of all those facilities that make for the promotion of health, the prevention of disease, and the care of illness. It should be understood that neither the B.M.A. deputation nor any other professional group has any power to commit the medical profession to any form of service. The results of all discussions will be referred back for decision to appointing bodies—for example, in the case of the B.M.A. this includes consideration by the Divisions and decision by the Representative Body. In the House of Lords Lord Dawson voiced the feelings of most medical men when he said that it was not to be expected that the medical profession would be moved about and take its orders from the laity. Under the authority of Parliament the profession would wish for self-determination, and this it will seek.

SPLENOPATHIC LEUCOPENIA

In a recent publication Wiseman and Doan[1] describe a syndrome which they call primary splenic neutropenia, and record five cases of their own and two others from the literature which they believe to be the only published cases of this disorder. The features common to all seven cases were severe leucopenia, splenomegaly, and an over-active bone marrow. In each case there was complete relief of symptoms after splenectomy, and the number of circulating granulocytes immediately returned to normal. This happened in spite of the fact that there had been no response to liver therapy, pentnucleotide, and blood transfusions. The authors compare the disease with congenital haemolytic anaemia and essential thrombocytopenic purpura, and believe that all three conditions are caused by an abnormality of the reticulo-endothelial cells in the spleen, which is responsible in this syndrome for an excessive destruction of the granular leucocytes. They find support for this theory in the appearance of the splenic pulp after operation, scrapings of which, stained supravitally, showed a large number of phagocytic clasmatocytes containing neutrophils and occasional red blood cells and normoblasts. They also state that the marrow showed a specific myeloid hyperplasia, but it is not easy to be convinced of this from the cell counts given with the case reports. The marrow was described as being unusually cellular, but there was a wide range in the ratio of myeloid to erythroblast cells in the different cases. The findings certainly offer a contrast to the maturation arrest of the leucocytes in toxic agranulocytosis, but they do not differ materially from the changes observed in many haemolytic disorders.

The authors recognize that in their patients the granulopenia was always accompanied by some degree of thrombocytopenia and haemolysis, and a detailed examination of the case reports shows that in each of the five there were a fall in the number of platelets and evidence of considerable red cell destruction with a corresponding increase in erythropoiesis, normocytic anaemia, reticulocytosis; and raised icteric index. It is difficult to see why it was necessary to include a case of thrombocytopenic purpura in a new disease group. True there was a moderate leucopenia (3,400 to 5,100 per c.mm.), but this is known to occur in some cases of essential thrombocytopenia, and in every other respect, including age and sex, the symptoms were typical of this disease. Even the bone marrow showed a myeloid : erythroblast ratio of only 1 : 5. The authors say that in their experience the spleen in uncomplicated thrombocytopenic purpura is never enlarged, either clinically or at operation, but this is not the experience of most haematologists.

Although Wiseman and Doan are at some pains to stress the recent recognition of this syndrome, it is only fair to point out that the conception has been familiar to European haematologists ever since Frank's[2] classical article on aleukia in 1925, and such cases have been successfully treated by splenectomy. Their infrequent occurrence sufficiently explains the absence of published accounts. Frank called the condition "splenopathic leucopenia," for he believed that the spleen was responsible for an excessive destruction of the circulating leucocytes and that the changes in the bone marrow were secondary. He suggested that in all probability this was merely an exaggeration of one of the normal functions of the spleen. He recognized the value of splenectomy, and observed the close relation of the syndrome to essential thrombocytopenia and other diseases in which splenomegaly is accompanied by leucopenia. In particular he cited the leucopenia found in kala-azar, chronic malaria, typhoid fever, in the spleno-mesenteric type of Hodgkin's disease, and in Banti's disease. While clearly aware of the difference in the primary noxious agents, he believed that the resultant granulopenia was due to a specific effect of the splenomegaly, which was similar, if not identical, in the separate diseases, and which could occur in cases where there was no recognizable aetiological cause. He stated that it was possible that splenopathic leucopenia was really a terminal state of a series of transitional phases. The other circulating blood cells were also affected, and in certain instances the abnormal destruction of the platelets might exceed the leucopenia. This conception of the splenic origin of leucopenia is very similar to the one reached by Wiseman and Doan, but it brings out the point that common conditions should be excluded before diagnosing such a rarity as primary splenic neutropenia. Splenomegaly and leucopenia are often the initial symptoms of leukaemia and the progressive hyperplasias of the reticulo-endothelial tissues, and it is advisable to make careful investigation and to observe the natural history of the illness before deciding that the symptoms will be relieved by splenectomy.

INFECTIOUS POLYNEURITIS

During and immediately after the last war 18 cases of polyneuritis, recurring endemically, were described under various titles by British, French, and American authors.[3 4 5] In this country it was known as acute infectious polyneuritis and was chiefly sporadic, although often several cases occurred at the same time in a comparatively small district. In France, Guillain and Barré[6] found that in all cases the cerebrospinal fluid showed high protein in association with a low cell count, and the name Guillain-Barré syndrome has therefore been generally adopted in that country. Most of the recent literature has come from the United States, and in a review of the subject Roseman and Aring[7] have added 16 fresh cases, in 3 of which post-mortem studies were made.

The clinical symptoms are characteristic enough. The disease, which is most often seen in the higher age groups, appears to follow a mild influenza-like infection, usually at an interval of one to three weeks. The most striking initial symptom is pain in the back and legs, often with numbness and tingling. Paralysis of a lower motor neurone type, with a varying amount of anaesthesia of the glove-and-stocking type, sets in more gradually or follows the subjective symptoms at an interval of some days. Contrary to the general opinion, the facial nerves are involved in the majority of cases, and all the other cranial nerves may also be involved. Paralysis of accommodation and of the palatal muscles may make it difficult to distinguish the condition from diphtheritic paralysis, but the cranial nerves are usually affected after the lower limbs. The rectal and vesical sphincters are generally spared. Pyrexia is infrequent, but the pulse rate is often increased. It is the experience of American as well as of English physicians that artificial respiration rarely saves life; death occurs from respiratory paralysis in from 14 to 40% of cases. The increase in protein in the cerebrospinal fluid, though considered by Guillain and Barré as a point of major diagnostic value, has not been constant, especially in the initial stages of the disease. It is, however, of value later, and has been found to persist for many months, and even up to 5 years in some cases. No treatment for the disease is known, and bacteriological and experimental studies have shed no light on its causation.

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[1] *Ann. Intern Med.*, 1942, **16**, 1097.

[2] *Die Krankheiten des Blutes und der Blutbildenden Organe*, edited by A. Schittenhelm, Berlin, 1925, **2**, 432.

[3] Holmes, G., *British Medical Journal*, 1917, **2**, 37.

[4] Casamajor, L., *Arch. Neurol. Psychiat.*, Chicago, 1919, **2**, 605.

[5] Kennedy, F., ibid., p. 621

[6] *Bull. Mém. Soc. des Hôp. Paris*, 1916, **40**, 1462.

[7] *Medicine*, 1941, **20**, 463.

The pathology of the disease, as described by Roseman and Aring, is not limited to the nervous system, although that has been most studied. The changes are most evident in the peripheral nervous system, both somatic and sympathetic, and include oedema of nerve roots and trunks, with foci of phagocytic cells and rarer lymphocytes, hyperplastic changes in the sheath of Schwann, irregular swellings and corkscrew formations on the axis cylinders, and degeneration of myelin sheaths. The dorsal and sympathetic ganglia show some degeneration with phagocytosis of some nerve cells, oedema of the ganglia, and increase in interstitial cells. Chromatolysis of cells in the anterior horns and the cranial nerve nuclei and minor changes in the nerve cells of the cerebrum and cerebellum are also seen. In the hearts of two fatal cases there was diffuse interstitial infiltration with polymorphonuclear and mononuclear cells; in one case necrosis of scattered muscle fibres had occurred, and in the other there was also local inflammatory infiltration of the wall of a coronary vessel and focal phlebitis of a pulmonary vein. In all three cases on which post-mortem examinations were carried out there were focal necrosis of liver cells with cellular infiltration as well as portal infiltration, and degeneration of the suprarenal cortex with accumulation of mononuclear cells. The authors point out that a pantropic virus would not be expected to produce these changes. In a more recent fatal case in a child of 4 years Aring and Sabin[8] found similar changes in the spinal cord and nerve roots. Animal experiments with the material from this case were also negative.

Though these studies do not point to any definite aetiology they show acute infectious polyneuritis to be a general disease and not merely one of the peripheral nerves.

STANDARDIZATION IN COMMUNAL FEEDING

While the Minister of Labour is dealing with wages and conditions of employment in the catering trade he might well have gone further, perhaps in association with his colleague Lord Woolton, and have set up some central body to prescribe standards of food values and of hygiene and cleanliness in the preparation and service of food to be observed by all catering concerns, whether in public or private hands. The matter is becoming more important because of the large numbers of people who now have their principal meals away from home, either on account of the necessities of their employment or education or to relieve domestic difficulties. Rationing and limitation of choice, lessened palatability of foods, and narrower margins of nutritional values render all the more important some central supervision of the quality and the preparation of food. Certain standards of cleanliness and care in the kitchen and service staff should also be exacted.

It is quite possible that community feeding, having proved its convenience and economy, may persist and develop in this country after the war. Some will object that this will mean the further disintegration of the family unit, but it is a hard saying that to compel the housewife to steamy and greasy culinary employment for several hours of every day is a means of safeguarding the family; it may easily have had the opposite effect. If the social meal has come to stay, the experience in Soviet Russia, where communal feeding has been tried out on a large scale, may be worth studying, while making allowances for the different national economy and way of life. Some interesting and (so far as possible) up-to-date information on this subject has been collected by F. Le Gros Clark and circulated as a brochure under the title *Soviet Forms in Communal Feeding*.[1]

In Soviet Russia collective feeding is part of a State-directed policy. It is considered that centralized food depots are likely to provide food more economically and with better conservation of nutritional values than a multitude of domestic kitchens. The number of kitchen depots, dining-rooms, buffets, and cafés within the network administered by the Division of Public Feeding—a special branch of the Commissariat for Internal Trade—is estimated at about 60,000, and in addition there are many thousands of canteens and dining establishments under co-operative control. The kitchen depots are a noteworthy feature of the Russian arrangement. There is said to be one of these in each of the 27 districts of Moscow, and a similar number in Leningrad. They are centralized depots in which the food is prepared in all but its final stages—plucked, shredded, sliced, minced, as the case may be—and then transported in containers to the canteens. The final processes of cooking and service are under the control of the factory or school management. A point of importance is that the salvage of waste is largely concentrated in these preparatory plants.

The standards of efficiency in the canteens under State direction are primarily laid down by the Institute of Nutritional Research in Moscow, and cover not only the food supplies, but the kitchen space, the state of containers and crockery, the clothing and cleanliness of the staff. Many kitchen depots are equipped with chemical and bacteriological laboratories where the samples can be analysed. In the school canteens the equipment, personnel, and material are guaranteed by the Division of Public Feeding. A number of parents are on duty to help in the preparation of the school meals, to inspect the food and kitchens, and to assure themselves that the quality and quantity of the helpings are up to the standard prescribed, with an appeal to the school doctor in case of doubt. It is also the duty of the doctor to arrange classes on food values for both children and parents.

An interesting feature of the Russian system is the special diets for workers suffering from various complaints. The number of workers receiving special diets in factory canteens averages 600,000. Grants are allocated to the amount of 110 million roubles a year from the social insurance fund to enable the consumers to meet the difference between the cost of these special diets and the ordinary canteen meal. The largest number of special diets cooked in any one canteen is eleven; in the majority of canteens it is four or five. In the mines the dietetic canteens are open for twenty-four hours a day to supply all shifts. As a result of the special diets it is said that in one district of Moscow where inquiry was made absences from work had diminished by 50% and improvement in health was noted in 85% of the workers concerned. The best results are said to be obtained in cases of gastric catarrh.

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[8] *Arch. Neurol. Psychiat.*, Chicago, 1942, 47, 938.

[1] Published from 6, East Common, Harpenden, Herts (1s.; post free, 1s. 3d.)

ENDOBRONCHIAL TUBERCULOSIS

Five years ago we drew attention[1] to three papers[2, 3, 4] in which the earlier clinical manifestations of tuberculous tracheobronchitis were first described, and its importance as a complication of parenchymal tuberculosis was stressed, as well as its relative frequency. The outlook for patients with this complication was then thought to be very gloomy indeed, particularly as collapse therapy was deemed to be contraindicated for most of them. Opinion in this respect has changed, as is obvious from a series of communications presented in 1941 at the annual meetmg of the American Association for Thoracic Surgery. Reviewing 100 cases, J. M. Chamberlain and J. Gordon[5] point out that endobronchial tuberculosis tends to run a self-limited course, and therefore the "healed" fibrostenotic stage is often seen in the presence of an uncontrolled parenchymatous lesion. Moreover, the stenosis itself is consistently followed by a series of irreversible complications—namely, emphysema, atelectasis, and bronchiectasis. It is therefore essential to recognize the bronchial lesion at an early stage by bronchoscopy, and then reduce the size of the pulmonary bed before chronic stenosis occurs. Pneumothorax is considered to be dangerous when the bronchial disease is severe and the large bronchi are involved, but the results from thoracoplasty have been good. Local application of silver nitrate to the bronchial lesion is often beneficial as an ancillary measure.

W. M. Tuttle, E. J. O'Brien, J. C. Day, and F. J. Phillips[6] have studied 92 patients with ulcerative or healed bronchial stenosis. All patients have been observed for at least one year: 32% are dead, and 33% are still considered "unstable." Sixty-nine of the patients showed ulceration of the lesion when first seen and were treated with 30% silver nitrate; in 70% of these the lesion healed. These authors confirm the relative value of pneumothorax and thoracoplasty in the presence of endobronchial tuberculosis. Pneumothorax was "adequate" in only 12 of the 47 patients in whom it was induced; the incidence of empyema and unexpanded lung was 32% and 47% respectively. Thoracoplasty yielded much superior results. It was carried out in 34 patients; in 20 the disease is now considered to be arrested, apparently arrested, or quiescent. Only 5 thoracoplasty patients are dead (14.7%), as contrasted with 13 of the 47 pneumothorax patients (27.6%).

J. Alexander, G. N. J. Sommer, and A. A. Ehler discuss in detail[7] the effect of thoracoplasty and pneumonectomy upon pulmonary tuberculosis complicated by stenotic tuberculous bronchitis. They conclude that there are in such patients certain clear-cut indications for, and contraindications to, both thoracoplasty and pneumonectomy, and that for some patients neither procedure can be used safely. When no contraindication exists to either operation, thoracoplasty is the better operation because the mortality is much lower and the percentage of apparent healing of the tuberculosis is much higher. Indications for lobectomy are also given, but the authors stress that in their opinion the indications for pneumonectomy or lobectomy for tuberculosis are rare: they have performed the former operation only twice, and the latter three times. They give the results among 38 patients with stenotic tuberculous bronchitis. It appears, not only from the papers referred to above, but also from the subsequent discussion[8] at the annual meeting, that thoracoplasty is the therapeutic measure of choice for such patients, provided certain contraindications are kept clearly in mind; and that lobectomy or pneumonectomy may occasionally be the better operation. Finally, we should like to draw attention to a recent paper by O. C. Brantigan, R. Hoffman, and D. F. Proctor,[9] in which the authors show that endobronchial lesions may, after closed pneumonolysis, produce a check-valve type of obstruction that results in rapid re-expansion of the lung and loss of the pneumothorax space; and that under similar conditions complete occlusion of the bronchus may occur and result in atelectasis. The authors advise routine bronchoscopy before adhesion-cutting with local treatment of any endobronchial lesion discovered.

FOOD YEAST

Considerable progress has been made in knowledge of the B vitamins, and as their activity is interrelated it may be desirable to administer all of them for either preventive or therapeutic purposes. Unfortunately in wartime the richest source of the B vitamins—namely, animal protein (meat, especially liver; eggs and milk)—is in short supply, and plant protein has therefore to be utilized instead. Plant protein, however, is deficient in some of these vitamins although it is rich in others, and recent research work has been directed to supplying those that are missing. It is known that micro-organisms build up all the B vitamins, and in addition that the nutritive value of the protein they contain is as high as that of animal protein. With these two facts in mind workers at the Chemical Research Laboratory of the Department of Scientific and Industrial Research set about selecting a micro-organism, from the many known to exist, which could be produced in bulk from the cheapest raw materials, would reproduce rapidly, and be harmless to man. Such an organism has been found in the product of waste molasses to which nitrogen in the form of ammonia or ammonium salts has been added. The product, known as "food yeast," contains as much as 50% of high-grade protein, approaching meat and fish protein in nutritive value. Of the four chief B vitamins it contains in microgrammes per gramme: aneurin 20, riboflavin 60–80, pantothenic acid 60, and nicotinic acid 400–450. When dried it is a flaky substance, light straw in colour, and has a slightly meaty taste. It can be mixed with water or milk, added to soups and stews, and can be incorporated into biscuits and into flour for the daily loaf.

It is not, however, proposed to manufacture it in this country at present, except for experimental work, but plant is being sent to Jamaica, where the first large-scale experiment is to be carried out, and towards which a preliminary Exchequer grant of £25,000 has been made. "Food yeast" will thus not be available here for some considerable time, but it is estimated that it could be supplied at 6d. a pound, and that half an ounce daily would ensure a sufficiency of the B vitamins. This product offers a solution to one of the problems which will face the United Nations after the war—namely, that of supplying large populations, whose animal stock has been depleted, with a food containing a high concentration of the vitamin B complex and a high-grade protein. It will also be of value in tropical and subtropical countries, where native diets are invariably lacking in these constituents.

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[1] *British Medical Journal*, 1938, **1**, 239.
[2] *Amer. J. med. Sci*, 1937, **193**, 515.
[3] *J. thorac. Surg.*, 1937, **6**, 561.
[4] *Amer. Rev. Tuberc*, 1937, **36**, 8.
[5] *J. thorac. Surg*, 1942, **11**, 292.
[6] Ibid, p. 299.
[7] Ibid., p. 308.
[8] *J. thorac. Surg.*, 1942, **11**, 321.
[9] *Amer. Rev Tuberc.*, 1942, **46**, 477.

AWARDS FOR BRAVERY AND DISTINGUISHED SERVICES IN BURMA

Dr. Jehangir Ardeshir Anklesaria, port health officer, Rangoon, Dr. Douglas James Lapping, medical officer, Jokai Tea Company, Panitola, Assam, Dr. James Wallace Lusk, medical practitioner, Rangoon, and Dr. Arthur Mobsby, assistant district health officer, Mandalay, have been appointed M.B.E. (Civil Division), and Mr. Amar Singh Gill, sub-assistant surgeon, Mandalay Hospital, has been awarded the G.M., for bravery and distinguished services in the Burma evacuation. The official citations in a *Supplement* to the *London Gazette* dated Jan. 29 read as follows:

"Mr. Anklesaria went to Monywa, the base camp for the Chindwin evacuation, on special anti-cholera duty. He worked there for nearly two months in very trying and difficult circumstances and, by his outstanding devotion to duty and marked administrative ability, dealt very successfully with a serious epidemic outbreak of cholera, which at one time threatened to close down the Chindwin entirely as an evacuated route."

"When air evacuation from Myitkyina to Dinjan started, with only the briefest of notice, there was near the aerodrome a military hospital of 50 beds only. In a few days Dr. Lapping organized hospitals with a capacity of 650 beds and mobilized staff ready to deal with 1,800 wounded soldiers who were flown to Dinjan within a period of three weeks. Following on this, there set in the refugee evacuation through Ledo which, owing to the severity of the conditions and the climate, produced a high percentage of seriously sick. These also were taken care of by the organization built up by Dr. Lapping. A difficult situation was promptly met and it was due to the resource and organizing ability of this doctor that what might have been a calamity was in fact averted."

"Dr. Lusk took over at a moment's notice the Contagious Diseases Hospital in Mandalay, which contained over 200 cholera patients and was staffed by only one Indian doctor, one nurse, and one ward boy. He then took charge of the medical arrangements of all the evacuation camps in Mandalay and, although the commercial centre of the town was deserted and in many places burning, he managed to obtain adequate medical stores to stock all camps and even to send supplies to other camps up country. In a little over two weeks he managed to reduce the daily number of deaths in the Mandalay camps from 500 to less than 20. On April 26 he was the only civilian doctor remaining in Mandalay, and attended to all the casualties at the foreshore resulting from the air raid on that day. He worked without ceasing for 18 hours, and on the next night accompanied the wounded to Katha. He continued his services to evacuees along the railway line and from Indaw to Pyinbon, and drove lorries distributing rice to refugees on that route. Throughout the campaign Dr. Lusk showed courage, endurance, and organizing ability."

"Dr. Mobsby worked unceasingly in the cholera and small-pox camps and responded to all the extremely heavy demands made on him. He remained with the organization until Mandalay was evacuated, and continued his duties at Kyaukmyaung, Ye-U, and finally at Tamu camp on the Burma–Manipur border. He displayed unfailing cheerfulness throughout, and his readiness to perform work not falling within his immediate duties was of the greatest value to the evacuee organization."

"During an air raid on Mandalay the hospital was the centre of the target area and received several direct hits from incendiary and high-explosive bombs. Mr. Gill was giving an anaesthetic during an operation when the theatre was hit. Although suffering from shock he remained with his patient and eventually got him down to safety. He returned and brought out another patient who was awaiting an operation. He then helped to extricate from a burning building six night nurses and two cholera cases, although it appeared that to reach the building would be almost certain death. He afterwards set to work, without rest, to salvage hospital equipment. Mr. Gill showed cool courage and great devotion to duty."

Special attention to the food provided in industrial canteens for boys and girls from 14 to 18 years, particularly to the proper distribution of available foodstuffs, is urged in an article on canteens and nutrition in the Jan.-Feb. issue of *Industrial Welfare and Personnel Management*. It has evidently been the case in some instances that more meat has been served to those who could afford to pay higher charges for their meals than the "under 18's," that too much of the available milk has been used for coffee, and that the fat content of puddings and main dishes has been skimped to get pats of butter. In such methods the writer of the article sees lack of understanding of the needs of juveniles, and points out that more care in this direction will be amply repaid by less sickness, better production, and fewer accidents. In the same issue the establishment, within the boundaries of a factory, of a special ante-natal clinic which is attended regularly by a consultant obstetrician and gynaecologist is discussed. Two other articles deserve mention: one states the case for increased rather than reduced subsistence allowances for workers as illness continues, and the other describes the three centres established in 1942 which provide, at an inclusive charge of 25s. a week, "restful holidays" for workers suffering from nervous strain.

Reports of Societies

NON-SPECIFIC EPIDIDYMITIS

At a joint meeting of the Sections of Surgery and of Urology of the Royal Society of Medicine on Feb. 3 the subject for discussion was "Non-specific Epididymitis." Mr. E. C. Hughes presided.

Mr. E. G. Slesinger said that by "non-specific" was meant a non-tuberculous, non-gonococcal epididymitis, a well-recognized condition, although it had received scant mention in textbooks or articles. During the last fifteen months he and his colleagues had had 34 Service cases in men with an average age of 38.8 years. The symptoms were pain and swelling; in 19 the pain came first, in 8 the swelling, and in 7 the pain and swelling came together. The onset was gradual in 3 cases, but in the others it was stated to have been sudden. Some of the cases were febrile throughout, but most showed a marked pyrexia for the first few days; none of the patients appeared to be generally ill. There was tenderness in all cases, which was acute in 3. The vas was demonstrable in 16 cases, and the whole epididymis was enlarged in every case. Examination of the urine showed a little albumin in 12, and coliform organisms were seen on a slide in 3. Treatment consisted of rest in bed with support of the testis, the patient being fitted with a suspensory bandage. Sulphapyridine and sulphathiazole were tried, but neither made the slightest difference to the condition. Three cases were operated on. The results in the other 31 cases could be grouped as: (1) those in which resolution occurred in from three to six weeks; and (2) those in which resolution was a matter of some months. In the second group some residual thickening was left in the epididymis; but he had been unable to follow up the majority. He considered that this series represented something new in incidence, and in the absence of evidence of breakdown and obvious tuberculosis elsewhere it was certain that cases of epididymitis must be conservatively treated in the first instance. Operation was not essential in any of the 3 cases in which it was performed. The lumen of the vas seemed to be the route of the infection; there was no evidence that infection occurred by mass lymphatic spread. What was not clear was whether urine alone could produce an epididymitis or whether infection of the urine was a necessary concomitant. If all these 34 cases were really cases of infective epididymitis with pathogenic organisms, it was difficult to believe that none of them would have gone on to the formation of pus. If the passage of uninfected urine down the vas were accepted as the determining factor, there was nothing to explain why it should occur with such relative frequency in young men in the Services as compared with the normal population in peacetime.

Three Groups of Swellings

Mr. Donald McGavin said that the clinical group of hard, craggy swellings of the epididymis could be divided into inflammatory, obstructive, and vascular, and by far the largest group was the inflammatory. The ages of the patients varied from 24 to 38. In 3 of his small group of cases the onset was associated with strain while exercising or lifting. There were only 2 obstructive cases, one in a patient with a history of gonorrhoea who had a nodule on the side corresponding to the enlarged epididymis, and the other showed much muscular hypertrophy around the vas and tubules. In the vascular group the swelling often appeared to be in the body of the epididymis or in the upper pole. The prostate and testicle showed irregularity of form in some cases. In the inflammatory group 12 cases treated conservatively resolved, either completely or with a residual nodule in the lower part of the epididymis; in the vascular group 2 cases treated conservatively subsided satisfactorily. Treatment should include full investigation, with complete *x*-ray examination of the chest and other parts involved, and repeated observation each week and then at monthly intervals. Rest was important in the early stages, with modified activity in the course of three or four weeks.

Mr. R. H. O. B. Robinson said that non-specific epididymitis developed either with dramatic suddenness or insidiously.

Resolution was variable, in some cases lasting months, and there was a tendency to relapse. The condition might be bilateral, but was usually unilateral. Infection might come from the urinary tract, particularly the posterior urethra, as in gonorrhoea; non-specific urethritis and prostatitis might be responsible in others. Cases admitted to St. Thomas's in the period 1933-9 numbered 176, the majority of them non-specific. Of 50 cases under his own care during that period, 24 were non-specific, the remainder being tuberculous or gonorrhoeal, but at one hospital in 1941-2 21 cases were admitted, of which 19 were non-specific. With regard to the path of infection, the possibility of retrojection of sterile urine, with a small quantity being forced along the vas, had been suggested, and there was some evidence in American literature to substantiate this.

Brigadier HEDLEY WHYTE said that this was no new disease, and it was sufficiently common to be important. From the patient's point of view the medical attendant should realize that he was not dealing with a condition which necessitated the removal of the testis. He was not convinced that this was a disease peculiar to soldiers, and gave figures for military hospitals suggesting that the incidence was very small. Two different varieties of case from a clinical point of view were under consideration: he did not know whether one of them was a blood infection or due to retrojection into the vas, or the other due to direct spread along the vas from other urinary conditions; certainly some came on very gradually indeed, and might be mistaken for tuberculosis; others might be mistaken for torsion of the testis. Time was the great factor in establishing the diagnosis; the non-specific cases recovered, the tuberculous ones did not. With regard to treatment, in most of the cases there was a very acid urine and relief was obtained by alkalis. In a few cases there was general disturbance and rise of temperature and a good response to the sulphonamides. Wing-Cmdr. AINSWORTH DAVIES mentioned 58 cases which had been treated at an R.A.F. hospital and were divided into: (*a*) epididymitis secondary to diseases of the urinary or genital organs, and (*b*) epididymitis primary so far as the urinary and genital tracts were concerned. The primary type, which accounted for 37 of the cases, seemed to be due to a blood-borne infection, possibly from the colon, or following inoculation, or, rarely, a sequel of injury. When an obvious focus was present the epididymitis was probably staphylococcal. A few cases showed rise of temperature. The stay in hospital averaged 14 days.

Response to Sulphonamides

Wing-Cmdr. G. L. M. MCELLIGOTT said that since the introduction of the sulphonamides gonococcal epididymitis was extremely rare, but he saw more cases after non-specific or non-gonococcal urethritis than after specific gonococcal urethritis. Probably the best explanation of how the condition was acquired was that the original source was a gonococcal infection which cleared, leaving behind a secondary inflammation, from which the condition was picked up. Coliform organisms were found in very few of these cases. A significant point was that the cases relapsed; the swelling went down, and the patient went on leave, and was back again in three or four weeks, with or without an accompanying urethritis. This might be extremely slight and might well be missed unless examination took place in the early morning. The duration of disability might be lessened considerably by short-wave therapy to the epididymis.

In some further discussion Brigadier EDWARDS asked whether they were quite safe in assuming that the patient recovered by rest in bed. Col. T. E. OSMOND suggested that all these cases should undergo a puncture of the epididymis and a bacteriological examination. He had found diathermy give great relief. In his reply Mr. SLESINGER said that they were all agreed that the textbooks and teachers of the past had not been alive to the fact that the epididymis was heir to many ills other than those due to the gonococcus and the tubercle bacillus. Another thing which the discussion had brought out was that a number of different things were still being confused under the one heading. It was important to recognize that these cases occurred a great deal more often than was appreciated. He suggested that men in the Services should be advised to empty the bladder before doing physical training.

RECENT EXPERIENCE OF ENCEPHALOMYELITIS AND ALLIED CONDITIONS

At a meeting of the Section of Neurology of the Royal Society of Medicine on Feb. 18, with Dr. R. M. STEWART presiding, the subject for discussion was "Recent Experience of Encephalomyelitis and Allied Conditions."

Dr. W. RUSSELL BRAIN said that the clinician was much handicapped in discussing acute encephalitis. The textbook presented him with an elaborate classification based upon pathological differences, isolation of viruses from the brain, cross-immunity tests, and so on, but the clinical descriptions of the various forms closely resembled one another. Hence, apart from epidemics and the post-exanthematous group, any clinical diagnosis that went beyond acute encephalitis was often only guess-work, and if the patient survived and no virus was isolated it could not usually be said with what form of encephalitis they were dealing.

During the last two years he had seen 22 cases of acute encephalitis and 6 of acute aseptic meningitis. Of the 22 cases of encephalitis, 6 followed measles, 1 mumps, 2 occurred after inoculation, and 2 were of the so-called Marie-Strümpell type. The remaining 11 seemed to fall into 3 clinical groups. In 6 the onset was acute or even fulminating with high fever and stupor or coma, and 3 of them with meningeal signs had polymorphonuclear cells in the cerebrospinal fluid; in spite of the stormy onset, recovery was complete in 5. In 2 further patients the onset was subacute and the course progressive to death in two to three months. In the remaining 3 the onset was subacute and the course at first relapsing; there was evidence of considerable destruction of the white matter with permanent visual-field defects and pyramidal lesions when the disease became arrested. Without attempting to apply clinical descriptions to them, it might be said that there seemed to be three different patterns of reaction of the nervous system to infection.

An interesting cerebral complication of scarlet fever was a meningo-encephalitis characterized by a lymphocytic pleocytosis. He recently saw an example of this in a boy of 6 who developed meningeal symptoms when his rash was desquamating. He was febrile for ten days and showed no response to either antistreptococcal serum or sulphonamide. His cerebrospinal fluid contained 160 lymphocytes per c.mm on two occasions. Was this meningo-encephalitis caused by a streptococcus or its toxins, or was it caused by a virus? and if by a virus, was the virus infection superimposed upon scarlet fever, or was the whole disorder, including the rash, due to a hitherto unrecognized virus?

His series included one example of a rare form of encephalitis of which only 4 previous cases appeared to have been described. The characteristic feature was the presence of eosinophil inclusion bodies in the nuclei of the cortical ganglion cells. His patient, a boy of 11, developed symptoms after anti-diphtheria inoculation. Change in character was followed by impaired vision and ataxic gait. The distinctive clinical features were facial spasm, trismus, clonic movements of the right upper and lower limbs, and a right grasp reflex with left hemiparesis. The patient was comatose with double hemiplegia for five weeks before he died, three months after the onset of symptoms. The cerebrospinal fluid was normal.

Little had been added to existing knowledge about encephalitis after measles and other exanthems. He had seen 6 cases of measles encephalitis in the last two years, and had learned that complete recovery might occur from a condition which during the first weeks of the illness looked hopeless. A girl aged 12 was mute and diplegic six weeks after the onset of encephalitis, but three months later she had almost completely recovered. It was difficult to assess the results of treatment, but it was advisable to use convalescent or immune horse serum.

He had seen 3 cases of nervous disorder after inoculation with tetanus toxoid with or without T.A.B., and 4 cases of nervous disorder occurring within a few days of A.P.T. inoculation against diphtheria. One of these was the fatal case of encephalitis with inclusion bodies already described; the other 3 were all cases of poliomyelitis, occurring when this disease was already prevalent. The relation of the infection to the inoculation was at present unsettled, but it should be emphasized that with diphtheria immunizations numbering thousands and

T.A.B. and tetanus toxoid inoculations numbering millions these complications were extremely rare. Finally, it should be borne in mind that sulphanilamide might cause demyelinating lesions of the brain and spinal cord, and as drugs of this group were now so widely used in the treatment of acute infections, care should be taken before attributing to the infection an encephalopathy which might be the result of the treatment.

Dr. J. G. Greenfield showed a number of microscopical sections taken in cases of encephalitis and indicated the form and nature of the inclusion bodies. One of his cases was an encephalitis which he regarded as being of the virus type, and which corresponded histologically with encephalitis produced by known viruses but differed considerably from the accepted picture of encephalitis lethargica. It was in a boy of 9 who died three days after admission to hospital; he had no fever until a few hours before death, and the cerebrospinal fluid was normal. Microscopically a very intense encephalitis was found with marked microglial infiltration.

Dr. Dorothy Russell also showed a series of sections, including ones illustrating the inclusion encephalitis to which Dr. Greenfield had drawn attention. This was a particularly interesting form of encephalitis because it seemed to bear all the hall-marks of a virus encephalitis. There was nothing very gross to be observed, and it was peculiar in that there was very little associated meningitis. In the pyramidal cells of the cortex there were a considerable number of eosinophil nuclear intrusions.

The President said that it was obvious that this aspect of neurology must account for a very important chapter in the textbooks of the future. He raised the question of Schilder's encephalitis.

Dr. Russell Brain said that one of his cases of encephalitis following measles was exactly like Schilder's encephalitis in its end-result. There were, however, two attacks, the first of them three weeks after measles, when the child ceased to speak, but there was no coma and there was a gradual return to normal. After a lapse of nine months the child became ill again, had coma, which remained for a week or so, and on recovering consciousness was completely blind, and the end-result was exactly like that seen in a case of Schilder's encephalitis.

NUTRITION IN PREGNANCY

The Nutrition Society held its tenth meeting at the London School of Hygiene and Tropical Medicine on Feb. 6, when the subject of the symposium was nutrition in pregnancy. The chair was taken in the morning by Dr. F. H. A. Marshall and in the afternoon by Brigadier F. A. E. Crew. There was a large attendance at both sessions, the agenda for which included six short papers, five separate discussions, and a general discussion.

Mr. Aleck Bourne opened with a paper on foetal development, in which he sounded a warning note against the tacit assumption, made by many who should know better, that birth weight was necessarily an indication of viability and health. As was pointed out by many subsequent speakers, though there were others who seemed to have forgotten it, the effect of sub-optimal maternal nutrition—at any rate in the human species—only makes itself felt in the offspring if the nutritional plane is so low as already to have affected the health of the mother adversely. This is a particular aspect of a general rule—one of the few that seem to emerge clearly from the mass of information brought forward at the meeting—to the effect that the foetus is essentially parasitic on the mother. Dr. John Hammond attempted to bring a general and more theoretical interpretation to play on the facts summarized in this way. His suggestion that the flow of nutrients to any tissue or organ was determined by the metabolic activity of that organ, and that this principle applied not only to the single organism but to the mother and foetus treated as one, certainly seemed to explain many of the known facts, or at least to summarize them in a concise and intelligible manner. At the same time, as Dr. Hammond himself was the first to admit, the differences between species still need explaining, especially as these result both in very marked differences of development as between the newborn of one species and another and also in marked proportional differences between the various parts of the new-born body. Generally, however, these differences correspond closely with those in maturity of the embryo at term.

Functions of the Placenta

Dr. Hammond's paper was followed by a characteristically speculative survey by Sir Joseph Barcroft of the nutritional functions of the placenta. He asked many questions to which he said, regretfully, he was unable to supply answers, but his paper did serve to show the gap between the practice of the obstetrician and the experiments of the physiologist, bridged to a limited extent by the workers in animal husbandry and the laboratory biochemist. Sir Joseph raised the question whether the placenta was to be regarded merely as an ultra-filter, or whether it had powers of discrimination that affected the relative rates of passage of various nutrients, and, if so, how such powers were achieved. The figures given by him of the relative differences in pressure between oxygen in maternal and foetal blood vessels, differences in osmotic pressure between the two plasmas, and differences in individual ion concentrations, seemed to indicate fairly clearly that the placenta was something more than a mechanical barrier. In opening the discussion on Sir Joseph's paper, Dr. T. Moore called attention to the barrier offered by the placenta to vitamin A, and it was recalled during the discussion that a similar phenomenon had been recorded for vitamin E.

The first three papers constituted the main part of the morning's business and each led to brisk discussion. Several speakers referred to the unsoundness of attempting to ease labour by reducing the size of the infant through nutritional deprivation. It is clear that this procedure has now the active opposition of all leading experts both in the gynaecological and in the nutritional field. Dr. A. S. Parkes, in an interesting note contributed in his absence by Dr. Ruth Deansley, discussed the bearing of hormone-induced superfecundation in rabbits on the problem of infant size, and came to the tentative conclusion that this was more likely to be determined by nutritional factors than by hormone supply.

At the afternoon session, at which attention was given to the relation between parity and infantile mortality and morbidity, Prof. James Young, answering Dr. S. K. Kon, said it was impossible to state whether there was any real correlation between the birth weight and parity in the human subject. Dr. W. H. Newton referred to the effect of the placenta on the maintenance of maternal weight, and Mr. Aleck Bourne emphasized what he had mentioned in his original paper—namely, the importance of sound nutrition as a means of securing proper uterine function, normal labour, and viable offspring.

Wartime Diet: Its Likely Deficiencies

In a paper on diet in pregnancy Prof. A. St. G. Huggett stressed the importance of the last period of pregnancy, and discussed in some detail the effect of planes of nutrition on the health of human and other animal infants. After considering wartime statistics and diets, he tentatively concluded that the only likely shortages in the present-day feeding of pregnant women, compared with pre-war feeding, were in animal protein, calcium and phosphorus, vitamin D, and ascorbic acid, but that the deficiency, if any, of each of these was not enough to have affected significantly the birth weight of newborn infants, even of twins, which normally afforded the more sensitive index. Prof. Huggett's paper was appropriately followed by a summary from Dr. Margaret Balfour of the well-known Birthday Trust Fund experiments. Dr. Balfour's statement made it clear that the final parts of this investigation had benefited from the investigators' experience during the earlier stages, and had thus made possible detailed statistical examination and treatment of the results. These showed the effect of supplementary feeding on the health of babies and also of their mothers when these had been previously subjected to a diet considered inadequate by modern standards. The results of this investigation thus afford in some measure an *ex post facto* justification of the People's League of Health and the Toronto experiments, both of which have been adversely criticized recently, as Prof. Huggett and also Prof. J. R. Marrack pointed out, without adequate consideration being given to the relation between these admittedly limited experiments and the whole body of present knowledge about diet and health in general and pregnancy in particular.

Mr. RICHARD TITMUSS presented a paper on stillbirth and neonatal mortality, in which he had collected data on the bearing of various influences on both mortality and morbidity of the infant. His figures, which will need detailed study when they are available in print, revealed the effect of a number of, perhaps, previously unsuspected factors—such as the difference between town and country—and showed that preventable wastage of infant life still goes on. He posed some interesting questions—for instance, why there appears to be an "irreducible minimum" of neonatal death and why the differences in social ranging express themselves in an increasingly different mortality rate between infants of increasing age.

Of particular interest during the general debate was a discussion between Dr. ISOBEL LEITCH, Dr. HELEN MACKAY, Prof. HUGGETT, Dr. LUCY WILLS, and others on the relation between the iron content of human milk, the iron reserves of infants, and the susceptibility of infants to anaemia. Prof. E. J. BIGWOOD'S information to the effect that birth weight in Belgium on a maternal diet of 1,500 to 2,000 calories per day had not substantially diminished seemed to give effectual denial to the assertion, quoted by Prof. Huggett, that birth weight in Vichy France had fallen by one-third. For this there appears to be no documentary evidence. The possible relation between the creatinuria of pregnancy and vitamin E deficiency was, unfortunately, side-tracked into a wholly irrelevant discussion on muscular dystrophy.

Correspondence

Scientific Freedom and Social Medicine

SIR,—As a member of the Medical Planning Commission I have read with very great interest, and perhaps a little surprise, the article by Dr. Geoffrey Bourne (Feb. 20, p. 227) and the letter by Mr. T. W. Mimpriss (p. 234). The fears which Dr. Bourne so ably expresses are and have been in the minds of every member of the Commission. They have not only been acutely aware of the dangers but have been very apprehensive lest they should be grafted on to the new system of social medicine. My feeling of surprise lay in the fact that so many of the profession do not appreciate how all the grave drawbacks of State medicine described by Dr. Bourne have been most fully and carefully discussed, and the precautions suggested to avoid them have been published in the Interim Report, which together with the conclusions of the committees have been published in the *Journal.*

It is manifest that this report has not yet been sufficiently widely read, and Dr. Bourne's article will therefore be invaluable in directing attention still more forcibly to the fact that with State control of medicine, as conducted in the present autocratic manner, there is a very real danger of the complete loss of freedom of thought and freedom of action, that criticism and with it all progressive work may disappear, and that the profession may become simply a system of distributing the knowledge gained by other countries free from the trammels of bureaucracy. It may also be of value to those who are not aware of what has been done to consider seriatim the conclusions of Dr. Bourne, with which I may say I am in entire accord, and to give references to those sections of the Interim Report in which methods of avoiding the dangers are suggested.

(*a*) All the higher posts are purely administrative. This is true of the majority of State services; even in the Army no one above the rank of lieut.-colonel is an operating surgeon or a clinician. All conduct is strictly controlled by orders laid down in King's or other Regulations drawn up by those with but little clinical and no local knowledge, situated at a remote centre. The clinical head is given no responsibility of action but is responsible for his actions. He may have gained excellent results, but if to do so he has contravened some foolish rule he is reprimanded rather than commended. As a result, not only does all initiative disappear but able young men refuse to enter a service in which after a time all their clinical and scientific training is lost and they become stereotyped civil servants. Nearly all medical superintendents in the present State services are acutely aware of these drawbacks. (See sections 38, 39, 41, 79, 80.)

(*b*) Control of the service is in the hands of one man, generally a layman, at the head with autocratic powers, or of a lay body. This is an extension of (*a*), but it tends to limit progress and improvement, and especially improvement based on the experiences gained by those in clinical posts and by professional men abroad. The profession tends to be stereotyped and economic rather than live and progressive. (See sections 51–60.)

(*c*) Control of the institution is in the hands of a medical superintendent. Unless the superintendent is a man of wide vision, all research and originality in the younger men have no scope, nor do they develop a sense of responsibility or the power to rectify abuses and the use of out-of-date methods. The superintendent is expected to be a supernatural being with a knowledge of all branches of medicine, which is beyond human capacity. (See section 89.)

(*d*) No action can be taken or newer scientific methods be used without permission. Hence there is a long period between the acquirement of knowledge and its practical use. (See sections 89 and 82–84.)

(*e*) Freedom of publication. The absence of this is almost universal in all the present State services. Permission has always to be obtained, and has in the past been withheld because the article has been thought to criticize the methods of the service. The importance of freedom of action, of thought, and of speech has been universally recognized and insisted upon by the Commission, and its loss has been guarded against by the sections dealing with the positions of the members of the staffs of all hospitals in the scheme. (See sections 78–94.)

(*f*) The danger of political pressure. With Government control and with the highest post a reward given by the political party in office this is a real danger. Its worst results are seen in Germany, where eminent scientists have been replaced by inefficient heads who are ardent Nazis.

(*g*) Promotion by seniority. The danger of this system, which is present in all the State medical services and is characteristic of all bureaucracies, has been recognized as perhaps the most important factor in crushing all initiative and originality and as being likely to reduce the present high standard of British medicine to mediocrity. Men, whatever their ability, have to relinquish a post on reaching a given age or after holding one post for a certain period—in the Army medical it is four years—in order to make way for the promotion of a younger man who in many cases has no claim other than length of service. Rank or emolument is not given to the man but is carried by the post, so that a man's rank or reward may alter not from a change in his ability but because a regulation insists on his being moved from post to post. (See sections 87, 88, 92, 93.)

(*h*) Mr. Mimpriss's letter deals with the question of private fees of salaried officers. The claims of some services that fees paid by private patients, attracted by the skill, reputation, and renown of an individual doctor, should be paid to the service which pays his salary, although it already makes a profit by the letting of the private room, is recognized as an iniquitous exploitation of the doctor. (See section 83 and the later conclusions of all the recent committees as published in the *Journal.*)

Finally, all these dangers are guarded against by the proposals of the three later committees that the Commission would be willing to co-operate . . . provided that the character, terms, and conditions of the medical service are determined by agreement with the medical profession.—I am, etc.,

London, W.1. JAMES WALTON.

SIR,—I think Dr. Geoffrey Bourne (Feb. 20, p. 227) merits our warmest congratulations on his notable article on this subject. He has suggested one foundation stone—*scientific freedom*—as essential to a new medical edifice if it is to make a maximum contribution to the health of the people. Of course, there are other foundation stones about which opinions are divided; but unanimity in the profession in support of Dr. Bourne's thesis would probably go far to secure its adoption if its intrinsic merit alone failed to carry conviction.

Bacon long ago laid down that "no pleasure is comparable to standing on the vantage ground of truth." That a youthful genius, so standing, should be frustrated by a short-sighted autocrat is unthinkable, and no doubt adequate safeguards could and would be devised.—I am, etc.,

Manchester. J. STAVELY DICK.

SIR,—It was a pleasure to read Dr. Geoffrey Bourne's article "Scientific Freedom and Social Medicine" (Feb. 20, p. 227). May I give an early experience of the autocratic system? I was an assistant medical officer at a fever hospital in pre-antitoxin days. At 2 a.m. on a winter's morning I was called by the night superintendent to a little girl suffering from laryngeal diphtheria. I had admitted the child in the afternoon and had obtained the written permission of the parents for tracheotomy if necessary. The child, aged 3, was *in extremis* and I operated, the anaesthetic being given by a junior (qualified) colleague. Later in the morning I was summoned to the office of the medical superintendent and soundly admonished for not having obtained his permission to operate. I should say that his house was at least a quarter of a mile from the ward and there was no telephone. I was threatened with "suspension" and was to be reported to the chairman at his next weekly visit for luncheon (and billiards). No more was heard of the matter, for the tube was out in four days and the child made a good recovery. I only learned later that mine was the first tracheotomy that had survived at that hospital.

Dr. Bourne refers to publications by medical staffs, but he omits to mention that officers of the L.C.C. hospitals not only had to obtain the permission of the Chief Medical Officer before publishing any communication, but further had to state that the Council assumed no responsibility for the (approved?) opinions expressed by one of their officers.—I am, etc.,

London, S.W.1. JAMES H. SEQUEIRA.

The B.M.A. and the Beveridge Report

SIR,—No doubt we all realize the difficulty the Council of the B.M.A. faced in framing their recommendation, but surely the one decided upon will be immediately "blown sky-high" by the obvious question:

> "If, as suggested, there are members of the community who decide not to avail themselves of the benefits of the scheme, but wish to obtain their medical service from a doctor within the scheme by paying privately, what advantage would such patients expect to gain from their doctor by such arrangement which they would not otherwise receive?"

—I am, etc.,

Halesowen, Worcs. HERBERT W. BLAND.

SIR,—I think that if the Beveridge report is brought in in full then the medical profession should co-operate fully with the Government in providing a complete medical service for the whole community; but we as a profession should be united on one point—namely, that the conditions of service must be satisfactory and must be agreed upon by previous negotiation between the medical profession and the Government.

The conditions of service should be such that a doctor is adequately paid, so that he can fulfil his existing obligations and continue to live in a style to which he has been accustomed; he shall have sufficient freedom to carry on his practice in a manner agreeable and convenient to himself and his patients; and, finally, the clerical work should be drastically curtailed. Previous negotiation is essential, as we do not wish to find that, after contracting to fulfil certain obligations, other obligations are thrust upon us without our consent being obtained.

If, however, the Government attempts to bring in the medical part of the Beveridge report alone while deferring the other proposals, then I think we should be better advised to press for the B.M.A. plan, with its consultant service for N.H.I. patients and the inclusion of their dependants. This will give an inexpensive and good medical service to those who really need it, and will not interfere with the existing arrangements between doctor and private patient.

Whether the Beveridge report or the B.M.A. plan is brought in, I think we should insist on three things: (1) The conditions of service must be satisfactory and must be agreed upon by previous negotiation. (2) The scheme should rest upon a general practitioner basis, and should provide for part-time State salaried service and part-time private practice. (3) There should be free choice of doctor and free choice of patient in order that the doctor may serve the patient and not the State alone.

We should avoid a whole-time State salaried service, which is contrary to the traditions of our profession and the interests of our patients, and which means, for us, service on terms dictated by the Government, since we as a profession would have no prospect of employment other than Government service.—I am, etc.,

Stonehouse, Glos. W. G. MURRAY-BROWNE.

War Neuroses

SIR,—In his paper on war neuroses (Feb. 13, p. 183) Dr. W. Ronald D. Fairbairn expresses his belief that they are the result of regression to an infantile emotional level, in which the soldier regards his superiors in rank as "bad" parental figures who have no love for him, in contrast with the "good" parental figures at home who love him. He looks upon the neurosis as the result of an attempt to restore emotionally the intra-uterine state of security which was rudely disturbed by the experience of birth. Holding such fantastic beliefs it is easy to understand why Dr. Fairbairn finds that the war neuroses are resistant to his psychotherapy.

My experience in the war of 1914-18, and especially at Seale Hayne Military Hospital for Functional Nervous Disorders with its 350 patients and 10 medical officers, was that the war neuroses responded very well to simple psychotherapy in the form of explanation, persuasion, and re-education. Major W. Johnson and other officers in charge of advanced neurological centres in France were able with similar methods to send 60 to 80% of their patients back to front-line duty within four weeks of the onset of symptoms, and according to Col. Gordon Holmes only about 10% relapsed.

A much smaller experience in the present war has not led me to alter my opinion. The results achieved by the late Col. E. L. Cooper and Capt. A. W. M. Sinclair (*Med. J. Austral.*, 1942, 2, 73) during the siege of Tobruk have shown in dramatic fashion how good is the prognosis of war neuroses when properly handled, even under the most unfavourable conditions. They worked in a special ward situated in a dimly lit concrete shelter near a heavy anti-aircraft battery, where psychotherapeutic talks were punctuated by the noise of shell fire and bombing, and where there were no facilities for recreation or occupational therapy. In spite of these disadvantages 79 out of 207 men with war neuroses treated between May and August, 1941—i.e., 38%—were returned direct to their units. An additional 48 went back to full duty after treatment at the base, making a total of 61% now serving as fighting soldiers. Of the remainder 23% were fit for base duties and only 12% (of whom 7% were mental defectives or psychotics) had to be evacuated to Australia.—I am, etc.,

Oxford. ARTHUR HURST.

Abortus Fever

SIR,—I read with interest Dr. D. G. Leys's article (Feb. 13, p. 187) on eight cases of abortus fever. During 1941-2 I saw five cases of this infection, four of which came under my own care and one was seen in consultation. All patients were over 21 years of age, and four were males, thus conforming with the general trend that the under-15's and females are more immune. Dr. Leys's cases, in the main, conformed to this distribution.

Three of the five cases were definitely diagnosed as of abortus fever by their own doctors, a fourth was admitted as a paratyphoid B infection, and a fifth as a case of cerebrospinal meningitis. Three of the cases had "rose spots," and in two instances these were numerous. All complained of general muscle aching, profuse perspiration, and severe headache. Titres ranged from 1:480 to 1:2000 (highest tested). The case admitted as of cerebrospinal meningitis had neck rigidity, marked photophobia, and drowsiness lasting for 48 hours. One patient died; he developed an acute left orchitis, followed by a right pleurisy, then a left pleurisy (both sterile), and, finally, meningitis (sterile), considered on chemical analysis of the cerebrospinal fluid to be tuberculous. Both spleen and liver were enlarged. Orchitis is also noted as a manifestation of infection in bulls, rams, and boars, while muscles are affected in equines. The occupations of the patients were as follows: engineers 2, airman 1, W.A.A.F. 1, lawyer 1.

Treatment was with sulphapyridine 8 to 10 g. daily, reducing the dose as the temperature settled. In the case of the patient who died, fouadin was also used, but without effect. The average length of the illness after the commencement of treatment was four weeks. The doses of sulphonamides given by Dr. Leys to his cases have been, I think, too meagre, as a loading dose is required, followed by a tapering off in amount when the temperature begins to settle. From experience of the fatal case mentioned above and my knowledge of another case, not under my care, still active after three years, I feel that early and adequate treatment with all the necessary precautions is necessary, as once chronicity sets in sulphonamides may not be efficacious.

The true incidence of abortus fever is probably much higher than is generally believed, although in a rural area like Ross-shire the general practitioner, as a result of his close contact with a farming community and the diseases that affect their animals, is in all likelihood more aware of the possibility of its presence than is his colleague in urban areas.—I am, etc.,

Strathpeffer, Ross-shire. J. LANDESS HORNE.

Weil's Disease

SIR,—Dr. K. Blum's letter on Weil's disease (Feb. 20, p. 231) calls for some comments.

1. It is well known that many cases of Weil's disease never develop jaundice; in Holland, Schüffner found 60% anicteric. Therefore, while it is true, as Dr. Blum states, that "every case of illness with jaundice and high fever should be suspect," many cases will be missed if these are the criteria adopted. It must, however, be admitted that the early diagnosis of Weil's disease is very difficult except when the patient's calling attracts attention to the possibility—e.g. coal-miners, sewer-workers, fish-workers.

2. The agglutination test is negative until the 6th or 7th day of disease, and is often confirmatory rather than diagnostic. If specific serum treatment is to be of value it must be carried out during the first few days of the illness.

3. For diagnosis, in addition to a history of certain or probable contact with rats (in this country there has been no evidence that mice play any part), the blood count is of especial value. In Weil's disease there is a polymorphonuclear leucocytosis, whereas in infective hepatitis (catarrhal jaundice) the total white cell count is normal or diminished, and there is a relative lymphocytosis.

4. Dr. Blum states: "Whether ordinary infectious hepatitis in wartime is allied to morbus Weil cannot be proved, but should be borne in mind." In fact, although definite proof has not yet been obtained, the available evidence is strongly in favour of a virus origin of infective hepatitis, and there is no indication that it is in any way related to Weil's disease. Hundreds of cases have been investigated, mainly by my former colleague Major H. C. Brown, with this point in view.

5. In the past the investigation of the various "jaundices" has been badly hampered by failure to discriminate among the different clinical and pathological entities. These conditions are now being separated, and it would be a great pity if the position were to be obscured by reintroduction of the old confused ideas.—I am, etc.,

The Wellcome Research Institution, W.C.1. J. C. BROOM.

A Member Resigns

SIR,—Your leading article on "A Member Resigns" is a little too ingenuous to go without comment. Thus might Mr. Chamberlain or any of the tetrarchs of the 'thirties have said: "True we have the keys of office, the party machine, the Press, air, money, and time, yet we are a democracy and any of you can come and take our places."

The note about the imminence of the crisis that confronts us probably means that the older men are preparing to sell the pass while the younger ones are otherwise engaged.

Still I disagree with the resignation. The worst of quarrelling is that it stops controversy. Besides, I think the library is well worth the sub.—I am, etc.,

Beckley, Sussex C. G. LEAROYD.

SIR,—Like your original correspondent (under the above title) I recently entertained the thought of discontinuing my membership of the B.M.A. and for much the same reasons: on account of its silence during the present critical phase of our social evolution, and its failure to lead, to present a bold concrete total plan to meet the pressing demands for adequate health facilities for all. But I decided not to resign just yet, because, on stating the proposition to myself thus—"Knowing that adequate medical services should be available for all; and knowing that the high cost of such services could not be met except by the State, why does not the B.M.A., or its Council, present a comprehensive total scheme to Government accordingly?"—several obstacles then became apparent. First, the obvious lack of agreement among members of the medical profession itself; the conflict between the older conservative doctors hoping to continue private practice along the present lines and the younger generation favouring a sort of panel system for all. Another difficulty was that of estimating the cost; expenditure very much higher than at present would obviously be needed, but such estimates might meet with official rebuff as yet. In the circumstances a cautious advance by the B.M.A. was understandable. So I decided not to resign this year, and I am pleased, because otherwise I should have missed reading Dr. Geoffrey Bourne's article entitled "Scientific Freedom and Social Medicine" (Feb. 20, p. 227). The publication of this article reveals a healthy and progressive outlook—at least on the part of the Editor. One earnestly hopes that Dr. Bourne's lucid and instructive article will be widely read. Obviously it cannot be read by some thousands of non-B.M.A. doctors and by the public (non-readers of the *B.M.J.*). Therefore I would suggest that, say, 100,000 copies of the article be printed and distributed free Some of us would be pleased to contribute to the cost of printing, etc., if necessary.

Space does not permit one to quote from Dr. Bourne's essay, but one principle of fundamental importance which he sets down in italics should be stressed again and again, "The *democratic* system of medical service is *entirely compatible with State control.*" It is urgently desirable that all doctors should appreciate this truth.

In the same issue (p. 230) there appears a thoughtful and provocative letter by Dr B. W. Monahan, who recognizes that the most essential need in providing more extensive medical services is a monetary one, and he aptly points out that the average smoker spends £10 yearly on tobacco. One wonders what the total expenditure on beer and tobacco is, and how much it would cost to provide a comprehensive medical service for all?—I am, etc.,

Aldershot. F. M. PURCELL.

Foot-and-Mouth Disease in Man

SIR,—As has been widely publicized in the national newspapers, there has been a severe outbreak of foot-and-mouth disease in my county. An interesting sequel has occurred in my practice.

On Feb. 8 I was called to see a little girl in a small farm cottage. This house is adjacent to two small farms, at both of which recently there was an outbreak of foot-and-mouth disease among the stock, all of which had to be slaughtered. This child had to skirt these farms on her way to school daily. She was not in direct contact with the animals, nor was she drinking milk from either of these sources. The milk came from an attested source elsewhere.

On examination the child was very toxic, and in the room where she lay there was a peculiar pungent smell which intensified as one approached the bed. Her temperature was 103° F., pulse rate 150–160 per minute, respirations 23 per minute, and she was flushed and cyanosed. Excessive salivation was apparent, and the saturated pillow exuded this peculiar smell. She had become progressively ill for some days before I was called. On examination of her mouth I found that there were multiple vesicles and small yellow ulcers extensively over the inside of her lips and cheek, and on her palate and gums, the surface of the tongue, and on the pharynx The vesicles were filled with yellow fluid. The breath was very foul and some of the ulcers were bleeding. Apart from this the only other complaints were of abdominal discomfort and severe thirst Further examination revealed no other lesions on the skin Her lungs appeared to be normal. No laboratory tests were done, treatment being carried out straight away.

She was given a total of 12 grammes of sulphapyridine and dettolin mouth washes Her temperature and pulse settled to normal in 4 days, and on Feb. 14 her mouth was practically clear except for some shallow vesicles and ulceration on the gum margins around the teeth Our local medical officer of health, who saw the patient for me, was also of the opinion that this was probably a case of foot-and-mouth disease.

—I am, etc.,

Dingwall KENNETH MACLEOD

⁂ Two cases of foot-and-mouth disease in man were reported by Dr Henryk Dlugosz in the *Journal* of Feb. 13 (p. 189)—ED., *B.M.J.*

Rushcliffe Committee's Report

SIR,—An adequate nursing service is unlikely to ensue from mere attention to the pay packet. "There is no wealth but life," and money is no compensation for loss of health in youth. Until we realize that an impossible strain is imposed upon nurses by expecting of them two lives in one—the student's and the full-time employee's—we shall, deservedly, go short of recruits. The Rushcliffe Committee's recommendations do not reach the core of the problem.—I am, etc.,

ESTHER CARLING.

Dietetics of Pregnancy

SIR,—Your correspondents Mr. W. T. Russell and Dr. W. J. Martin (Feb. 13, p. 204) are right in supposing that my knowledge of statistical technique is imperfect. It is, however, sufficient for me to appreciate the cogency of their correction and to be able to agree with them that the sampling error in the work of the People's League of Health is even greater than I stated. Now the purpose of my contribution to the discussion at the R.S.M. was to examine critically the claims made by some recent workers to have influenced the incidence of premature birth by dietetic methods. I suggested that the results of the work sponsored by the P.L.H. had no significance. If the statisticians who examined them now state that I have ascribed to these results a higher degree of significance than they ever claimed, it seems that there is no point at issue between us.

As regards the data which I presented before the R.S.M., the abbreviated report does not, perhaps, make the point as clear as it might be, but I should have thought that with the aid of the published histogram the facts could be deduced. These facts are that the periods of gestation recorded in my series of 147 observations are normally distributed around a mean of 41.2 weeks, with a standard deviation of about 12 days; this *does* lead to the expectation that one-eighth of all instances will terminate before the beginning of the 40th week. Of course, a normal curve is not symmetrical about a line which is not drawn through its mean point; even I, the imperfect statistician, do not expect that.

Your correspondents' comment on the failure of the P.L.H.'s dietetic measures to influence the mean birth weight—"especially as all premature babies are not subnormal in weight"—affords a perfect illustration of the way in which the main object of a piece of work can be forgotten if realistic standards are not set at the start and rigidly maintained. Infants die from immaturity, not from estimated prematurity.

While I fully realize that Mr. Russell is not responsible for the choice of experimental method, surely the fact remains that the estimated period of gestation—estimated presumably from the last alleged menstrual period—is too crude and unreliable a yardstick by which to measure the small differences which these dietetic experiments have achieved. To desire earnestly that some means, dietetic perhaps, may be discovered for the prevention of premature birth and the wasteful loss of infant life associated therewith is not the monopoly of the P.L.H. or of any section of opinion; but to prove the efficacy of such means is another matter. It would not be unfair, I think, to liken these advocates of dietetic methods for the abolition of prematurity to the leader of the deputation who closed his interview with the Minister of State with the words, "And those, Sir, are the opinions upon which I base my facts."—I am, etc.,

London, W.1. DOYNE BELL.

SIR,—Dr. Doyne Bell's histogram does not represent a normal curve but a skew curve conforming to Pearson's Type I. Neither a normal nor a symmetrical curve can be expected to describe the length of gestation, since it is possible to have larger deviations below the mean than above. But even if we assume a normal curve, his corrected values of a mean of 41.2 weeks and a standard deviation of 12 days will not lead to 1/8 of the distribution falling before 40 weeks, but gives 24% of the total as occurring before 40 weeks. Perhaps Dr. Doyne Bell omitted to express the deviation from the mean in terms of the standard deviation when entering the tables of the probability integral.—We are, etc.,

W. T. RUSSELL.
London School of Hygiene and Tropical Medicine. W. J. MARTIN.

Ligature of the Innominate Artery

SIR,—Sir W. I. de Courcy Wheeler has asked me to put details of this case on record on the grounds that only about seventy have been reported, though there must be many more unpublished.

A woman of 67 came to the Leicester Royal Infirmary on account of a swelling above the right clavicle; this had been first noticed six months before. The right arm had recently felt dead and its power was diminishing. On examination there was an expansile swelling above and behind the middle of the right clavicle; the right hand showed clubbing of the fingers and slight wasting of the intrinsic muscles compared with the opposite side. The grip was impaired on the right; there was no delay in transmission of the right radial pulse; the reflexes in both upper limbs were normal. Pupils reacted to accommodation but only sluggishly to light. Knee-jerks were absent. There were clean-cut ulcers with yellowish bases on the inner and lower parts of both tibiae. Wassermann reaction ++; Kahn reaction ++++. *X*-ray examination of right shoulder girdle showed no bony change.

Operation, May 24, 1940: Incision along line of lower part of sternomastoid, out along clavicle, and down upper part of delto-pectoral groove; lower ends of right sternomastoid, sternohyoid, and sternothyroid detached temporarily; middle third of clavicle divided. Aneurysm of the innominate artery extending into the beginning of the subclavian; scalenus anterior and part of brachial plexus thinned out over aneurysm. Innominate artery ligatured, and pulsation in aneurysm immediately stopped; tributaries of sac ligatured; three-quarters of sac excised and remainder oversewn; no drainage.

Post-operative course: Middle third of clavicle failed to unite; wound otherwise healed soundly. No signs of cerebral damage appeared at any time; no pulsation or thrill recorded in the aneurysmal site; pain in the arm persisted but was lessened; some diminished power of grip persisted in the right hand.

—I am, etc.,

Leicester. DONALD MCGAVIN.

Pleurisy and Pleural Effusion

SIR,—From the observation post at the Pleural Effusion Unit established by the L.C.C. at Queen Mary's Hospital, Sidcup, I wish to make a few comments on Wing Cmdr. R. R. Trail's very welcome article (Jan. 23, p. 98). The subject of pleurisy and pleural effusion is becoming more important, not only because of the increase in the number of cases concomitant with the general increase in tuberculosis, but also because idiopathic and secondary tuberculous pleural effusion appears to follow a more serious course than it used to, probably owing to the lowered general resistance of the average patient in wartime.

The importance of correct appreciation of the symptom pain is rightly stressed by Wing Cmdr. Trail; I would like to add that pain on laughing and on yawning can be an early symptom of pleurisy, just as it is one of the last to disappear.

In the differential diagnosis no mention is made of rheumatic pleural effusion, which can present some difficulties. I think mention should be made also of the so-called sulphapyridine effusion, as this term is starting to creep into medical language. Pleural effusion due to the action of sulphonamides does not exist; it has never been reported in the course of treatment of non-pulmonary conditions by these drugs. It is possible, though difficult to prove, that chemotherapy has caused an increase in the number of metapneumonic serous effusions, as some of these effusions would have become purulent in pre-chemotherapeutic days; that is all. It must be admitted that the differential diagnosis between pleural effusion and pneumonia with effusion can be difficult, some cases of primary effusion look really ill and are profoundly toxic, and have not "the appealing look, the clear complexion, and the bright eye of the average tuberculous patient." The great value of a white cell count can be offset, if not resorted to early, by the depressant effect on the leucocytes of sulphapyridine, which is nowadays frequently administered blindly.

We attach much significance here for the diagnosis *a posteriori* of tuberculous pleural effusion to the finding in the radiograph of grossly enlarged and fluffy hilar glands, frequently more conspicuous on the opposite side to the effusion. The persistence of these shadows three months or more after the onset of the effusion appears to be of fairly serious prognostic significance. It is, of course, a wise precaution to perform a tuberculin skin test in every case in which the tubercle bacillus has not been demonstrated.

Few people will agree with Wing Cmdr. Trail's statement that "the radiograph of the transudates of cardiac and renal failure generally shows bilateral effusion, small in extent, and confined to the costo-phrenic angles." In congestive heart failure the effusion is often of considerable size, and is much larger on the right side. To distinguish between a transudate and an exudate at the bedside, Rivalta's test can be of real aid; one or two minims of the fluid to be examined are dropped into a glass container filled with 1:100 acetic acid; a smoky cloudiness is observed on the downward path of the fluid (owing to its high protein content) if it is an exudate. When, after other suitable investigations, doubt persists as to the nature of the effusion, whether it be an exudate or a transudate, it may be useful to recall that an exudate has a lower *p*H than that of the patient's blood, while the *p*H of a transudate equals that of the blood.—I am, etc.,

E. MONTUSCHI.

Peptic Ulcer a Deficiency Disease?

SIR,—The gastric and duodenal ulcers of to-day seem to possess some of the characteristics of deficiency ulcers—i.e., their chronicity, their resistance to treatment, their tendency to rapid perforation and haemorrhage.

The gastric and duodenal ulcers in my practice have responded in a most hopeful way to vitamin therapy. Two tablets of a well-known vitamin preparation containing in each 2,500 I.U. of vitamin A, 160 I.U. of B_1, 250 I.U. of C, and 250 I.U. of D given three times a day relieve all pain and discomfort in 6 to 10 days. Then a maintenance dose of two tablets per day seems to keep patients symptom-free—for how long I cannot yet say.

One patient was eight weeks at a base hospital with his ulcer not healed. Because of financial stress he discharged himself and went back to work. Three weeks later an *x*-ray film revealed a penetrating ulcer. He was on the point of being admitted to hospital for a partial gastrectomy when he developed a quinsy. I began to give him the above vitamin preparation—6 tablets a day. He was free from pain in 6 days, and was then able to sleep all night without pain waking him at 4.30 every morning. Of his own accord he gave up his two-hourly feeds. Another patient, whose duodenal ulcer was responding to the vitamin treatment, developed a corneal ulcer for the second time—probably a B_2 deficiency. This is interesting because of the well-known relation of corneal ulcer to vitamin A deficiency.

I have twenty-odd ulcer patients on vitamin therapy and am keeping notes. Neither rest in bed nor diet restrictions seem to be essential, nor alkaline powder.

All this may be coincidence, but my clinical experience suggests that peptic ulcers are a manifestation of vitamin deficiency disease. Nearly all vitamin foods are rationed, or are on points or in short supply—milk, butter, eggs, meat, fruit, and green vegetables (last winter).

This must be what happened in Denmark in 1917-18. Meulengracht's haematemesis diet was, in Denmark, successful because it was a way of introducing vitamins.—I am, etc.,

London, S.E.18. J. J. O'MULLANE.

"Calorie Control" Diabetic Diet

SIR,—I have read the article by Dr. A. C. Crooke and Miss Ella Scott (Jan. 16, p. 64) and Dr. R. D. Lawrence's reply (Jan. 30, p. 143) with considerable interest. Is not the difference of opinion due to the fact that no attempt has been made to differentiate the types of diabetes? Physiology shows that a glycosuria may arise from many different causes, and my own experience in the treatment of patients is in agreement with this. So long as all cases in which there is sugar in the urine together with a high blood sugar are labelled as diabetics, we shall be able to point to success and failure with many varieties of treatment.

Experience before the introduction of insulin may be helpful. Some of us remember the starvation treatment of Allen and the high-fat treatment of Newburgh and Marsh, each of which gave excellent results in certain cases. Two instances in my own experience show how differently patients may respond to different methods. Nearly 20 years ago a jam manufacturer consulted me, and I found a moderate degree of glycosuria with a raised blood sugar. After I had prescribed an appropriate diet he told me that he would follow it, but that he had eaten jam in large quantities all his life and would continue to do so. I told him that he would kill himself. Ten years later I saw him again with a normal urine and blood sugar. He told me that he had kept to the diet together with jam in large quantities. Five years later I was called to see him in a moribund condition with gangrene of the leg, acetonuria, and a high blood sugar. In contrast to this, a young girl on the verge of coma with intense ketosis and a high blood sugar was given nothing for five days but fat in the form of cod-liver oil. The ketosis disappeared, she made a good recovery, and lived for some years on a restricted diet. Metabolic rest, despite the alleged ketone-producing capacity of fat, was sufficient to produce stabilization. The first case was probably one of arteriosclerosis accompanied by glycosuria; the second, a true pancreatic diabetes.

Are not many of the cases we see, in which large doses of insulin fail to produce a permanently normal urine and blood sugar, due to a factor other than the pancreas which has not been recognized? In a normal person the blood sugar will be lowered by insulin and may produce toxic effects. The same may happen in a diabetic if the cause is other than pancreatic. For this reason I agree with Dr. Lawrence that the doses of insulin advocated are high and might lead to unpleasant results.—I am, etc.,

Manchester. T. H. OLIVER.

SIR,—Without entering into a discussion of the physiological basis of diabetic diets we have one criticism of Dr. A. C. Crooke's system (Jan. 16, p. 64). In Birmingham most of the younger men are working long hours, often at arduous tasks, and in many cases have a number of their meals at work. Of the remainder, who may be presumed to have time to make a hobby of their ailment, very few have either the temperament or the good sense to co-operate in any but the simplest dieting. If the accurate weighing suggested by Dr. Crooke were ordered for these patients they either could not or would not co-operate for any length of time. In our experience the factors that lead to success in diabetes are courage, good sense, and a diet of good quality. These things are more important than facility in shallow arithmetic.—We are, etc.,

GERALD KNIGHT.
Birmingham J. M. MALINS.

Anaesthesia for Laryngofissure

SIR,—I fear that Dr. C. B. Lewis in his most valuable medical memorandum (Feb. 6, p. 162) has overlooked one danger of trilene. He points out that in this operation the diathermy is safe because trilene is non-inflammable. Trilene is merely trichlorethylene stabilized with thymol. Trichlorethylene decomposes at 125° C. into hydrochloric acid and the deadly phosgene gas.—I am, etc.,

London, W.2 THOMAS E. A. STOWELL, F.R.C.S.

Coarctation of the Aorta as an Obstetrical Complication

SIR,—After reading Dr. C. W. Walker's interesting contribution on coarctation of the aorta as an obstetrical complication (Feb. 13, p. 190) I feel that it would be of general interest to add a case that occurred in my own practice in Shanghai during the last war.

An Englishwoman, 23 years of age and recently married, whom I had never seen before, asked me to attend her in her first confinement. At the pre-natal examination I found her to be a very finely developed and well-balanced young woman. I learned she was a keen tennis player, of an active and self-reliant nature, and had hardly had a day's illness in her life. She had no trouble whatever during pregnancy, and elected to remain in her own flat for the confinement rather than go to a nursing home.

The early stages of labour were borne quite cheerfully, and when I returned later I found her sitting up and very hopeful. I moved into an adjacent room to read for a while when I was suddenly called back by the nurse to find that the patient had fainted whilst being helped on to the couch. I found her unconscious, very pale, and with a small irregular pulse, the rate being 120. Within a few minutes consciousness returned, the pulse rate dropped to 90, and she seemed almost her normal self again, though the pallor remained. Sensing danger ahead I telephoned an ambulance and, after half an hour's rest, took her to the nursing home, where my fears were soon allayed. She passed through the final stages of labour with perfect equanimity, and within two hours a female child weighing 8 lb. was born without undue distress.

On the following morning I found that the mother had slept well and was comfortable, though the pulse rate had kept at 100–110 since her confinement. At five o'clock in the afternoon I called again to find her happy and content, having rested well during the day; the pulse rate was unchanged. I had hardly passed into the hall when I was called back to find the mother dead.

At the post-mortem examination the pericardium was distended with fluid blood. There was no obvious enlargement of the heart, though the muscular development of the left ventricle was well marked. The sheath of the aorta was distended with dark blood clot, and there was a longitudinal rupture of the vessel one-third of an inch in length on the left side just above the valves. The walls of the aorta were perhaps thinner than normal but otherwise appeared normal. Below the origin of the left subclavian artery there was complete coarctation of the aorta, hardly allowing the passage of a bristle. The post-mortem findings pointed almost conclusively to the aortic rupture having occurred when the patient first fainted; a dissecting aneurysm formed in which the blood clot strengthened the wall sufficiently to allow the circulation to proceed, which it did for 17 hours; then the outer wall of this aneurysm gave way and the pericardium was instantly flooded.

—I am, etc.,

Guildford. W. B. BILLINGHURST.

Preparation of the Hands for Operation

SIR,—A very interesting method of preparing the hands was quoted from Davletov, a Russian surgeon, in the *Bulletin of War Medicine*, Jan., 1942 (p. 169), regarding a series of 200 cases, and I am surprised that the idea does not seem to be widely known or applied. Starting from the fact that most pathogenic bacteria require an alkaline medium (*p*H 7.5 to 8.0), that the reaction of the skin changes from strongly acid to strongly alkaline between the surface and the basal layers (*Lancet*, 1942, **2**, 18), and that artificial gastric juice without pepsin is bactericidal and does not harm the tissues, he proceeded to try the effect of washing his hands, which were contaminated with staphylococci, streptococci, and diplococci, with gastric juice and with dilute hydrochloric acid alone.

He finally developed the technique of washing his hands for two periods of 5 minutes in 0.1% HCl with the aid of a piece of sterile cotton-wool, and then wiping his hands for 2 to 3 minutes with 0.15% HCl in 20 to 40% surgical spirit. The results were excellent. The method requires no preliminary scrubbing, no sterile water, and no subsequent application of mercuric perchloride or iodine.

This appears to be a simple, cheap—one may almost state physiological—way of preparing the hands, and should materially help to remedy the dearth of rubber gloves which threatens us at the present time.—I am, etc.,

St. Mary's Hospital Medical School, W 2 LEON RADCLYFFE.

Absenteeism in Industry

SIR,—Absenteeism in industry is a problem facing both lay managements and medical practitioners and through them the whole nation. Granted that much of this absenteeism is due to genuine organic disease or disablement, a not inconsiderable proportion is due to a type of incapacity, variously labelled by the profession as assorted "catarrhs," pleurodynia, dyspepsia, or, more commonly, "debility," nervous or otherwise.

As an industrial medical officer in the full-time service of a concern whose product is of vital importance to the war effort, I receive many and various certificates sent in by absent employees. Having been a G.P. myself for many years I am fully acquainted with the problems facing my erstwhile colleagues. I am now entering a plea that they should consider those which face me and other industrial M.O.s, the first of which is to maintain our loyalty to our professional brethren in the interpretation to managers of the certificates sent in by them to explain a worker's absence from essential duty. One's professional solidarity is on occasion strained to the utmost, as, for instance, when a batch of "dyspepsias" arrives to cover the day or two succeeding New Year's Eve. Certificates in industry nowadays are as vitally important to the community (with a corresponding responsibility on those who issue them) as are death certificates, where lax or undesirable terms are defined in a schedule. By a similar schedule can we help ourselves to obviate the refined form of blackmail to which we are subjected by the certificate hunters?

May I beg from some leader of our profession a definition of the diagnosis "nervous debility," which, as I understand it to mean at present, is a syndrome characterized subjectively by a dislike of the job in hand and objectively by a desire on the part of the practitioner to get rid of a neurotic. What reliance can the average intelligent manager put on the certificate of a doctor who states that his patient is unfit to work in the conditions of a certain factory twenty-five miles away, when, apart from the uncorroborated evidence of the patient, it is obvious that he can have no knowledge of what those conditions are? Many of these medical euphemisms for "absent from duty" just won't wash nowadays with managers who are harassed by queries about production. Comparisons between workers at home and Service personnel are invited and are hard to counter. I am convinced that our profession is being imposed upon now that, in these days of industrial conscription, "the doctor" is the last resort of the "work-shy." I believe that the remedy is in our own hands—more "austerity in certification."—I am, etc.,

A. G. EDDISON.

Treatment of Bacillary Dysentery

SIR,—In a letter on this subject Flight Lieut. A. G. McManis and Major W. Gordon Rich (Jan. 16, p. 82) mention good results with sulphapyridine. In the Middle East sulphanilamide, sulphapyridine, and sulphaguanidine have all been used, and the results obtained with the last-named drug in one general hospital on the first 76 cases so treated are given in a paper by Bulmer and Priest in the *J. R.A.M.C.* of December, 1942. As we had no opportunity to correct the proofs a number of misprints have unfortunately crept in, but we summarized the position by the statement that sulphaguanidine was found to be, in the admittedly small series of cases, as specific for bacillary dysentery as sulphapyridine was, for example, in pneumonia. In this first series no toxic effects were encountered; in a later and larger series there were a few cases of rubelliform rash, unaccompanied by other ill effects, about the fifth day of treatment, and one case of haematuria with pain, similar to that which occurs with sulphapyridine but mild in degree and of short duration.

We have also tried sulphanilamide and sulphapyridine for bacillary dysentery. The former we found of little value. With the latter good results were obtained, which in some cases could be described as dramatic. We considered, however, that of the drugs of this series then available sulphaguanidine remained the treatment of choice, since toxic effects are rare, and it does not produce anorexia, nausea, and depression, which were common with sulphapyridine; the patient under treatment with the former was a more cheerful and fitter man.—I am, etc.,

W. M. PRIEST.

Cardiac Invalidism in Children

SIR,—Referring to Dr. R. P. Garrow's letter (Jan. 23, p. 114), I cannot share his despondency and alarm in regard to the work of cardiac centres. In particular I take exception to his opinion that attendance thereat is liable to confirm the invalid attitude of both child and mother. In addition to its obvious functions in the investigation, diagnosis, and supervision of suspected and actual cases of rheumatism and cardiac disease, a properly conducted clinic should lessen the period of real and bogus cardiac invalidity. Such a clinic certainly cannot initiate or perpetuate unfounded fears, but rather dispel them.

Reviewing the work of my council's rheumatism and cardiac clinic during the past year, it is found that the majority of cases were referred from hospitals, school clinics, or by general practitioners, with definite symptoms and/or signs indicative of congenital or acquired cardiac or rheumatic disease. In only an insignificant number of cases could a child's attendance be ascribed to maternal over-anxiety such as Dr. Garrow describes, and in these instances the attendance resulted in the effectual dispelling of the unjustified fears.

I consider that a properly organized and competently staffed rheumatism and cardiac clinic working as an integral part of a similarly constituted public health service performs most valuable work in the abolition of both preventable and unwarranted cardiac invalidism. In such circumstances I lack Dr. Garrow's temerity in uttering *ex cathedra* pronouncements on the findings of a rheumatism or cardiac specialist, and I am constrained to inquire what especial qualifications he possesses to justify such oracular declarations.—I am, etc.,

A. H. G. BURTON,
Medical Officer of Health.

Ilford.

Obituary

H. W. C. AUSTEN, M.D., L.D.S.ENG.

Harold Austen, who died from pneumonia on Jan. 22, was born at Ramsgate in 1868, the eldest child of Josiah Austen, a staff surgeon in the Royal Navy. He was educated at Tonbridge School and St. Bartholomew's Hospital, qualifying M.B., B.S. in 1890. He took the M.D.Lond. in 1892 and the L.D.S.Eng. in 1897. After qualifying he was house-physician to Dr. (later Sir) William Church, clinical assistant to the Central London Ophthalmic Hospital, and assistant medical officer to the Western Hospital, Fulham. In 1901 he was appointed assistant dental surgeon to the Royal Dental Hospital and the following year to St. Bartholomew's Hospital. For ten years he lectured on materia medica at the Royal Dental Hospital, and was the first to hold this lectureship. In 1902 he edited, with Douglas Gabell, a materia medica for dentists, which has since reached a seventh edition. During the last war Austen joined the Royal Naval Volunteer Reserve; he was engaged chiefly in telegraphy on the East Coast of England and was frequently entrusted with carrying important dispatches to London. In 1917 he married Juliette Mazet, who survives him. On retiring from the staff of Bart's in 1928 he was elected a governor and a consulting dental surgeon to the hospital. He had been a member of the B.M.A. since 1891.

Austen was fortunate in having a large number of interests, in many of which he excelled, notably in music. Membership of the Society for Psychical Research and other societies, painting, a good knowledge of ceramics, and gardening afforded him other pleasures. Having the instinct of the perpetual student he took up the study of Chinese in later years. A man with all these attainments was naturally a bibliophile, and he had collected a very fair library. It was, no doubt, largely owing to his many outside interests that he took up dentistry to allow him further scope and opportunity for indulging in these recreations.

Harold Austen was a lovable character, quiet, unassuming, devoid of all conceit and boastfulness, and possessed of good common sense. He never experienced failure in any of his examinations, and if he had had a little more thrust, and perhaps been a little less concerned with his outside attainments, he would have made a more prominent name in the medical world. Possibly this would have been at the expense of his endearing personality. Austen is survived by two brothers—one in Auckland, New Zealand, and the other a retired Commander in the Royal Navy—and a sister, Winifred Austen (Mrs. Frick), a well-known painter and etcher of animal and bird life. F. C.

Mr. EDWARD BUTTAR writes: Harold Austen had an uncommon capacity for esteeming "other better than himself." So it was entirely in keeping that he should have studied Chinese in his later years; for the ceremonial self-depreciation of the ancient Chinese was entirely in accordance with his own genuine attitude. Loyal in affection, he bestowed that affection so wholeheartedly that it was difficult at times to feel worthy of such friendship. His secret, beyond doubt, lay in his conviction that the world is full of all sorts of interesting matter and in his determination to have his full share of it. To many he may have seemed a shy and even slightly embarrassed man, but, when offered a box on which his match would strike, he at once appeared as an exponent of the now almost lost art of conversation. In the words of Joseph Conrad, ". . . the sort that's always chasing some notion or other round and round his head just for the fun of the thing." His was indeed a happy life.

JAMES MURRAY, M.A., M.D.

The death occurred on Feb. 2 at Inverness at the age of 90 of Dr. James Murray, well known in the North of Scotland as a skilful practitioner, a wise and purposeful administrator, and a genial personality. He was Highland born and bred, being a Murray of Kilcoy in the Black Isle, and a genuine and loyal Highlander he remained. Educated at the Inverness Royal Academy, where he did well and began his career as a medallist, he went at the early age of 15 to Edinburgh University. After taking his M.A. he studied medicine, and when a student in Lord Lister's class was awarded the medal for clinical surgery. He qualified M.B., C.M. in 1876, and then served for a time as house-surgeon at the Royal Infirmary in charge of Patrick Heron Watson's wards, and under his tutelage Murray must have acquired his distinct surgical bent. There followed a short period in a coastal town in Scotland, but the call of the Highlands, his "ain countrie," was strong in him, and in 1879 he went north to his beloved Inverness, there to practise for sixty-odd years among the Highland folk he loved. For the whole of his professional life in Inverness he was connected with the Royal Northern Infirmary, first on the staff and then on the board of management. The Infirmary and its welfare occupied much of his care and attention in season and out. While at the Annual Meeting of the B.M.A. at Oxford he gained the ear of Lord Nuffield and received at once a cheque for £1,000 towards the extension of the Infirmary which was then going on. Next to the claims of the hospital came those of the B.M.A., for he was a member for 64 years, served on the Central Council in 1900-1 and again in 1906-7, and for 22 years was Representative of the Inverness Branch at the A.R.M.

Dr. Murray was a good mixer, making friends easily and being ready to discuss any subject, especially in music, literature, or painting. He disliked the motor car, and was a great believer in the healthy exercise afforded by cycling; he continued to make his visits on a bicycle until he was over 80. James Murray was a typical Highland gentleman, courteous, cultured, kindly to everyone, and punctilious in the discharge of all his engagements. The funeral service at the Old High Church, in which he had for many years been the senior elder, was indicative of the esteem in which he was held by all classes of the community. He was predeceased by his wife, and leaves two daughters, one of them being the Warden of University Hall, St. Andrews.

H. LAMBERT LACK, F.R.C.S.

Consulting Aural Surgeon, London Hospital

We regret to announce the death on Feb. 14, in his 76th year, of Mr. Harry Lambert Lack. He was born in 1867 and was educated at King's College, London, qualifying M.R.C.S., L.R.C.P. in 1890 and taking the M.B. of the University of London in 1892. He was elected F.R.C.S. in 1893 and proceeded M.D. in the following year. When the B.M.A. met at Ipswich in 1900 he acted as secretary of the Section of Laryngology and Otology, was vice-president of the same section at Oxford in 1904, and at the Aberdeen Meeting in 1914 held office as president of the Section of Laryngology, Rhinology, and Otology.

A colleague writes: Lambert Lack was one of the most distinguished rhino-laryngologists of our time. Many important contributions resulted from his original outlook and aptitude for research. He received his medical education at King's College Hospital, but during the greater part of his professional career he was associated with the London Hospital. He owed much to a sound training in surgery and pathology; the latter subject was always of special interest to him, and his opinion on a microscopical specimen was valued by many who had made pathology their life study. He was awarded the Jacksonian prize in 1899 for an essay on "The Pathology, Diagnosis, and Treatment of Inflammatory Affections of the Nasal Fossae and the Associated Sinuses and Air-cells." This essay was subsequently revised, chapters were added, and a book, *The Diseases of the Nose and its Accessory Sinuses*, published in 1906, was the result. This was the first really scientific and exhaustive treatise on the subject to appear in English, and the opinions of leading specialists are fully reviewed and analysed. The book is especially valuable for the amount of original material which it contains, much of which resulted from pathological studies carried out by the author. The sections on nasal obstruction and sinusitis are quite exceptional. Subsequent contributions appeared from time to time dealing with subjects connected with the nose and throat, all of great merit. Lack was never redundant in words written or spoken, and he had the capacity of lucid and masterly exposition. He was much beloved by his colleagues, and the author of this short appreciation learned to value his extreme modesty, never-failing kindness, and stimulating personality. He treated patients at the

London Hospital with the same courtesy and care as those who came to consult him privately.

Lack had many other interests outside his strictly professional activities. He loved beautiful things, and a good deal of his spare time was spent in the acquisition of a choice collection of furniture. He was extremely fond of the country, and at one time, when he had a week-end house at Littlestone, he was an enthusiastic golfer. He had a great knowledge of literature and poetry. Mrs. Lack, who survives him, shared his literary tastes, and the "Poetry Society," which met at his house and in which his talented wife took a distinguished part, was a source of enjoyment to many of his friends. Three sons and a daughter also survive him.

Dr. **Constance Elizabeth Ridout** died on Jan. 19, to the great regret of all who knew her. Her health began to fail last August, but with characteristic courage and resolution she continued in active practice until three days before her death. She started work in the literary world, but the last war opened her eyes to the sufferings of humanity and she determined to take up medicine. She was a student of University College and qualified M.R.C.S., L.R.C.P. in 1922. Her first post was with the late Mr. J. Russell Howard in his surgical out-patient department at the London Hospital, where later she became clinical assistant in the genito-urinary department (women). In 1924 she came to Oxford as R.M.O. at the Wingfield-Morris Orthopaedic Hospital. Later Dr. Dorothy Crook was appointed house-surgeon to the hospital, and thus there began a professional association and a close friendship which was never interrupted, for in 1926 she and Dr. Crook started in general practice together in Oxford, and here they have lived and worked together in the highest tradition of our profession. Since 1933 Dr. Ridout had been clinical assistant at the genito-urinary department (women) at the Radcliffe Infirmary, and since 1937 had worked for the Oxfordshire County Council on ante-natal, maternity, and post-natal care in the country round Oxford. When the war came she undertook the work of medical officer to the hostel for evacuated children in Oxford.

She saw her work generously in the way of the old-fashioned doctor, caring for her patients as individuals and family groups, much interested in the maintenance of health of mind and body and in the prevention of disease and deformity. She was a woman of independence of mind, of remarkable and rare personality. To those of her colleagues and patients who knew her well she was a true and attractive friend of unusual character.—G. R. G.

The Services

The King has approved the award of the R.N.V.R. Officers' Decoration to Surg. Cmdr. W. McO. MacGregor, O.B.E., and Acting Surg. Cmdrs. W. F. Lascelles and H. G. Ungley, R.N.V.R.

Surg. Lieut.-Cmdr. W. H. C. M. Hamilton, R.N., has been mentioned in dispatches for services in convoys to North Russia.

CASUALTIES IN THE MEDICAL SERVICES

Prisoner of War.—Lieut. J. G. McGavin, R.A.M.C.

Missing.—Wing Cmdr. D. Magrath, R.A.F.

Missing (Unofficially reported Wounded and Prisoner of War).—Capt. S. D. Corry, R.A.M.C.

DEATHS IN THE SERVICES

Lieut.-Col. **Lessel Philip Stephen**, I.M.S. (ret.), who died at Grimsby on Feb. 1, was born on July 20, 1874, and was educated at the University of Aberdeen, where he graduated M.A. in 1895 and M.B., Ch.B. (with distinction) in 1899. He took the D.P.H.Lond. and the D.T.M.&H.Camb. in 1907, and was elected F.R.C.S.Ed. in 1912. He entered the I.M.S. as lieut. soon after qualification, was promoted capt. in 1903, major in 1911, lieut.-col. in 1919, and retired in 1926. Among the posts he held while in India were those of acting professor of ophthalmology and ophthalmic surgeon in the Medical College, Bombay, and superintendent of the Medical School and civil surgeon, Hyderabad, Sind. After retiring from the I.M.S. he settled in Grimsby and was honorary surgeon to the hospitals at Horncastle, Scunthorpe, and Louth, and surgeon to Brigg Infirmary. He was also ophthalmologist under the Ophthalmic Benefit Scheme and consultant under the Public Health (Notification) Puerperal Fever and Puerperal Pyrexia Regulations, 1926. He had been a member of the B.M.A. since 1903 and was chairman of the Grimsby Division in 1935–6.

Medical Notes in Parliament

Beveridge Report in the House of Lords

When the House of Lords on Feb. 24 discussed the Beveridge report Viscount Samuel said it constituted the finest body of proposals on social reform which had been presented to the country in our time. There was no reason for postponing all preparations until they knew exactly what the financial situation would be after the war. Archbishop Lord Lang could not conceive that the Government, having gone so far, did not feel themselves bound to go further. He maintained that the appointment now of a Minister of Social Security was analogous to the appointment of a Minister of Town and Country Planning. There was a great deal that such a Minister could do at present.

Medical Provisions

Lord Dawson said that in the debate in the House of Commons family allowances and the hospital and health services had been pushed to the front and had been blessed by three Ministers of the Crown. He was sure that had resulted in great activity within the Ministry of Health. It seemed necessary, therefore, to make some statement to show where the medical profession stood. Sir William Beveridge, although stating in Assumption B that the medical services would take an important place in his plan, avoided saying what the scheme for those services should be. Sir William assumed that, "from the standpoint of social security, a health service providing full preventive and curative treatment of every kind to every citizen without exceptions, without remuneration limit and without an economic barrier at any point to delay recourse to it, was the ideal plan." That assumption, Lord Dawson continued, had been considered by the medical profession for many years. After the last war Lord Addison instituted an inquiry into the medical services, and that inquiry, of which he (Lord Dawson) was chairman, reported that changes were necessary, because the organization of medicine had become insufficient and because it failed to bring the best means of maintaining health and curing disease to all citizens. That had been adopted unanimously but was left in abeyance.

During the past two years the medical profession had studied the replanning of medical services. The Medical Planning Commission under the aegis of the B.M.A. and the Royal Colleges, with representatives of municipal doctors, private practitioners, men interested in preventive and curative medicine, had reached a remarkable degree of agreement. At Oxford a medical organization had behind it Sir Farquhar Buzzard, Lord Nuffield, and Sir William Goodenough. A third body, consisting of King Edward VII Hospital Fund and the Voluntary Hospitals Association, had also studied this question, and so far the agreement was substantial. The present Minister of Health and his medical officers had met these efforts in an excellent spirit. The ideal assumed by Sir William Beveridge was one which was seldom attained in one stroke. But there had seemed to be in the House of Commons during the previous week an idea that only about six weeks was required to transform the practice of medicine. Lord Dawson suggested that they should go step by step, should do it by agreement between the two parties, and should show both patience and statesmanship. Medical practice, as regards both doctors and patients, was contained in customs fixed firmly in the habits of the people, involving not only their reason, but their emotions and their feelings.

Problems Needing Action Now

Certain matters had been ready for tackling for a considerable time. The first was the bridging of the gap in theory and in practice between preventive and curative medicine. The detachment of these two had been to the disadvantage of each branch and to the public service. Hospital practice and general practice must comprise the care of people's health and the furtherance of health as their chief objective. Medical officers of health must come out of their obscurity, come on to the staffs of the hospitals and meet their colleagues regularly. They had to alter medical education so that the student from his early days was taught that the building up of health must take precedence of the cure of illness.

The second matter which could be dealt with now was to make the practice of medicine increasingly institutional. Medical practice was based on a growing number of sciences, and in its search for truth required team-work. Team-work required equipment, and teams were better situated side by side in a building equipped for the purpose. Team-work was a necessity if only for economy of man-power and economy of cost. Once that was admitted, institutional provision must increase. Two instances had a very promising future. In the provision of health centres in industrial organizations there was a vast future for useful work. There the principle was that of putting the practice where people assembled in groups. The promotion of child health also lent itself to immediate action. It should take precedence of almost every medical movement at this moment. There were schemes of health, notably in London, which stood forth as an example, a scheme in which the leading voluntary hospital for children's diseases would join hands with the Post-graduate Medical School, which would undertake the maternity end in the pre-natal clinics. In that movement not only voluntary associations but the municipal organizations of London would share, and he had confidence that the scheme would be copied in other parts of the country.

What he had said implied a pattern of hospitals, health centres, and clinics allotted to each area. They must be of various grades, according to the needs of the population and distributed where most needed. The areas of distribution must be large, but not too large, and if they were going to serve their purpose we must include several major local authorities. A small area could not have an adequate service, or could only have it at excessive cost. At the head of each region there would be a key hospital, and wherever possible that key hospital would be a teaching hospital. These hospitals would consist in part of local authority hospitals and in part of voluntary hospitals.

Self-determination for the Profession

But a service of this description could not be constructed except under the skilled guidance of the medical profession. Medicine became every year a more complex art based on an increasing number of sciences. It was idle to think that any scheme of hospital service could be run unless a vocational body was always ready at hand to give advice to the administrative authority. The latter must have the last word, but it required the vocational body to advise before it took the final decision. It was not to be expected that a great profession was going to be moved about and take its orders from laymen. Under the agreed control of Parliament the medical profession would demand self-determination in the same way as the Bench, the Bar, and the Church looked after their affairs without let or hindrance. Just as the medical profession was taking a prime responsibility in putting forward these proposals, so it would expect to take an equal part in their guidance. The medical profession had the difficulty that in order to do good planning they must, while having collectivism, have 100% individualism in personal relations.

Government's Reply

Lord SIMON said it was grotesque to talk about the Government showing only a dilatory and half-hearted interest in the subject. Among problems of the post-war period that of health was only a portion of what must be written down as post-war requirements which could not be denied. On the proposal of universal State services, the Government had said, two months from the issue of the report: "We endorse that and we will work for it"; was that a half-hearted adherence? The Government had every intention of making good this immense proposition with the co-operation of those who could advise them best. The Government conceived the scheme not as one which would automatically end a medical man's private practice and not as a scheme in which the voluntary hospitals would have nothing to do. On the contrary, they could continue and they would have their part to play. Sir William Beveridge had said that unless a universal public health service were secured, the proposals he made had no meaning, but he did not say (because it was not his business to say) how this service was to be secured. The comprehensive medical service, the principle of which was accepted, involved bringing in hospital services, institutional services, the part which the local authorities should play, and discussion and negotiation with the doctors and with the doctors' representative organizations. The whole of that subject was in the grasp of the Minister of Health in England and the Health Department in Scotland. To transfer it to someone else and call him Minister of Social Security would not save time.

Recruitment and Distribution of Nurses

In reply to Miss Ward on Feb. 11 Mr. BEVIN said the present shortage and uneven distribution of nurses and midwives for civilian work demanded special measures. After consultation with the organizations representing the interested parties, and in agreement with the Minister of Health and the Secretary of State for Scotland, he had decided to appoint a National Advisory Council for the Recruitment and Distribution of Nurses and Midwives to advise on all questions relating to the recruitment and distribution of male and female nurses and of midwives on civilian work. The council, which would be presided over by a Parliamentary Secretary to his Ministry, and with which officers of the Departments concerned would be associated, would consist of representatives nominated by the various organizations concerned. He would ask the council to meet at an early date and to consider immediately the measures for increasing recruitment, the arrangements for a special registration of nurses and midwives, and the priority to be accorded to the different demands for the different types of nurses and midwives, as well as make suggestions for easing the situation of certain types of hospitals with large immediate demands, such as tuberculosis and mental institutions. There was no intention of changing existing arrangements where these were working satisfactorily. The administration of measures decided upon would be entrusted to the appointments department of his Ministry, acting where necessary through the local appointments offices, each of which would be assisted in its work by a local advisory committee.

Milk Supply and Tuberculosis

Mr. MABANE, replying on Feb. 17 to Major York, said that in March, 1942, out of a total supply by wholesale producers of 3,880,000 gallons of tuberculin-tested milk, approximately 3,000,000 gallons were sold to buyers on the same terms as ordinary milk. It was probable that most of this was bulked with ordinary milk before sale to the consumer. Lord Woolton was considering whether means could be devised both to encourage the future production and consumption of tuberculin-tested milk and to raise the general standard of the milk supply of the country. Mr. Mabane had no reason to think that pasteurization of tuberculin-tested milk would affect the future production of such milk.

Sir CHARLES EDWARDS drew attention on Feb. 17 to a statement by the chairman of the Glamorgan C.C. Diseases of Animals Committee that unless there was an improvement in the condition of the milk public authorities should stop the distribution to children as a means of stopping the spread of tuberculosis. Miss HORSBRUGH said she had seen a Press report of the statement mentioned. In the majority of cases tuberculosis due to bovine infection was non-pulmonary; at all ages it constituted about 30% only of the cases of non-pulmonary tuberculosis. The incidence of non-pulmonary tuberculosis in children under 11 in Wales gradually declined up to 1937, but began to rise in 1938. The increase was rather more marked in 1940, the year in which the national milk scheme was introduced. The numbers of cases notified in the years 1940 and 1941 were 388 and 389, an increase of 16% compared with 1939 and of about 12½% compared with the average for the years 1933 to 1939. Lord Woolton had under consideration practical steps to secure the elimination of active tuberculosis germs from liquid milk.

Investigation of Growth Rates among School Children.—A few local education authorities have continued periodical weighing and measuring of children during the war, and a scientific investigation into growth rates in certain neutral and evacuation areas is being undertaken on behalf of the Board of Education. This investigation, so far as it goes, shows that since the beginning of the war growth rates measured by height and weight are being well maintained.

Notes in Brief

The number of chairmen of medical boards is at present 180. The amount paid in fees to consultants and specialists during the period Sept. 1, 1939, to Dec. 31, 1942, was £395,500.

Medical News

A meeting of the London Association of the Medical Women's Federation will be held at B.M.A. House, Tavistock Square, W.C., on Saturday, March 13, at 3 p.m., when the possible changes in medical practice as envisaged in the Beveridge report will be discussed, and Dr. Kate Harrower, Glasgow M.W.F. representative on the B.M.A. Insurance Acts Committee, will present a memorandum for consideration and discussion.

A sessional meeting of the Royal Sanitary Institute will be held at Bristol University on Saturday, March 13, at 10 a.m., when papers on "Recent Developments in the Control of Domestic Pests," "The Value of Lethane (384 Special) in the Control of Pediculosis," and "Some Problems in Nursery Provision," by Dr. H. G. H. Kearns, Dr. R. J. Irving-Bell, and Dr. Marguerite G. Hughes and Mr. H. W. Brand, respectively, will be read and discussed.

A meeting of the Pharmaceutical Society of Great Britain will be held at 17, Bloomsbury Square, W.C., on Thursday, March 11, at 7 p.m., when short papers on "Formaldehyde-gelatin in the Production of Enteric Pills and Capsules," "The Use of Stock Suspensions in Dispensing," "Ergot, the Qualitative Chemical Tests," and "The Acridine Antiseptic" will be read and discussed.

The next quarterly meeting of the Royal Medico-Psychological Association will be held at 11, Chandos Street, W., on Wednesday, March 10, at 10.30 a.m., when opening papers on "The Clinical Aspects of Prefrontal Leucotomy" by Brigadier J. R. Rees; Drs. R. Strōm-Olsen, S. L. Last, M. B. Brody, and Mr. Geoffrey C. Knight; and Dr. E. Cunningham Dax will be read. At the afternoon session, beginning at 2.15 p.m., the subject for discussion is "The Range and Technique of Prefrontal Leucotomy," and opening papers will be read by Prof. F. L. Golla, Mr. Wylie McKissock, and Mr. F. W. Willway.

The Labour Research Department (6, High Holborn, W.C.) has arranged an information and discussion conference on "Canteens, Catering, and Food Supplies," to be held at the Conway Hall, Red Lion Square, W.C., to-day (Saturday, March 6), at 2.30 p.m.

Universities and Colleges

UNIVERSITY OF LONDON

At a meeting of the Senate, held on Feb. 24, it was resolved that for the duration of the war an additional M.B., B.S. examination should be held early in February each year. The effect of this will be that the examination will be held three times in each academic year.

The William Julius Mickle Fellowship has been awarded to Prof. E. C Dodds, M.D., D.Sc., F.R.S., F R.C.P., Courtauld Professor of Biochemistry at Middlesex Hospital Medical School.

ROYAL FACULTY OF PHYSICIANS AND SURGEONS OF GLASGOW

Prof. Dugald Baird will deliver a lecture, under the auspices of the Dr. John Burns Fund, on "The Problem of the High Stillbirth and Neonatal Mortality in Scotland" in the hall of the Faculty (242, St. Vincent Street, Glasgow) on Wednesday, March 10, at 4 p m.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* the only changes of note in the number of notifications of infectious diseases during the week were decreases in the incidence of whooping-cough 99, and of scarlet fever 46; and increases in measles 1,945, and cerebrospinal fever 14.

The downward trend of scarlet fever and whooping-cough was confined to the north: there were 52 fewer cases of scarlet fever in Yorks West Riding, and 47 fewer of whooping-cough in Durham and 39 in Lancashire. In the south-eastern counties the notifications of scarlet fever rose by 59; in London the total was unchanged.

Dysentery notifications were down by 4. London and Lancashire, each with 13 cases, accounted for almost one-third of the total; the remaining 59 cases were widely distributed in twenty-three counties.

A seasonal rise of cerebrospinal fever (to 124) brings it to a higher level than during the past twenty weeks. Since the rise to epidemic proportion in the beginning of 1940 the successive peaks and the endemic levels have been progressively smaller. The cases during the past four weeks were approximately two-thirds of the total for the corresponding weeks of last year.

In *Scotland* the incidence of infectious diseases fell. Very small rises were recorded for cerebrospinal fever 2, and pneumonia 3; the trend of these diseases has been upward during the present year. The fewer cases of measles resulted from a drop in the north and the east, while in the south-eastern and western counties there was a small rise. The cities of Aberdeen and Dundee had 33 and 30 fewer cases, but rises were reported from Glasgow and Edinburgh of 9 and 18 respectively.

In *Eire* notifications of diphtheria fell from 126 to 93, and those for whooping-cough rose from 51 to 75—the latter mainly due to the outbreak in the urban and rural district of Kilrush, Co. Clare, (20 cases).

Measles

In England and Wales the number of notifications of measles rose by 1,945 during the week, and the total represents an increase of 32% on that of four weeks ago. During the week reviewed the largest increases were those of Yorks North Riding 352, Middlesex 200, London 192, Durham 192, Derbyshire 174, Kent 158, Gloucestershire 155, Buckinghamshire 140, Essex 117, Hertfordshire 108. In contrast to the general rise a considerable fall was recorded in Yorks West Riding 214, Leicestershire 128, Lincolnshire 96, Bedfordshire 94. Some of the large towns are experiencing a rather severe epidemic, and among these are Middlesbrough, Bristol, and Sheffield, where 574, 472, and 436 cases were reported during the week. In London the numbers of cases in the past four weeks were 750, 821, 933, and 1,125; the rising trend is causing some concern to the London County Council, who have issued an appeal for recruits to the nursing staff of their fever hospitals. They require 800 to 900 additional nurses. Two factors that have important influence on the situation are (*a*) the greater proportion of cases sent to hospital because the mothers are working, and (*b*) the return of children to London.

The Week Ending February 20

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,922, whooping-cough 1,581, diphtheria 828, measles 18,215, acute pneumonia 1,399, cerebrospinal fever 96, dysentery 89, paratyphoid 7, typhoid 6. There were 102 deaths from influenza in the great towns.

No 6

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Feb. 13.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county) (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for. (a) The 126 great towns in England and Wales (including London). (b) London (administrative county) (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	124	14	34	1	8	165	8	49	4	7
Deaths ..		2	2				1	4		
Diphtheria	895	48	192	93	30	944	30	210	38	32
Deaths	19	2	4	3	—	27	1	10	1	4
Dysentery . ..	85	13	29	2	—	144	30	24	—	—
Deaths . ..		—		—	—			—	—	—
Encephalitis lethargica, acute	1	—	—		—	1	—	1		—
Deaths . ..		—	—				—	—		
Erysipelas			51	10	2			48	2	1
Deaths . ..		—	—	—	—		—	—	—	—
Infective enteritis or diarrhoea under 2 years				41						
Deaths . ..	34	6	5	16	3	37	9	10	—	1
Measles	17,308	1,125	325	25	48	1,793	152	124	142	18
Deaths ..	17	1	2	—	1	4	—	—	—	1
Ophthalmia neonatorum	78	4	15	1	1	72	4	29	—	—
Deaths ..					—					—
Paratyphoid fever ..	4	—	—	—	—	3	—	2	—	
Deaths	—	—	—	—	—	—	—	—	—	
Pneumonia, influenzal*	1,542	71	33	6	18	1,034	58	14	2	8
Deaths (from influenza)	131	13	16	—	4	75	9	5	1	1
Pneumonia, primary ..			469	43				339	26	
Deaths		—		14	19		67		7	9
Polio-encephalitis, acute	2	—				—	—			
Deaths ..		—					—			
Poliomyelitis, acute .	3	—	—	4	—	1	—	1	3	—
Deaths .	—	—	—			—	—	—		
Puerperal fever ..	—	1	19		—	154	11	9	3	2
Deaths		—					1			
Puerperal pyrexia ..	146	6	14		—	—	—	19		—
Deaths										
Relapsing fever ..	—	—			—	—	—			—
Deaths ..										
Scarlet fever	2,073	159	311	47	42	1,168	36	207	43	21
Deaths	3	1	—	—	—	—	—	—	—	—
Small-pox	—	—	—	—	—	—	—	—	—	—
Deaths .. .	—	—	—	—	—	—	—	—	—	—
Typhoid fever† .	1	—	2	5	—	10	1	15	2	2
Deaths	—	—	—	1	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths			—	—	—			—	—	—
Whooping-cough ..	1,596	118	122	75	14	1,203	142	46	21	8
Deaths ..	15	3	2	1	—	6	4	—	—	—
Deaths (0–1 year) ..	459	44	70	59	31	389	52	89	29	23
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	5,392	791	737	264	173	5,895	881	814	239	156
Annual death rate (per 1,000 persons living)			16·6	17·4	‡			18·3	16·0	‡
Live births	6,484	849	872	377	308	6,056	670	896	303	222
Annual rate per 1,000 persons living ..			17·8	24·8	‡			18·5	20·2	‡
Stillbirths ..	218	20	35			251	20	39		
Rate per 1,000 total births (including stillborn) ..			39					42		

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* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes paratyphoid A and B for Northern Ireland.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

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B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

Prophylactic Use of Vitamin K

Q.—*In view of the importance of preventing haemorrhage in the newborn, is it worth while giving some form of naphthaquinone to mothers just prior to childbirth in order to prevent hypoprothrombinaemia?*

A.—The incidence of haemorrhage of the newly born is significantly reduced when vitamin K (menaphthone *B.P.* 2–5 mg.) is given to the mother not less than 5 hours before delivery. Although the subject is still controversial, and some authors doubt whether the gain is great enough to justify the cost, it would be reasonable to administer vitamin K intramuscularly to mothers as a routine, to reduce the risk of intracranial haemorrhage, and then to treat the baby with vitamin K, 1 mg. by mouth, on the first five days of life.

Prostigmin for Deafness

Q.—*Is prostigmin of use in the treatment of catarrhal deafness?*

A.—It seems that prostigmin temporarily increases the acuity of hearing, and having noticed this T. C. Davis and J. C. Rommel (*Arch. Otolaryngol.*, 1939, **29**, 751) tried it as a treatment for chronic deafness. The benefit they claimed has not been confirmed by other observers, though sometimes there is an apparent improvement which may be due to other simultaneous treatment. Houser, Campbell, and Schluederberg gave it a good trial with audiometric tests and dismiss the results as negligible.

Temperature-taking in Tuberculosis

Q.—*How long should the ordinary half-minute thermometer be left in the mouth in cases of pulmonary tuberculosis? I frequently observe readings as follows: at 2 minutes 97.5° F.; 5 minutes 98° F.; 10 minutes 98.8° F. What valuation should be placed on such readings?*

A.—Temperature-taking by ordinary clinical methods gives a relative rather than an actual observation. In the treatment of pulmonary tuberculosis changes in the type of chart are more important than the figure of any actual reading. Therefore to get a reliable chart for guidance (1) the same thermometer should always be used; (2) it should be kept in the mouth for the same time (for a half-minute thermometer it is immaterial whether the time chosen is 2 minutes or 5 minutes); (3) the temperature must always be taken at the same time each day and under the same conditions—preferably after one hour's rest—and no food or drink should have been taken for at least half an hour beforehand.

Treatment of Intermittent Claudication

Q.—*What treatment is recommended for intermittent claudication?*

A.—Intermittent venous occlusion, by a hydrostatic or electric pump, gives very good results in earlier cases of intermittent claudication. Intravenous plasma transfusions of 800 c.cm., at weekly intervals, for four or five times, benefit the pain, the trophic lesions, and the walking power.

INCOME TAX

Absence at Night: Cost of Meals, etc.

H. D. has been performing duties at a hospital clinic owing to the absence of the M.O. there. He has had to be away from his house one night a week with consequent expense for meals, etc. Is this expense deductible?

*** It depends on whether H. D.'s earnings are assessable under Schedule D or Schedule E. If, as would seem to be the case, he is in practice and has taken on this extra work as an addition to his normal work, we think the fees received may be regarded as part of the professional earnings assessable under Schedule D, and in that case the *extra* expense he is put to can be deducted for income-tax purposes. If, on the other hand, H. D. held an appointment and in effect has accepted an additional appointment, then the income from each is legally assessable separately, and the expenses in question are not strictly deductible. It might perhaps be worth while, however, even in the latter case, representing to the inspector of taxes the hardship of the case, and asking him to regard the earnings as resulting from one combined appointment, the duties being exercised in two places, and consequently necessary and allowable expenses being incurred.

Assistant Providing Car—Allowance

E. H. is employed as an assistant to a firm of doctors, and as a condition of service must supply a car. All running expenses are borne by the firm. What allowance can he claim? The car is used for professional purposes only.

*** He can claim the depreciation allowance—i.e., 20% of the cost price for the first year, and thereafter 20% of the value as written down by the percentage. The allowance as so calculated is then increased by one-fifth.

Service in the Forces—Expenses

"SURG. LIEUT." incurs expenses (*a*) as a member of professional associations, (*b*) for professional literature, and (*c*) for books and instruments. Is he entitled to any deduction or allowance on this account?

*** The question is governed by the statutory rule relating to Schedule E which provides for the deduction of expenses incurred "wholly, exclusively, and necessarily in the performance of the duties of the office." If membership of a specified association is a condition of appointment to an office, then the annual fees payable to that association are allowable; otherwise the deduction is barred by the word "necessarily." Similarly with regard to literature, instruments, etc. If an employee is required to provide them himself then the annual cost of maintenance is allowable, and not otherwise. This application of the statutory rule was supported in 1925 by the High Court in the case of Simpson *v.* Tate.

Return to Civilian Employment

"A1" joined the Forces on Jan. 7, 1941; prior to that he held an appointment at £525 per annum. He returned to civilian employment, on a salary of £600, on Jan. 15, 1943. On what basis should he be assessed?

*** Legally there is a definite break between civil and military appointments, and a change from one to another involves "cessation" of one employment and "commencement" of another, with the result that "A1" would become liable on the basis of his earnings of the current year for 1942–3 and 1943–4. If, however, he was assessed for the first year of his military service on the basis that his employment had been continuous and that basis operated adversely, the income-tax authorities will no doubt continue to regard the employment as continuous, notwithstanding his return to civilian employment, if that should now be favourable to him. ("A1" does not give sufficient details to show whether that is the case.)

LETTERS, NOTES, ETC.

"B.M.J." Lost through Enemy Action

Mr. CYRIL C. BARNARD (Librarian, London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, London, W.C.1), Mr LESLIE T. MORTON (Librarian, St. Thomas's Hospital Medical School, London, S.E.1), and Mr. W. R. LE FANU (Librarian, Royal College of Surgeons, Lincoln's Inn Fields, London, W.C.2) write: The Medical Library Association of America has given British medical libraries much help in the replacing of journals lost in transit from the U.S.A. The serious inconvenience caused by these losses in this country has been much mitigated by such help, which has been given to member and non-member libraries alike. A recent letter from the association reports the loss by enemy action of all copies of the *British Medical Journal* for March 15, 1941, and appeals for help in replacement. The above British members of the Medical Library Association would therefore be grateful if any of your readers who can spare their copies of this issue would send them to one of the addresses given. We have undertaken to forward them to medical libraries in America. So much has been done for British libraries that we welcome this opportunity to return in some measure the timely help which colleagues in America have given us.

Correction

The date on which the B.M.A. deputation met the Minister of Food to urge pasteurization of milk (*Journal*, Feb. 27, p. 265) was Feb. 18.

BRITISH MEDICAL JOURNAL

LONDON SATURDAY MARCH 13 1943

EPIDEMIC NAUSEA AND VOMITING

BY

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In July and December, 1935, two episodes in a widespread outbreak of nausea and vomiting in Denmark were observed by Rischel (1935) and Henningsen (1936). In March of the following year Miller and Raven (1936) recognized the same condition in a boarding-school for girls in Thanet; and in October, 1938, an outbreak occurred both in a girls' school and amongst the general population of Hayling Island (Gray, 1939). From conversations with colleagues, particularly medical officers to the public schools, it is probable that outbreaks of a similar nature had occurred in England before 1935. During recent months this comparatively trivial disorder has become much more common.*

Although the disease is of minor significance clinically and economically, it may give rise to considerable administrative uncertainty. Those who are unfamiliar with the clinical and epidemiological picture may be led to suspect food-poisoning or dysentery and be stampeded into ineffectual and wasteful action. It is important that at the present time "epidemic nausea" should be considered in the differential diagnosis of all outbreaks of gastro-enteritis, and the following incomplete account of an outbreak at present under investigation may serve to emphasize some of the differentiating points.

On Oct. 27, 1942, the medical officer of health for an urban district with a population of about 10,000 was informed by the medical officer to a girls' public boarding and day school that a number of children had been attacked almost simultaneously with vomiting and diarrhoea. Both boarding and day girls were involved. The boarders constituted three separate feeding groups, and the only aliments obviously common to all the affected children were school milk and the mains water supplied to the whole town. Since inquiry of the practitioners in the town brought to light no evidence of an explosive outbreak of dramatic proportions in the rest of the town strong suspicion fell on the school milk, originating in two accredited farms producing together about 100 gallons a day. Half of this milk was bottled and distributed to certain schools unpasteurized in 1/3-pint bottles by one of the three retail dairies in the town; the remainder was sold in larger bottles or in cans to private householders. Investigation was concentrated in this direction, the school milk being withdrawn and the retailer requested to provide the Health Department with a list of his customers in order that they might be circulated and advised to boil their milk. The retailer refused this request.

On Oct. 28 it was learnt that 120 of 400 girls in the school had been ill, but that other schools consuming the milk were not involved. Milk examined on this day was free from pathogenic organisms. However, on the 29th an explosive outbreak occurred in the boys' public boarding and day school in the town, and the Ministry of Health was asked to advise as to further action. The following account records observations made on Oct. 30 and Nov. 3.

Incidence and Age

It is unusual for patients affected with this disorder to call their doctors, since most of them begin to feel better within a few hours. The disease is not notifiable, and without a house-to-house survey no estimate of incidence among the general population can be made. Reliable information concerning attack rates was, however, obtained from a few selected samples, that concerning the girls' school being most complete. The school buildings in this instance are at present occupied by the public school proper and by an evacuated school party, the school proper occupying them in the morning and the evacuated party during the afternoon. The school proper maintains three boarding-houses, but the majority of pupils live in their homes. The evacuated party is billeted with private householders near the school, except for one small group occupying a hostel. There are thus four residential communities, each representing a separate feeding group but occupying the same building for school purposes. There is little physical contact between the school proper and the evacuated party except at midday, when members of both schools may meet in cloakrooms and corridors. The schools are independently staffed. The known attack rates during the first week of the outbreak are tabulated below:

Table showing Attack Rates during First Week of Outbreak

	Boarders			Day Girls			Total		
	Roll	Incidence	Attack Rate %	Roll	Incidence	Attack Rate %	Roll	Incidence	Attack Rate %
Girls' public school ..	85	58	68	324	123	38	409	181	44
Evacuated school ..	21	8	38	181	27	15	202	35	17

The attack rate for the general population is unlikely to have exceeded that among the day girls in the evacuated school, say 15%, although in a few households all the members were affected.

While the incidence would at first sight appear to be highest in communities of young people, in one household the ages of the persons attacked were 50, 54, 56, and 81 years, and the attack rate among the adult staff of the girls' public school was high.

Clinical Picture

Vomiting.—This was the most characteristic sign, and in young people it tended to be projectile and of great urgency. The first vomit usually contained food, but second and third vomits were of copious clear fluid only faintly bile-stained. A child who sat down to lunch feeling well "suddenly turned green" and had vomited before she could leave the room. A boy vomited on to his plate during a meal. This precipitate emesis was particularly distressing when it occurred during the night: sleeping children woke suddenly and vomited before they could get out of bed. On the other hand, projectile vomiting was by no means invariable, and a large proportion of the cases, particularly adults, did not vomit, or vomited only after a prolonged period of nausea.

Nausea.—Usually nausea was present with the vomiting, but more characteristically preceded it for a period of hours or even days, and in several cases persisted unaccompanied by emesis. Nausea, which some patients described as being indistinguishable from the sensation of sea-sickness, was associated with the feeling of fullness or of "a lump" in the epigastric angle. In a case in which it had persisted for a week the epigastrium became tender to touch.

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Vertigo.—Nausea often included a sense of instability and dizziness. A desire to fall over or faint was present in some cases and patients disliked sitting up for this reason, but in few instances only did dizziness amount to true vertigo.

Aches.—Some degree of frontal headache was almost invariably present, and in some cases lasted for three to four days. Occipital headache also occurred. Headache was not persistent, but tended to come and go in spasms. Abdominal aching occurred mainly in the epigastric angle, but sometimes involved the umbilical region; in patients with diarrhoea it sometimes occurred below the umbilicus. *Pain* from colic was conspicuously absent.

Diarrhoea.—This symptom was of minor importance, and in those cases in which it occurred the stools were watery and the bowel actions hurried but not greatly increased in frequency. Mucus was not present, and in most cases the stools were normal in appearance. In one case red blood was passed, but the stool was not characteristic of dysentery.

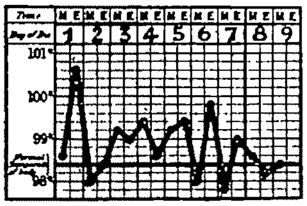
Frequency of Symptoms.—The relative frequency of the symptoms in one girls' boarding-house was as follows:

Population at risk		35
Vomiting without diarrhoea ..	11	
Vomiting with diarrhoea	7	
Diarrhoea only	1	
Nausea only	7	
Total cases	26	

Physical Signs

Central Nervous System.—When a group of these cases were seen together the impression that the central nervous system was primarily involved was a strong one, particularly when signs of gastritis or enteritis were absent. There was no evidence of dehydration, severe intoxication, or collapse. Routine examination of the central nervous system failed to detect any recognized signs apart from a suspicion of mydriasis with sluggish ocular reflexes. Widely dilated pupils were observed in some children on the first and second days of the disorder. Although the school children remained limp and tired for a few days they returned to classwork when nausea and vomiting had ceased, and their teachers did not notice any lack of co-ordination, precision, or concentration following the attack.

Temperature and Pulse.—The temperature rhythm was disturbed in almost every case in which observations were made, but rises in temperature above 100° were not numerous, although a very few cases showed rises to 102°. Pyrexia was rarely of more than 24 hours' duration. The pulse was disturbed in minor degree only. Bradycardia, which had been observed by Gray, was not characteristic in the present series. The temperature chart of one of the more persistent cases is here reproduced.



Temperature chart of one of the more persistent cases.

Alimentary System.—The appearances in the mouth were uniform and almost constant throughout the first two days. The tongue was moist and lightly covered with a white fur through which projected hyperaemic papillae. These appearances were no less striking, and could easily be confused with those seen in the first day or two of streptococcal throat infections, but the papillae were scattered evenly over the tongue surface and not confined to the tongue margins. The fauces and posterior pharyngeal wall were moderately injected in some cases, but there was no exudate on the tonsils. So suggestive were the tongue and throat appearances that swabs were taken from eight cases of nausea. One of these cultures yielded *Str. pyogenes*, Lancefield group C; the remainder gave a normal throat flora only. *Epistaxis* occurred in two children.

Examination of the abdomen did not suggest any dilatation of the stomach or increased peristalsis, and in most cases the abdominal wall moved freely and the patient was not disturbed by palpation. Sometimes the sensation of nausea was increased by epigastric pressure, but tenderness was not elicited except in three cases in which umbilical aching radiated into the right iliac fossa and tenderness over the appendix gave rise to a suspicion of appendicular involvement. These three patients made dramatic recoveries without operation.

A number of cases relapsed after an interval of about one week. Relapses were also reported by Rischel (1935) and Gray (1939).

Epidemiology

Family Outbreaks

By asking a few individual patients whether their friends or acquaintances had suffered from a similar condition a number of family outbreaks were brought to light. Chronologically the earliest involvement detected preceded the present events by five weeks, and in this instance four of six members of a household became characteristically ill almost simultaneously and had attributed their discomfort to the mutton consumed one to two and a half hours previously. In another household all of six persons were involved. First the cook and the master became ill. Two days later, on Oct. 8, 1942, while at an evening choral practice, M., a schoolgirl evacuee, was attacked with "vertigo" and giddiness, and thought she was going to faint. She left the class, and half an hour later vomited. She then slept normally for a few hours before awaking suddenly and vomiting precipitately, and about six hours later she passed one watery stool. During the next two days this evacuee's hostess and her daughter became ill, and on Oct. 10 the last of the six—another evacuee, J.—fell sick, complained of giddiness, and thought she would faint, but had neither vomiting nor diarrhoea. The two evacuees mentioned were members of the sixth form of the evacuated school party, which remained well until three weeks afterwards and which will be discussed later.

H., an elementary-school teacher aged 50, lived with her father aged 81, her sister aged 51, and a guest aged 56. On Oct. 20, 1942, the guest and the sister were ill with nausea and vomiting. On Oct. 27 the teacher felt cold and chilly, and complained of her head "swimming" and felt seasick. Next day she was "very ill" in the afternoon. "Vertigo" continued for three or four days, and a week after the onset she still had nausea and epigastric discomfort and tenderness, and wished she could be sick, but neither vomiting nor diarrhoea occurred. On the 28th her sister suddenly relapsed and vomited violently for two hours, but had negligible nausea and no diarrhoea. On the evening of the 29th her father vomited precipitately and complained of "vertigo." Nausea persisted throughout the next day, but there was no diarrhoea. H. continued to teach her class in the elementary school, but no cases had appeared amongst her pupils within seven days of the cessation of her symptoms.

H.'s nearest neighbour, who lived in an isolated house with her husband and two daughters, was breaking her fast with a cup of tea at 7 a.m. on Oct. 28, 1942, when she was seized with intense nausea and passed an urgent stool. During the morning nausea became almost intolerable and she passed more urgent stools, but it was seven hours before she vomited. Giddiness persisted throughout the 29th, and she was still feeling weak on Nov. 2. Up to this date the condition had not been transmitted to the three other members of her household. This woman had neither left her cottage nor received visitors since Oct. 24.

Community Outbreaks

The family histories described served to show that the disease was present in the town before cases appeared in the schools and that there was considerable variation in the pattern of the outbreaks in households. Similar variations were found in community outbreaks.

Girls' Public School

Junior Boarding-house (Girls).—Population at risk, 20; children known to have been attacked, 12. On Oct. 25, 1942, one child reported diarrhoea. At 5 p.m. on the 27th two young girls vomited and had passed hurried stools before bedtime. Between 5 and 8 p.m. five other girls vomited, but had no diarrhoea; and between 8 p.m. and midnight five more children vomited before they could get out of their beds. Next morning another child developed diarrhoea without vomiting. No further cases were detected during the following week.

Senior Boarding-house (Girls).—Population at risk, 35; children known to have been attacked, 26. A child was sent to bed with diarrhoea and a slight temperature on Oct. 6, 1942. On the 12th another child had precipitate vomiting during the night, and some nausea and headache persisted through next day. Fifteen days later, between 8.30 and 9 p.m. on Oct. 27, some of the younger girls began to vomit, and by midnight 11 of the 35 children had vomited and 5 others were complaining of nausea. Further cases appeared particularly amongst the older girls on the morning of Oct. 28.

Another Boarding-house (Girls).—Population at risk, 30; children known to have been attacked, 19. There is no record of alimentary upset in this series since the beginning of term until Oct. 27, when between 8 p.m. of that day and 8.30 a.m. of the 28th 14 girls vomited. Cases continued to occur throughout the latter day, and by the 29th 17 children had vomited and 2 had had nausea only. Two of the staff became ill 24 hours after the first appearance of the disease in the children.

Evacuated Day School Hostel.—Population at risk, 21; children known to have been attacked, 8. The ages of these girls range from 7 to 15 years, but the outbreak was confined to 8 of the 10 juniors, the seniors and staff escaping. The first case occurred at 1.40 p.m. on Oct. 27, 1942, when a child vomited precipitately at lunchtime before she had eaten any of the meal. She improved during the next day, but vomited again on the following night, and subsequently passed blood in her stool for three days. The second case in this hostel appeared at 7.30 p.m. on Oct. 27. At 8.45 p.m., soon after the children had gone to bed, others were taken ill, and between 2.30 a.m. and 5 a.m. of the 28th three further cases vomited. None of these children developed diarrhoea.

Evacuated Day School; Billeted Children.—Population at risk, 181; children attacked, 27. Although only 27 of these children were absent from school with this condition it is probable that some nauseated children continued to attend classes. Furthermore, new cases were still appearing on Nov. 3, when these notes were made, and the final score is unknown. Some billeted children in the junior classes were attacked at the same time as their fellow pupils living in the hostel—that is, on Oct. 27 and 28. The timing of the attack on sixth-form girls was entirely different. All these girls lived in billets or with their families. The cases M. and J., mentioned under family outbreaks, were ill on Oct. 8 and 10 respectively. Of the remaining 18 girls in this form nine became ill, three without vomiting—on Oct. 28 (one case), Oct. 30 (two cases), Oct. 31 (one case), Nov. 2 (one case), Nov. 3 (two cases), Nov. 4 (one case), Nov. 11 (one case) respectively—and nine had remained well.

Boys' Public School

The majority of pupils attending this school are day boys, many of whom have sisters in the girls' public school. The two public schools draw their day pupils from rather exclusive social and economic levels, representing virtually the same home environments. It is known that day boys were already affected on Oct. 26, and the attack rate appeared to be of the same magnitude as among the day girls. The three boarding-houses suffered more explosive outbreaks, two of which are summarized below.

"O" House.—Population at risk, 36 junior boys; number known to have been attacked, 15. The house master, his wife, his daughter, his staff, and the 36 boys constitute one feeding group. The 8-year-old daughter attends the girls' public school and is a class-mate with girls in the junior boarding-house there. At 5.30 p.m. on Oct. 27, after returning from the girls' school to "O" House, she vomited, and continued to do so throughout the night. She had no diarrhoea. Forty-eight hours later her mother became nauseated and, after five hours' increasing discomfort, vomited at 10 p.m. on the 29th. The same evening 10 of the boys were attacked, most of them between 4 and 7 p.m., and the matron also developed nausea, which persisted for four days before she vomited. At first sight this sequence suggests that the house master's daughter was the primary case in this community. Further inquiry brought to light a boy in the house with diarrhoea starting on Oct. 23, one with nausea on the 25th, and two further cases of vomiting on the 28th. It is therefore not improbable that, if the spread of this disease depends on contact, there were at least two primary sources of infection in this house.

St. J. House.—Population at risk, 42; number attacked, 22. This house constitutes a separate feeding group and occupies a neighbouring building, 100 yards away from "O" House. The recorded incidence of nausea and vomiting was as follows: Oct. 28, 10 cases; Oct. 29, 8; Oct. 30, 2; Oct. 31, 0; Nov. 1, 1; Nov. 5, 1. The majority of the 10 boys attacked on Oct. 28 were unable to get up on that morning. The peak of the wave in this series was therefore at least 33 hours before the peak in "O" House.

Bacteriology.—Three specimens of milk from the suspected source and twelve specimens of vomit and faeces were examined at an Emergency Public Health Laboratory, all with negative findings.

Discussion

It is difficult to avoid the impression that the explosive outbreak reported to the medical officer of health was in fact the summit of a wave of disease which had been mounting not only in the town but also in some of the communities for some days. This impression is strengthened by the observation that the peaks of the several parts of what at first sight appear to be one explosion do not coincide but range over a period of days. This pattern is unlikely to be produced by poisoning from food simultaneously consumed, but food-poisoning cannot be dismissed on these grounds alone. Each of the several groups of cases discussed was independently fed on food obtained from different sources and prepared separately, and the pattern may have arisen if a common aliment had been used on one day in one house and on another day in another house. Investigation of this possibility was conducted on the assumption that if the symptoms were due to ingestion of a toxic factor in food the incubation period was in all probability a matter of a few hours rather than days. A peculiarity of the outbreak was that one could not identify any single meal as having been consumed at a reasonably constant interval before the onset of symptoms in the several groups: considering only those cases occurring on the day of maximum incidence, the last common meal was breakfast in one house, dinner in another, tea in another, and supper in a fourth. These variations do not necessarily argue against the disorder being *ex alimentatione*; they merely suggest that if the cause of the trouble was ingestion of a common aliment the incubation period was variable, usually exceeded 12 hours, and may have been of several days' duration. Other considerations suggest that if the toxic factor was food-borne it withstood cooking.

In the absence of more exact knowledge as to the nature of the toxic factor or of the incubation period, and without minutely detailed food lists and menus covering several days, such widely distributed non-perishable items as dried eggs or dried milk, chocolate, etc., could not be excluded. Liquid milk could, however, be excluded with some degree of certainty on the grounds that (1) some of the patients becoming ill during the peaks of the wave did not take milk from any source and others did not take school milk, which was the only source suspected; (2) the same milk, bottled and delivered at the same time and under identical conditions and consumed at approximately the same time, did not give rise to disease in some of the schools supplied; (3) only by the remotest chance could contaminated milk have been distributed so as to give rise to the disease in one group on one day and in other groups on other days. Furthermore, the milk was withdrawn on the morning of Oct. 28, but this withdrawal did not prevent the appearance of explosions in some communities subsequent to this date. It is interesting to note that the girls' school milk was all delivered at the school at the same time, but was consumed at different times of the day by the different groups of children affected (junior girls' public school, 10.30 a.m.; senior girls' public school, 11.45 a.m.; evacuated girls' school, 4.30 p.m.), and there is no constant relation between these times and the times of onset of illness in the several groups. All school milk was consumed on the day of delivery.

Conclusion

Previous writers have concluded that epidemic nausea and vomiting is an upper respiratory infection with an incubation period of from two to seven days, probably due to an unknown virus. The present outbreak strengthened the impression that the disease is communicable and that the portal of entry is the upper respiratory passages. The incubation period was probably within the range of from two to seven days, but could not be determined accurately. Infection *ex alimentatione* immediately preceding the attack was excluded with some confidence by the circumstances. An alimentary vehicle consumed a few days before the appearance of symptoms could not be excluded, but as a cause was thought to be improbable.

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TWO CASES OF RUBELLA MENINGO-ENCEPHALITIS

BY

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The occurrence of meningo-encephalitis in association with rubella is exceedingly rare. Taylor (1937), in his account of meningo-encephalitis following German measles, states that only 12 other cases had been reported up to that date.

Case I

A Naval Air Arm observer aged 19 was admitted to the zymotic ward on June 2, 1942, with the diagnosis of meningitis. His communication sheet stated that on May 29 he reported to the sick bay at his own depot with a typical rubelliform rash, cervical adenitis, and slight general malaise. There had been an epidemic of rubella in this establishment immediately prior to this date. He was diagnosed and treated accordingly. On June 1 he complained of severe frontal headache. His temperature was normal. The duty medical officer noticed that the right pupil was larger than the left. No other abnormal signs were reported. Next day the headache was worse; temperature 100°; pulse 80; tongue heavily furred; severe pain on flexion of neck, and weakly positive Kernig's sign present both sides; pupils equal and reacting sluggishly to light.

June 2.—On admission he lay curled up in bed, face towards the wall and away from the light. He was mildly annoyed at being disturbed for examination, and somewhat drowsy, but withal intelligent and co-operative. Some exposure phobia was evident, as is commonly found in meningitic cases. He was obviously feeling ill: face pale, tongue furred, and remains of what might have been a rubelliform rash over his trunk, most pronounced on the back. Temperature 100.8°. Glands in posterior angle of neck enlarged and tender. No Koplik's spots seen on buccal mucous membrane. Pupils equal in size; reactions brisk. All reflexes normal. Babinski's sign absent. Kernig's sign negative. Marked nuchal rigidity with pain on flexion. Heart, lungs, and abdomen normal. Lumbar puncture was performed and 16 c.cm. of clear fluid withdrawn under increased pressure (Table I). Sulphapyridine was administered as a routine measure in view of the possibility of meningococcal meningitis, several cases of which had recently been in the ward.

June 3.—Condition much the same. Temperature 100°. Kernig's sign positive; marked neck rigidity. Knee-jerks rather brisk. Doubtful plantar response.

June 5.—Neck rigidity less severe. Flexor plantar response. Knee-jerks normal. Kernig's sign negative. Pyrexial still. Lumbar puncture repeated: 20 c.cm. of clear yellow fluid withdrawn under increased pressure.

June 6.—Temperature 99°. Condition improved. Complained of slight cough. A few crepitations heard at left base.

June 8.—Temperature rising. No clinical change.

June 12.—A general marked rubelliform rash again present over trunk and proximal part of limbs, pink and papular in nature, typical of rubella. A few spots also present on face. No Koplik's spots seen. Tender cervical adenitis present. Temperature 100°. C.N.S. normal. Lumbar puncture performed: 15 c.cm. of clear fluid obtained, not under pressure.

June 14.—Rash completely gone. No skin staining left. No symptoms beyond slight headache. C.N.S. normal.

The patient made an uneventful recovery from this date and went through his period of convalescence without the appearance of sequelae.

TABLE I.—*Results of C.S.F. Examination in Case I*

Date	Protein (mg./100 c.cm.)	Cells per c.mm.	Lymphocytes	Polymorphs	Sugar (mg./100 c.cm.)	Chlorides (mg./100 c.cm.)	Organisms	Red blood cells	Fibrin	Lange Gold Curve
2/6/42	160 Glob. +	3	—	—	—	730	Nil T.B not found	—	—	4444322110
5/6/42	100 Glob. +	20	94%	6%	60	720	Nil	+	+	3444553100
10/6/42	50	50	96%	4%	30 3	730	Nil	—	—	0012332210

Wassermann reaction negative

In view of the typical nature of the rash in this case, together with the fact of the rubella epidemic in progress, the diagnosis of rubella must be considered as confirmed. The occurrence of a second rubelliform rash is difficult to explain unless it be considered as a relapse, which, although rare in rubella, is not unknown. The C.S.F. findings are interesting in view of the marked increase of protein, especially with regard to its dissociation from the cell count. A similar dissociation is found in cerebral arteriosclerosis, some cranial tumours, and spinal tumours. This point in common with arteriosclerosis is worthy of comment in so far as Taylor (1937), describing a case of encephalomyelitis which came to the post-mortem table, mentions the extreme degree of arterial degenerative proliferation found in the brain together with perivascular cuffing of small lymphocytes with occasional large ones. The red blood cells and the minute fibrin clot found in the second specimen of C.S.F. were probably an artefact due to the previous lumbar puncture.

Another case of rubella which portrayed the signs and symptoms of encephalitis is included in the records of this hospital for the year 1940.

Case II

Feb. 5, 1940.—During a large epidemic of rubella a rating aged 18 was admitted with the typical rash, cervical adenitis, and sore throat. No Koplik's spots were seen, and there were few signs of respiratory catarrh or conjunctivitis. We had 200 cases of rubella in the hospital at this time.

Feb. 10.—The patient, who had been progressing normally apart from a mild degree of pharyngitis, vomited a greenish fluid several times and had a small epistaxis. He complained of headache. Temperature rose to 101.2°. He was tender in the right hypochondrium and was thought to have gastritis. A slight cough was present.

Feb. 12.—Patient vomited again. He was found to be extremely listless, drowsy, and emotionally unstable. Was easily tired and unable to concentrate on any one thing except for a very short time. Articulation was poor, with a tendency to mumble. No physical abnormality was detected. Blood urea 36.5 mg., sugar 104.6 mg. per 100 c.cm.

Feb. 14.—Still vomiting. Very ataxic. Could barely stand even with feet well apart. Marked emotional instability present. Right pupil larger than left: reactions normal. Optic disks showed faint blurring of edges. Other cranial nerves intact. Investigation of the C.N.S. showed impaired muscle sense when tested by movements of feet or fingers. Finger–nose test especially bad, the finger alighting well up the forehead. Kernig's sign negative. Remainder of C.N.S. normal. No neck rigidity. The *status quo* was preserved during the next 9 days, with slight improvement.

Feb. 23.—Lumbar puncture performed (Table II). Now apyrexial, and remained so throughout rest of illness and convalescence.

Feb. 25.—Considerable vomiting, projectile in nature, without nausea and preceded by bouts of severe headache. C.N.S. completely normal.

Feb. 27.—Lumbar puncture performed and 8 c.cm. of clear fluid withdrawn, not under pressure.

From this date the patient's condition improved rapidly; the vomiting ceased, headache disappeared, and the central nervous signs remained normal. A further lumbar puncture was performed on March 12, 1940. There were no abnormal characteristics about this fluid, and, since the patient was by now completely recovered, he was sent to a convalescent home and thence on sick leave. There were no noticeable sequelae.

TABLE II.—*C.S.F. Results in Case II*

Date	Protein (mg./100 c.cm.)	Cells per c.mm.	Lymphocytes	Sugar (mg./100 c.cm.)	Chlorides (mg./100 c.cm.	Organisms	Lange Gold Curve
23/2/40	70	20	++	40	710	Nil T.B. not found	0022221000
27/2/40	40	8	++	—	—	Nil	0011000000
	Wassermann reaction negative						

The diagnosis of rubella, as in Case I, does not seem open to reasonable doubt. Meningism was not present at any stage, and the central nervous signs and symptoms were those of an encephalitis with resulting increase in cerebral pressure.

Commentary

Complications of any variety during an attack of rubella are very rare, and involvement of the central nervous system is the least common of these. The cases of this type so far reported include manifestations of meningitis, encephalomyelitis, polyneuritis, and ascending paralysis of the Landry variety. At least two of these cases were fatal.

The necropsy on the 18-year-old girl described by Taylor (1937) revealed the typical picture of an acute to subacute encephalomyelitis with demyelination most pronounced in the perivascular regions, as may be found in encephalitis associated with the exanthemata, such as measles, small-pox, and mumps. According to Russell Brain (1940) the cause of this type of encephalitis is still unknown. The former view that it is due to the virus of the exanthem in question is in disfavour owing to failure to reproduce experimentally the pathological picture by means of the virus. An alternative opinion, that the condition is brought about by another virus common to all patients and normally latent but activated by the exanthem, would explain the similarity of pathological features in all cases and also the fact that encephalitis of this nature may arise with apparent spontaneity unpreceded by an infection. No such virus has, however, so far been demonstrated. Finley (1937) suggests that the encephalitis may be an allergic reaction in the brain following the general eruption. This is in accordance with the finding of Rivers and Schwentker (1935) that a demyelinating encephalomyelitis could be produced in monkeys by repeated injection of brain material.

I am grateful to Surg. Cmdr. Mussen, R.N., for bringing Case II to my notice, and for his advice in the compilation of this account; also to Surg. Rear-Admiral Bradbury, R.N., and Surg. Capt. Parker, R.N., for permission to publish it.

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In a discussion on bacteriaemic staphylococcal infection, Champ Lyons (*Surg. Gynec. Obstet.*, 1942, 74, 41) observes that the importance of thrombophlebitis in the production of metastatic abscesses was recognized by John Hunter. He quotes Topley to the effect that in a bacteriaemic staphylococcal infection "the cocci are carried from the original focus of infection in detached fragments of an infected thrombus." Lyons presents evidence in support of this view, and believes that pulmonary thrombophlebitis as a factor in the perpetuation of a staphylococcal bacteriaemia may be likened to a left-sided endocarditis.

PLANNING FOR THE TREATMENT OF HEAD INJURIES*

BY

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The war has given impetus to the study of head injuries, and information is now available which should assist in the formulation of plans for post-war medical services.

I. Plans should be based on a Survey of Unselected Material

Before the war, with few notable exceptions, specialists responsible for teaching on head injuries saw an undue proportion of the severe cases and those in which compensation or litigation was pending. Although as long ago as 1932 Ritchie Russell had shown that the majority of patients with head injury made a satisfactory return to work within six months, treatment and prognosis of head injuries continued for the most part to be governed by pathological doctrines which implied, or were thought to imply, that bruising of the brain was an almost invariable accompaniment of even minor concussion, and that the bruising took a long time to resolve and might continue to produce symptoms for a number of years. Patients are still encountered who have been confined to bed for weeks or months after relatively trivial head injuries, and have been warned that because of brain damage they cannot expect to resume full normal activity for periods of months or a year.

There is still considerable controversy about the pathological processes in head injury, but in the special centres established since the outbreak of war comprehensive survey of head injuries is accumulating an impressive number of facts which show that the picture of the late results of blunt head injury† has been painted blacker than it really is. Thus, in a military hospital for head injuries, in a series of 237 acute cases of head injury in the fighting Services (not including fatal cases, but otherwise unselected), Symonds and Ritchie Russell (1943) found that 80% were successfully returned to duty, the majority within three months. Among civilians Eric Guttmann (1943) obtained similar results in a consecutive series of 158 wage-earners admitted to the Radcliffe Infirmary, Oxford, suffering from head injury: 25% returned to work within three weeks, 50% in between three and nine weeks, and only 8 patients had not returned to work within six months. In Guttmann's series there had been an initial hospital mortality of 4%.

These are the results in unselected hospital material from a mixed urban and rural area, at a time of "comparatively standardized and favourable social conditions, when everybody has the choice of well-paid jobs and most employers are ready to facilitate gradual return to work." In civilian head injuries, permanently incapacitating brain damage appears to be an uncommon event—among Guttmann's 158 wage-earners there were only 2 patients so affected—and early return to work may be expected in the majority. The results suggest the need for revision of teaching on the subject of head injuries. They also suggest that where problems of compensation arise settlement should be made at an earlier date than has been customary in the past.

II. Where should Head Injury Patients be Treated?

Accident cases are usually taken to the nearest hospital, and it would be difficult to devise machinery for primary segregation of head cases in special centres. Guttmann found that 30% of his head-injury patients had major injuries in other parts of the body, such as fractures of long bones, and this fact favours the current practice of sending all accidents to the general hospital. There is little doubt, however, that, in the general hospital, accident cases should be segregated in an accident service, as has been done at Birmingham and Oxford, under the care of surgeons who particularize in accident work and who have special facilities for resuscitation.

Since the majority of head injuries are evidently mild and, when treated correctly, uncomplicated, it would be reasonable to expect that the *trained* accident surgeon should himself be able to see the majority of his head-injury cases through to the stage of return to full work, with the assistance of the general practitioner, the industrial doctor, and the social worker. The services of the nearest neurosurgeon would be sought in head injuries which were complicated by severe damage to the brain or skull and in those cases which were not recovering according to expectation. When fit to be moved such cases should be transferred to head-injury centres.

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* Based on a paper read to a meeting of consultants of the combined Services at Reading, Nov. 28, 1942.

† Gunshot wounds of the head are not considered in this paper. They constitute a separate problem.

III. The Need for Statistics

Planning for head-injury centres (and for accident services) after the war would be assisted by more precise knowledge of the number, type, and distribution of accidents than seems to be available at present.

In Britain road accidents of all types amount to about 230,000 a year, industrial accidents (exclusive of mines and certain other industries) to about 270,000 a year, and mining accidents to about 133,000 a year (Safety in Mines Research Board, 1937). I have not found any information about the number of accidents which occur at home and at play, but in the U.S.A. in 1940 the deaths from accidents in the home almost equalled those from motor vehicles (National Safety Council, Chicago, 1941).

These figures do not discriminate between the patient requiring in-patient hospital treatment and the man who is so mildly injured that he can be treated at home and is able to return to work within a few days. In 1935, of the 1,300,000 accident cases in this country, only 136,000 were treated as in-patients (Report on Rehabilitation, 1939). The percentage of head inuries may vary from one type of accident to another. Of accident cases admitted to the Radcliffe Infirmary—mainly road accidents—30% showed head injury. On the other hand, in occupational accidents in the U.S.A., assessed from compensation data, head injuries amounted to no more than 7%. in British mines in 1935 the proportion of head injuries was also 7% (Safety in Mines Research Board, 1937).

Clearly, more exact information is wanted, particularly in regard to patients requiring in-patient hospital treatment. It is reasonably certain, however, that there are many more head injuries each year than could be treated by the neurosurgeons. Their function should be, along with neurologists and psychiatrists, to treat the cases presenting special difficulties.

IV. Rehabilitation

The accident surgeon, or someone on his staff, should have a clear understanding of the problems of treatment and rehabilitation of head-injury patients. Operation is often required for the repair of scalp wounds, but for other purposes only in a limited number of cases—according to Rowbotham (1942) in about 5%. Neglect of a meticulous surgical technique in closing the scalp may wreck the result in otherwise favourable cases, as Botterell and Jefferson (1942) have pointed out. In the cases of Symonds and Russell (1943) and Eric Güttmann (1943) the methods of treatment were simple and did not include any dehydration. The patient was allowed to get up gradually soon after he had recovered consciousness. He was examined thoroughly to see that there was no residual brain damage, and his personality was assessed by a study of his past, social, and family histories. An important part of the treatment is reassurance of the patient and his relatives. In the cases from the fighting Services, occupational therapy and graduated physical training were employed; these patients had to be rendered fit for full duty in the Army or R.A.F. In the civilian cases, on the other hand, no such measures were used: the patient was discharged to his home soon after he was able to get about, with instructions to report at the out-patient department on a date a little before the time at which it was estimated he might be fit for work again. The patient was advised to take graduated exercise of his own choice, a letter was sent to his family doctor, and he was seen by appointment in the out-patient department from time to time, by those who had looked after him in the acute stage, until he was once more in his stride at work. Difficulties of a psychological or social character which had been elicited by the preliminary study of personality or at the subsequent out-patient visits were dealt with by explanation and reassurance, and by visits of the social worker (who attended all out-patient sessions) to the home or to the man's employers.

Guttmann's work suggests that in the majority of head injuries in civilians the main factors in rehabilitation are the doctor's knowledge of the patient and of his social conditions, as well as of his injury, and a sustained interest in him until he is once more back at work. It really amounts to psychological management, but I have avoided using the word "psychological" lest it be thought that this process of rehabilitation requires as a routine the services of the psychological specialist or the use of elaborate psychological techniques. Handling of most patients along common-sense psychological lines should not be beyond the powers of the competent accident surgeon, who starts, moreover, with the initial advantage of having helped the patient through the acute stage of his illness. In limb injuries, though all the emphasis is placed on physical re-education (Report of the Interdepartmental Committee on Rehabilitation, 1943), I suspect that the psychological side is probably just as important as it is after head injuries, and that in protracted cases return to work is as often delayed by psychological factors as by the physical condition of the limb.*

If Guttmann's work is confirmed there is clearly no need for institutional rehabilitation in the majority of cases of civilian head injury. Institutional rehabilitation would be required, however, for the severe or recalcitrant cases and for those whose home conditions were unfavourable. The proportion requiring institutional treatment might be expected to vary with the social conditions at the time.

Addendum

Recent planning for rehabilitation of disabled persons raises some doubts as to whether the problem of restoring the sick and injured to full work is clearly understood by the planners. According to the Beveridge Report (Beveridge, 1942), rehabilitation is "a new field" of remedial activity. The Tomlinson Report (Report of the Interdepartmental Committee on Rehabilitation, 1943) states that "rehabilitation in its strictly medical sense means the process of preventing or restoring the loss of muscle tone, restoring the full functions of the limbs, and maintaining the patient's general health and strength. (This is apart from special rehabilitation treatment required for particular diseases such as tuberculosis.)" The report recommends the institution of a diploma "to cover the special needs of rehabilitation." Some readers might conclude from these statements that rehabilitation is a new technique of treatment on physical lines, to be conducted by specialists.

There is nothing new about rehabilitation. For example, it has been practised systematically for over 50 years by those responsible for the care of the blind and to what high standard this work has been raised in this country may be seen in the British Council's fine documentary film *Out of the Night*. In each broad group of maladies the methods of after-care are to a considerable extent specialized. In the case of blindness this is obvious. After limb injuries the doctor who is responsible for getting the patient fit for work must be competent to judge whether the position of the bone and the union of the fracture are satisfactory; and in this group of cases physical re-education is important. After head injuries rehabilitation must always be partly based on thorough neurological examination; physical re-education, as has previously been pointed out (Cairns, 1942a, 1942b), plays a small part.

If there is one thing common to rehabilitation after all varieties of accident and disease it is the need for study and understanding of the personality of the patient and of his social circumstances, and this should be the duty of every doctor who treats a patient. The "new" things in rehabilitation are the more general realization by the medical profession of its responsibilities for convalescence of all patients, and the formal recognition of the part which a patient's personality plays in his readjustment after injury or disease. The importance of the social worker in rehabilitation is also becoming more generally accepted.

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* The importance of the psychological factor in limb injuries was clearly recognized by the Delevingne Committee, who wrote (Report of Interdepartmental Committee on Rehabilitation, 1939, p. 52): "The rate and degree of recovery will depend not only on the nature of the treatment given for the physical injury but also on the individual mental 'make-up' of the injured man"; and again, "The witnesses generally were agreed that a psychological factor was present in varying degree in the majority of cases, and that this was often a dominant factor in retarding recovery."

It would be harmful if people came to think that rehabilitation consisted of physiotherapy or some other technical method of treatment, or that it was the particular province of any group of specialists. To set up a specialty of rehabilitation would be akin to establishing specialties for diagnosis or for therapy. In a national scheme all varieties of medical specialist would be involved, and the general practitioner and the industrial doctor would be more essential than any of them. The whole medical profession would be involved. In ancillary services the social worker would be at least as important as the masseur.

Extension of rehabilitation to all sick and injured persons would obviously require a large increase of social workers and doctors, whose training for this work would tend to become standardized. But in each group of diseases or injuries successful rehabilitation depends to some extent on special knowledge of the disabilities produced by the disease or injury in question, and of the reactions of patients to these disabilities. Trained experts would deal with the cases requiring institutional after-care, mostly in special centres, from which advances in knowledge of the social aspects of ill-health might be expected. But, if the experiences with head injuries are any guide, it would seem that much of the after-care of the nation's sick and injured should continue to be directed by the doctor who treats the patient in the acute stage of his illness. If in his student days he can be taught the after-care of patients in a practical way, and if he can be supplied with more precise knowledge of the social prognosis of diseases, and with adequate assistance from social services and from employers, this task should not be beyond him.

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REHABILITATION IN AN E.M.S. ORTHOPAEDIC UNIT

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The establishment of orthopaedic centres in the Emergency Medical Service stimulated those working in them to tackle the problem of rehabilitation, already carefully investigated by the Delevingne Committee. With few exceptions it had been the custom in civilian practice to discharge a patient when fit for light work and still maintain some supervision of his further recovery as an out-patient. In the case of Service patients (who have formed the majority of those treated in this centre) the disposal was not so easy, for discharge from hospital removed them completely from the supervision of the surgeon. The danger of too early discharge from surgical supervision is easily seen; a typical example will make the point clear. In civilian work it had been our practice to discharge meniscectomy cases from hospital two weeks after operation and to continue treatment as out-patients. Service patients retained for a further fortnight have usually acquired full knee movement, have a fair quadriceps and no effusion, and are able to walk several miles without undue pain or fatigue. No doubt some of these men, if returned to light duties, would rehabilitate themselves, but many would sustain some minor trauma, develop effusion, and be sent back to hospital some months later with a history of recurrent effusion and marked quadriceps insufficiency. The problem of rehabilitating such patients is then much more difficult than if it had been dealt with in the immediate post-operative period.

Before discharge from hospital a patient should fall into one of the following groups:

(*a*) Fit to return to full duties in his original category.

(*b*) Fit to return to duty in a reduced category; usually cases which have progressed satisfactorily, but in which some residual disability remains—e.g., limitation of elbow movement after fractures in the region of the elbow-joint.

(*c*) Fit to be transferred to a Command convalescent depot and undergo graduated Army training. This includes cases in groups (*a*) and (*b*); it also includes patients who have improved beyond the limit of possible relapse but who are not quite fit for duty—e.g., lower-limb fracture patients who can walk and run easily and require only time and graduated use to complete their full recovery.

(*d*) Patients who are unfit for Service duties and are discharged from the Service. These fall into three groups: (i) Patients fit to return to their full pre-Service occupation; (ii) patients unfit to follow their pre-Service occupations, but fit to undergo training at a Ministry of Labour training establishment; (iii) severely disabled patients who require vocational training.

The majority of the cases so far treated have been in group (*a*), (*b*), or (*c*).

Organization

When the need for a rehabilitation annexe was appreciated we were fortunate in securing for our purpose a country house, within reasonable distance of the hospital yet far enough away to make a definite break in hospitalization. The house, capable of accommodating 50 patients, is situated in ample grounds, with two large lawns suitable for outdoor games and exercises, a large indoor riding school (now converted into a gymnasium), and an open-air swimming pool. Outbuildings have been converted into recreation rooms. As the work progressed and the value of removing ambulatory cases from a hospital atmosphere became obvious, the original annexe was found to be too small, and near-by B.R.C.S. auxiliary hospitals were utilized as subsidiary rehabilitation centres.

The rehabilitation annexe is staffed by a resident masseuse and P.T. instructor. Each auxiliary hospital has an Army P.T. instructor attached. An occupational-therapy hut has been established at the parent hospital and liaison with the annexes is made through regular visits of one of the staff.

Auxiliary Hospitals

The relation between the parent hospital and the auxiliary hospitals, and the place of the latter in the scheme of rehabilitation, will best be appreciated by following the progress of patients with fractures of the tibia and fibula from the hospital, through the auxiliary hospital to the rehabilitation annexe.

Rehabilitation, it has been stated, begins not in a special centre but in a hospital bed, and ends with a return to full pre-accident activity. All bed patients perform general and special bed exercises regularly. For those confined to bed with leg injuries occupational therapy of a remedial nature is not possible, but diversional work is started in bed. We are fortunate in the situation of our hospital in pleasant country surroundings; beds are pushed out of doors in good weather, and even if the patient's stay in bed is prolonged there is no need for him to see "only the stone walls of hospital wards" (Watson-Jones, 1942).

As soon as leg-plaster cases are considered suitable for walking a sole-plate is applied to the plaster. This consists of a wooden plate with heel and metatarsal bar, the heel and bar being shod with rubber. We prefer this to the Böhler iron, as a heel-and-toe gait (so rarely attained with a Böhler iron) is easily possible with this sole-plate. Patients walk first with the aid of crutches and then with two sticks. Later they may discard their sticks; but we are in no hurry for them to do this, and prefer that they should retain the sticks and walk with a normal gait rather than that they should discard them and acquire a limp. When a patient is walking satisfactorily in plaster he is transferred to one of the associated auxiliary hospitals. To these auxiliary hospitals go all cases in walking plasters, upper-limb fractures in and out of plasters, etc.

Here the day begins with general exercises in which all patients join. Later, group exercises are carried out, particularly directed to the affected limb. We find general exercises *en masse* useful, as the men in plaster vie with those out of plaster in the energy of their movements, and it is remarkable how small a disability a long leg plaster can become. Exercises are followed by and interspersed with organized games. Those unable to take part in organized games indulge in less energetic pastimes: croquet is a particular favourite with the early walking-plaster cases, and a man who says he can walk only a few hundred yards without tiring will walk much farther in the course of an afternoon's heated croquet.

We endeavour to find jobs at the auxiliary hospitals to act as occupations with a therapeutic value, although diversional work is continued in the evenings. In addition to the ordinary fatigues of bed-making and keeping their rooms tidy, the men help in the kitchens (washing-up is a useful exercise for wrist and finger injuries) and in the gardens, mowing the lawns, weeding, and keeping the paths tidy: following a motor lawn-mower is a helpful method of re-educating slow walkers. The more capable men have helped with harvesting and flax-gathering.

At the appropriate time the patient in plaster is returned to the parent hospital for review. The plaster is removed, the limb examined, and check radiographs taken. If the fracture is not soundly united plaster is reapplied, and the man returns to the auxiliary hospital for a further period. When union is sound the patient mobilizes the limb in bed for a few days, and then walks under the supervision of a masseuse. When he is walking satisfactorily he is transferred to the rehabilitation annexe.

Rehabilitation Annexe

To this annexe are transferred all cases of fracture out of plaster (except minor cases requiring little rehabilitation), fractured spines, both in and out of plaster, severe soft-tissue injuries, and all knee-joint injuries—e.g., cartilages three weeks after operation. During the year Sept., 1941, to Aug., 1942, 295 patients were admitted to this annexe. The majority of them had sustained lower-limb injuries: there were 87 cases of lower-limb fractures and 155 cases of knee-joint injuries, including meniscectomies and fractures into the knee-joint.

Work begins at 8.30 a.m. with half an hour of general P.T., in which all the men join, and, so far as is possible with the limited staff available, the patient's day is organized from then onwards until 4.30 p.m. Following the communal exercises, the men are split into groups according to their capacity and the site of their injury. One group may have a spell of graded exercises, a second group perform resistance exercises in the gymnasium, whilst a third group indulge in remedial games. All treatment, whether in P.T. classes or by resistance exercises, etc., is liberally interspersed with rests. We must never overtire the muscles we are trying to redevelop, nor throw too much strain on a joint which is mobilizing and not yet controlled by sufficiently strong muscles. To hurt the patient by too vigorous or too prolonged treatment is not only to lose his confidence but to retard his progress. A certain amount of pain is inevitable as a joint released from plaster begins to mobilize, but by the judicious graduation of exercises, the use of radiant-heat baths, massage, novocain injections, and manipulation in selected cases, treatment can proceed with minimal discomfort.

The morning's work ends with a period of organized games or swimming before lunch. In the afternoon a similar programme is carried out, games taking up a larger proportion of the time, until tea-time. From tea-time onwards (about 4.30 p.m.) the men are free to do as they please. There are facilities for indoor games. Many walk in the surrounding country in the summer; a larger number prefer to continue the diversional work they have learnt as bed patients in the parent hospital.

Knee-joint Injuries

All cases of meniscectomy are transferred to the rehabilitation annexe three weeks after operation. The range of knee-joint movement is measured, the presence or absence of effusion noted, and the quadriceps power estimated by weight and pulley. Treatment is directed towards redeveloping the quadriceps. Regular quadriceps drill in groups under supervision is instituted, and the men are instructed to contract their muscles at all times during the day. Quadriceps drill has already been taught pre-operatively and carried out post-operatively at the parent hospital, but some patients are apt to be forgetful or lazy unless a supervised routine is introduced: in addition, by performing the drill under supervision one is able to get the last ounce out of a quadriceps contraction. A definite rhythm is introduced into the exercise, one of the more advanced patients acting as "stroke." Faradism is not used as a routine. There are some patients, however, who appear to have lost the idea of how to contract their muscles. These men receive faradic treatment, being encouraged to try to hold voluntarily the contraction obtained by electrical stimulation. When they have rediscovered the knack of producing a really good contraction themselves the faradism is discontinued.

If there is no effusion or only a minimal effusion (as in the majority of cases on arrival at the annexe) the patient joins a class doing light P.T. Exercises are mainly non-weight-bearing at first, progressing to weight-bearing exercises by the end of the first week. General exercises are also introduced. Careful supervision is maintained, any tendency to effusion being considered a contraindication to increasing the difficulty of the exercise. After the first week it is usually safe to introduce group games—e.g., basket-ball and ground hand-ball. Nicoll (1941) has drawn attention to the risk of introducing games too early in leg cases, on account of the danger of sprains when joints are not adequately controlled by muscles. In the early stages of recovery we have overcome this by making walking compulsory in all games, running counting as a foul and being penalized. On the whole our experience has been that most sprains have occurred during off-duty periods when the patient has not been supervised and has been taking liberties with his limb.

Once a week the power of the quadriceps is estimated by weight and pulley. Originally we treated these cases by daily weight-and-pulley exercises. We found, however, that many men complained of pain under the patellar ligament when doing the exercises, and that pain, rather than a weakened quadriceps, seemed to be responsible for delay in improvement. We have now discarded the routine use of pulley exercises in meniscectomy cases, and as yet have not had reason to regret this step. The weekly pulley exercise is retained as a measure of quadriceps power.

The patient is considered fit for discharge when the quadriceps of the operated leg has regained power to 75% of the good leg, as estimated by weight and pulley, the patient having a full range of painless movement and full confidence in the knee.

The rehabilitation annexe is also used as a diagnostic centre for obscure knee-joint injuries. The difficulties of accurate diagnosis in knee-joint injuries in Service patients have been amply stressed. Any patient admitted to the hospital with a provisional diagnosis of I.D.K. in whom a definite diagnosis cannot be established is transferred to the rehabilitation annexe. Here he quickly progresses to the final class doing full P.T. and games. During this treatment one of two things usually occurs: the knee may give way in a typical manner and the diagnosis become apparent, or the patient may be rehabilitated with a painless knee in which he has full confidence. A few cases do not respond in either of these two ways; they still have painful knees, with a feeling of insecurity and a weak quadriceps. Some are undoubtedly cases of early arthritis, and are referred to a medical board.

Occupational Therapy

A large hut has been equipped for occupational therapy at the parent hospital. The department is staffed by technicians trained in the various handicrafts, and the work is supervised by a medical officer and the senior masseuse. This enables the work of the occupational-therapy and physiotherapy departments to be co-ordinated satisfactorily. We agree with Watson-Jones (1942) that a remedial workshop is not a rehabilitation centre, and in the treatment of Service injuries occupational therapy is only an adjunct to more active rehabilitation. We have found it particularly useful in the early mobilization of stiff joints—e.g., fingers and shoulders. In patients so severely injured as to be discharged from the Services—in which more energetic treatment is ruled out by the disability—we have found occupational therapy of considerable value. In reconstructional surgery of the severely injured it will no doubt prove a useful preliminary to the later vocational training.

Medical Staff

The work in the occupational-therapy department at the auxiliary hospitals and at the rehabilitation annexe is supervised by one member of the staff who has taken a particular interest in it and who sees the patients regularly. We feel that in the absence of a full-time rehabilitation officer this supervision is best done by one of the surgical team, who is thereby enabled to establish continuity of treatment. We feel also that in some ways he has an advantage over the full-time rehabilitation officer, for the rôle of the medical man in rehabilitation, apart from supervising and detailing treatment, is largely that of a medical whip and a mental poultice. The patients are, on the whole, more willing to be spurred on by the surgeon who has already had them under his care. The work requires patience, tact, and driving power, and one is more able to drive up to the patient's limit if one has already gained his confidence and also has a clear conception of the pathology of each case. No doubt the time will come when all rehabilitation will be carried out under the care of full-time officers; but we feel that their work should be closely co-ordinated and supervised by those responsible for the previous surgical treatment.

This development in rehabilitation work has been made practicable by the co-operation of the Regional Hospital Officer, Major-Gen. R. W. D. Leslie, and thanks are due to him and his deputy, Dr. A. Alan Forty, for their willingness to give every assistance in the establishment and equipment of the rehabilitation annexe and in the co-ordination of the work in the auxiliary hospitals.

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A UNIVERSAL APPARATUS FOR PERORAL INTRATRACHEAL ANAESTHESIA

BY

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WITH THE ANAESTHETIST'S POINT OF VIEW

BY

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There is no branch of surgery in which the surgeon is more intimately associated with the anaesthetist than in oral surgery, and more particularly cleft-palate operations; with this excuse I take the liberty of expressing my ideas on the subject.

Intratracheal anaesthesia for oral surgery is unsatisfactory, because there is no apparatus universally applicable to the wide variety of common operations. What are the desiderata for a peroral-intratracheal anaesthetic in an infant who may have to be anaesthetized for an hour or so? Infants are quoted because they are the most difficult subjects to anaesthetize, and it was upon 400 hare-lip and cleft-palate cases that the universal apparatus has been evolved.

Desiderata

Mechanical.—(1) It must be possible to use the apparatus with or without a Davis gag—i.e., for hare-lip or cleft-palate cases. (2) It must stay in position without packing once it is introduced. (3) It must not be kinked or squashed. (4) The intratracheal portion must be of rubber to produce the minimum tracheitis or laryngitis. (5) It must be easily sterilized. (6) The apparatus must be able to fit snugly into the gag without pressing it on the lower lip.

Physiological.—(1) An infant must be kept in the second stage of anaesthesia indefinitely. Contrary to the usual teaching, gas-and-oxygen is the perfect anaesthetic in infants so long as the percentage of the gases is controlled. All the cases had nitrous oxide after induction, and among them were cases of protruding premaxilla hare-lip in infants 1 month old in which the premaxilla was replaced in addition to the bilateral lip repair—a long and shock-producing operation. There was no operative or anaesthetic mortality. (2) Carbon dioxide must be expelled as near to the lungs as is possible because infants will not tolerate a raised alveolar carbon dioxide percentage. (3) No positive pressure or rebreathing must be allowed in infants because of the coincident raised blood pressure and respiration depth.

Description of the Apparatus

The universal apparatus to be described fulfils these conditions. It is made in two sizes, for adults and children respectively, and consists of an intratracheal part (Fig. 1, A) and a chin-piece (Fig. 1, B).

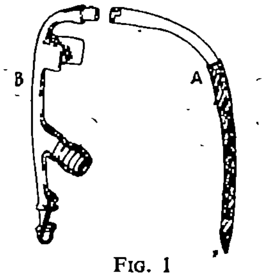

Fig. 1

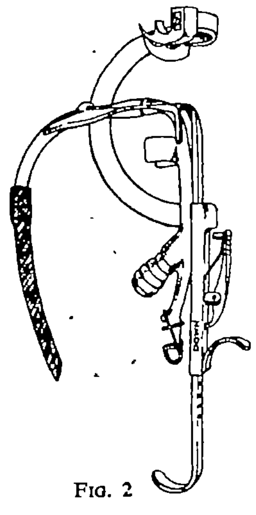

Fig. 2

Intratracheal Part.—This consists of a rubber tube pressed firmly on to the serrated end of a curved metal tube. Three sizes and curves of the metal portion are made for children, and they correspond to sizes 00, 0, and 1 Magill nasal tubes. The rubber portions are 2¼ in., 2½ in., and 3 in. long respectively, and are used on children from 1 month to 4 years old. The adult intratracheal sizes are made to demand; the chin-piece corresponds to a No. 10 Magill. The intratracheal portion is passed by means of a laryngoscope and united to the chin-piece by a bayonet joint which works through a right-angle, ensuring that it cannot be lost down the throat.

Chin-piece.—The inspiratory opening is placed under the chin at an angle to the main tube, promoting easy inspiration; it will be noticed that the inspiratory lumen is as large as the largest intratracheal tube. The expiratory opening is guarded by a thin rubber valve. In the adult model the valve can be removed and replaced by a length of rubber tubing or a metal cap should rebreathing or a closed circuit be desired. A curved chin-strap rests below the lower lip to prevent the apparatus from rotating, and this is fixed to the chin by adhesive strapping.

Fig. 2 shows how snugly the apparatus fits a Davis type gag: the only alteration necessary for the apparatus to fit a standard gag is the addition of a slot in the tongue depressor to allow the metal part of the tube to lie out of the way.

THE ANAESTHETIST'S POINT OF VIEW

The standard Boyle's gas-oxygen apparatus, as supplied by the Ministry of Health to Emergency Medical Service hospitals, has been used with this apparatus. The only expiratory valve employed is that which is attached to the chin-piece and already described.

Induction.—The infant, premedicated only with atropine, is induced on the operating table, the agent of choice being vinyl ether on an open mask. This provides a quick induction with ready relaxation of the jaw, the required depth being quickly reached and as quickly recovered from, and the laryngeal spasm so common with ethyl chloride is very rarely encountered.

Intubation.—The passing of the tube may present a few difficulties, particularly in infants of 4 weeks or so. A small-size laryngoscope is used, and the tube is passed via the mouth by direct vision. In adults it is not always necessary actually to see the vocal cords when passing the tube if the epiglottis and oesophagus are clearly in view, but in the infant it is essential to make sure that the tip of the tube passes through the vocal cords, otherwise it may slip behind the larynx and down the oesophagus. To bring the cords clearly into view the shoulders are first raised by an assistant and then, when the epiglottis is seen, gently replaced on the table. It is advisable not to touch the epiglottis with the laryngoscope, as this may result in immediate spasm of the vocal cords. Attempts to pass the tube should not be made until conditions for so doing are at their best; second and third attempts are more difficult, and are harmful to the child. The infant should be in the third stage of anaesthesia, breathing quietly and easily; if the plane is not deep enough laryngeal spasm will probably be encountered, preventing passage of the tube and necessitating a second attempt.

Maintenance.—The gas and oxygen are turned on just beforehand and the apparatus laid to hand ready connected except for the bayonet joint. Once the tube is *in situ* and connected, gas and oxygen and sometimes two or three whiffs of ether only are required. The rate of flow is about half the rate usually necessary with ordinary intubation and expiratory valve. For a child 1 year old 2 litres of N_2O and 1/2 litre of O_2 per minute are necessary. The anaesthesia lightens rapidly to the second stage with reappearance of the pharyngeal reflex, which the surgeon can evoke when he wishes to assess the adequacy of his operation. As the last stitches are being inserted the gas is turned off, and when the tube is removed the anaesthesia is light enough for the child to cry and cough.

Comparison with Other Methods

Simple Oral Anaesthesia.—Comparison with other methods of anaesthesia, such as a hooked tube in the mouth or an attachment to tongue forceps delivering ether and oxygen, shows very obvious advantages. Without an endotracheal tube it is impossible to keep the child on a light even plane of anaesthesia. Either the child is lightly anaesthetized and by its gagging and moving impedes the surgeon or else it is deeply under, with consequent disadvantages to itself and greater risk of post-operative complications, formerly so common in this branch of surgery.

Magill Armoured Tube.—Advantages of the apparatus over the Magill unkinkable endotracheal tube are: (1) It stays in place without a gag, a gag being unnecessary in the case of hare-lip operations, as the metal portion extends over the back of the tongue. The Magill tube is inclined to ride up even when packed, because of the metal spiral it contains. (2) It cannot wear out if used with a gag, as only the metal portion comes into contact with it. Fresh rubber ends can be fitted each time if necessary, as it is inadvisable to use tubes after they have become softened by boiling. (3) A fully controlled anaesthesia is obtained. The large-bore inlet allows gases to be drawn into the lungs as required by the child's respirations and exhaled easily by means of the simple valve close to the face. This is not the case with the Magill tube, in which gases under slight positive pressure are supplied by the small-bore inlet tube, no bag or expiratory valve being used: incidentally, omission of a bag causes a waste of gas. Also, the funnel-shaped expiratory opening of the armoured tube, perhaps elongated with rubber tubing, may upset the gas-oxygen percentages should the child increase its inspiratory effort from external causes. (4) Actual passing of the tube is slightly easier owing to its curve; with this apparatus the anaesthetist's right hand is at the side of the mouth and therefore does not obstruct the view of the glottis.

Magill Nasal Tube.—This interferes with the contraction of the nasopharyngeal sphincter and any manipulations that may be necessary with the nasal mucosa. If a rubber tube is used orally with a gag it is apt to be squashed or kinked by the tongue depressor either on the tongue or against the posterior pharyngeal wall.

Disadvantages of the Apparatus.—The disadvantages should be mentioned. The apparatus consists of three portions, and it may be argued that these could come apart; but if that possibility is borne in mind and the rubber tube is pushed on up to the upper limit of the serrations this should never happen: it is important to fit the right-sized rubber to the right-sized metal. In an earlier model the bayonet joint between the two main portions occasionally slipped undone, but the improved joint working through a right-angle precludes this possibility.

Comment

To sum up, this apparatus provides an even, light, controlled gas-oxygen anaesthesia. Once the apparatus is in position, a procedure which should take altogether from five to seven minutes, neither anaesthetist nor surgeon has any further worry: the child is round immediately the operation is finished, and there are no post-operative complications due to the anaesthetic. Although originally designed for use in children it is evident that the apparatus will be a valuable addition to the anaesthetist's outfit for all operations on the head and neck in adults.

Those who are interested in the practical application of the apparatus (made by Down Bros.) are welcomed at Hemel Hempstead Base Hospital on Tuesdays at 9.30 a.m.

IMPETIGO CONTAGIOSA IN THE SERVICES

WITH SPECIAL REFERENCE TO ITS TREATMENT WITH SULPHATHIAZOLE

BY

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AND

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The treatment of dermatological cases in the Services is in many respects more satisfactory than in civil life, as the average contagious skin case, to prevent further infection in the unit, is admitted to hospital and up-to-date methods are available. Compared with those in civil practice, the cases of impetigo treated in the Services are on the average more severe, and a certain number proved resistant to treatment, many healing slowly, sometimes because of a persistent folliculitis and sometimes because of tiny re-inoculations, causing small oozing lesions.

In a military hospital entirely for dermatological patients 1,432 cases were admitted during the five months from May 14 to Oct. 14, and 396 of these were impetigo, so that there was ample opportunity of studying the action of drugs on this disease. A number of types were encountered, which for clinical purposes might be divided into the following groups: (1) Extensive, with excessive crusting (i.e., often the whole face affected). (2) Extensive, with moderate crusting. (3) Extensive, with small weeping crusted lesions (i.e., up to 1 cm. diameter). (4) Mild—one or two areas. (5) Mixed: excessive crusts (indicating a streptococcal origin), with superficial vesicular lesions and perhaps folliculitis (staphylococcal). (6) Staphylococcal type (i.e., initial small bullae), followed by superficial crusting with slight inflammation, peripheral vesiculation, and residual pigmentation (Roxburgh, 1941). (7) A type of seborrhoeic skin characterized by small superficial erosions, and often associated with a retro-auricular dermatitis.

Differential Diagnosis

The differential diagnosis proved to vary somewhat from that in civil practice, and the following conditions seemed to be easily mistaken for impetigo.

1. *Respirator Dermatitis.*—Every case of this was referred as an impetigo, as the cheeks, chin, and brow were covered with golden-yellow crusts with marked exudation; the typical distribution, especially the involvement of the submental region, and the sharp demarcation of the lesions, followed by a positive patch test, established the diagnosis.

2. *Sycosis.*—The duration of the disease was often alone sufficient to make the diagnosis, without the clinical appearances, but some cases of impetigo of the beard region which had been present for several weeks were tending to drift gradually to a true sycosis.

3. *Herpes Simplex.*—In the crusted stage it was virtually impossible to distinguish this disease from a mild impetigo if an intelligent history was not obtainable. There seemed no doubt that some cases of extensive impetigo had begun as an infection of the original herpes.

4. *Seborrhoeic Dermatitis.*—This disease, especially seborrhoeic eczema affecting the scalp and ears, was often labelled impetigo, though it is difficult to draw a dividing line between the diseases in some cases.

5. *Hutchinson's Summer Prurigo.*—The few cases seen were referred for admission as cases either of impetigo or of respirator dermatitis.

6. *Tinea Circinata.*—Circinata impetigo was occasionally thought to be a tinea circinata of the face.

7. *Insect Bites.*—One or two patients with a bullous reaction to insect bites were sent in as cases of bullous impetigo.

Treatment

The routine treatment for impetigo contagiosa was 2% aqueous solution of gentian violet painted on gently night and morning, with a bland grease such as 1% ichthyol paste, zinc cream, or soft paraffin, applied as required to prevent excessive drying of the skin with the paint and to help to soften crusts. It was found that the pure "viola crystallina" was much better than the commercial gentian violet. Among other preparations used was ung. quinolor co. (Squibb) or the Army issue of ung. benzoylis peroxidi, which proved to be excellent, especially for the subacute type with folliculitis; while sulphanilamide, sulphapyridine, sulphathiazole, sodium sulphathiazole, sulphadiazine, and sulphamethazine were also used.

The effect of sulphanilamide and sulphapyridine locally was sometimes brilliant but often disappointing. Sodium sulphathiazole, sulphadiazine, and sulphamethazine were very similar in action, the crusts gradually disappearing, but rapid and complete cure was not often obtained. Sulphathiazole undoubtedly proved to be the drug of choice, and results were obtained which seemed to indicate that it should be used in practically every case of impetigo.

The average stay in hospital for all cases of impetigo, no matter how treated, was 14.6 days; during the period May 15 to Aug. 27, 1942, 273 cases of impetigo contagiosa were admitted. Of these, 120 were treated with sulphathiazole in a water-miscible cream or a starch and zinc oxide paste, and these cases are shown below in more detailed analysis. Altogether 242 cases of impetigo have been treated in the hospital with this drug during the past 6 months. It was found that sulphathiazole was economical in use, for many cases required less than half an ounce of the cream or paste to complete a cure, though in the severer cases more than an ounce had to be employed. Application was a very simple matter—an important point when the treatment is more widely used. The preparation was smeared gently night and morning on the affected areas and the adjacent healthy skin. It was not necessary to remove crusts in any way, as they dried up and disappeared completely in two or three days. This obviated any risk of the rough removal of crusts by forceps or oil, which so often leads to trouble. Patients were advised to shave every day (the razor being sterilized daily in antiseptic), but were told to avoid any tender or badly crusted area. They were allowed to wash their face with plain soap and water, drying very gently with the towel. The effect of the treatment was clearly shown by the number of men who asked hopefully if they might have this form of treatment after they saw the dramatic results in other patients.

To test the efficiency of sulphathiazole, various strengths were employed: 2½%, 5%, and 10% in a water-miscible cream, and, as a contrast, 5% in paste made with 15% zinc oxide and 15% starch. Of the 120 cases of various types of the disease 27 were not cured by sulphathiazole, 17 of these being treated by the 2½% cream, which evidently was too low a concentration of the drug. The 93 cures were obtained in an average time of 6.8 days, which compares very favourably with the average stay of impetigo cases in the hospital (14.6 days). All cases treated and not cured with the 2½% cream tended to clear up to some extent, and the heaped-up crusts rapidly disappeared, but there remained either an obstinate folliculitis or tiny oozing patches with slight yellow crusts, both of which were resistant to treatment. From this it seemed that a 2½% concentration was quite sufficient to cause the disappearance of all streptococcal lesions, but that the staphylococcal infection was apparently unaffected.

Of the 95 cases treated with the 5% and 10%, 10 were not cured, 7 of these being of the superficial staphylococcal type with very little crusting, and 3 of the patients were men with a seborrhoeic dermatitis of the flexural type. The 7 cases of staphylococcal type responded quickly to 2% gentian violet, while the 3 of seborrhoeic nature healed well on ung. benzoylis peroxidi.

Analysis of Cases

1. 10% Sulphathiazole in Cream

Patients treated	19
Patients not cured	1
Patients cured	18
Average rate of cure for 18 patients	7.9 days

2. 5% Sulphathiazole in Cream

Patients treated	30
Patients not cured	3
Patients cured	27
Average rate of cure for 27 patients	6.11 days

3 2½% Sulphathiazole in Cream

Patients treated	25
Patients not cured	17
Patients cured	8
Average rate of cure for 8 patients	4.77 days

4. 5% Sulphathiazole in 15% Starch and 15% Zinc Oxide Paste

Patients treated	46
Patients not cured	6
Patients cured	40
Average rate of cure for 40 patients	6.5 days

5. 5% Sulphadiazine in Paste

Patients treated	20
Patients not cured	14
Patients cured	6
Average rate of cure for 6 patients	12.3 days

Discussion

These results are in accord with those published in the U.S.A. by Sams and Caplands (1941), who treated 53 cases with sulphathiazole ointment in strengths of 5 to 25% and cured their cases in 4 to 10 days, with an average of one week. Also in the U.S.A., Winer and Strakosch (1942), using 5% sulphathiazole in a water-and-oil emulsion, treated 60 children, the time of cure being 4 to 10 days; while Steigman (1942), treating 51 children—most with impetigo following scabies—found that 5% sulphathiazole in paraff. moll. flav. healed them in 4 to 5 days. It is for several reasons somewhat difficult to compare the results of treatment in children with those of treatment in adults, the most important reason being the almost invariable involvement of the beard in adult males, so that shaving is an additional problem and hazard, despite sterilization of shaving appliances. Writing on impetigo in the Services, Thomson (1942) states: "The main point is the fact that all these cases on admission to hospital are of an extremely severe nature. There seems to be little doubt that, once the early stage of the disease has passed, the virulence of the organisms is so high that treatment is rendered extremely difficult. We are still left with the undoubted fact that these patients do not react easily or well to treatment."

No toxic results were observed in the 120 cases reviewed, but 3 patients treated with the drug have since developed a light-sensitivity similar to the reaction of the skin noticed in some cases treated with other members of the sulphonamide series—i.e., the areas treated became oedematous, erythematous, and crusted. This reaction soon settled down with shielding from the light, rest in bed, and the use of a soothing application such as zinc cream. Cases of ecthyma and early infective dermatitis healed well with sulphathiazole locally, but no real or lasting benefit was obtained from its use in sycosis, pustular acne, or infectious eczematoid dermatitis.

Summary and Conclusions

Sulphathiazole seems to be the drug of choice in the local treatment of impetigo.

Of 120 cases analysed, 93 were cured in an average time of 6.8 days, which compares well with the average length of stay in hospital of 14.6 days for impetigo cases.

The vehicle used for the drug seemed to make little difference to the healing rate of the skin: cases treated with the 5% paste healed in 6.5 days and those with the 5% cream in 6.11 days.

Results obtained with 5% concentration were better than those with 2½% and compared very favourably with results from 10%.

Sulphadiazine and sulphamethazine were used in a number of cases, but results were disappointing.

Sodium sulphathiazole (5% cream) gave somewhat erratic results, but was definitely better than sulphadiazine and sulphamethazine.

Quick healing was also obtained with sulphathiazole in ecthyma and early infective dermatitis, but results were disappointing in infectious eczematoid dermatitis, acne vulgaris, and sycosis.

We must express our indebtedness to Dr. Robert Forgan, medical consultant, Pharmaceutical Specialities (May and Baker) Ltd., for his kindness in supplying generous quantities of sulphathiazole.

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Medical Memoranda

A Persistent Brow Presentation

The following may be considered of interest as the case record of an unusual condition.

CASE HISTORY

A primipara aged 27, living at a remote farm, began with pains on July 13 and had a good "show." Abdominal examination was difficult on account of a muscular abdominal wall, but it was ascertained that the presentation was a vertex. Per vaginam the os showed no dilatation, but the head was felt through the fornices to be in the right occipito-posterior position. The pelvic measurements were normal. The pains were infrequent and the patient continued about her household duties until July 17, when she was seen again. The os now admitted a finger-tip. Matters remained in this state until July 20, when, as sleep was being interrupted by the occasional pains, 1/4 gr. of morphine was given. After five hours' sound rest, pains began in earnest about 3 a.m. on the 21st, the membranes ruptured at 3.30 a.m., and uterine contractions were strong and regular all day. At 3 p.m. the midwife reported that the head was visible, but in spite of strong pains was not advancing. Vaginal examination at 3.30 p.m. proved the visible portion to be oedematous scalp, the head being arrested in mid-pelvis.

A more detailed examination under light anaesthesia showed a brow presentation in the left anterior position. The frontal suture led the examining fingers to the prominent supra-orbital ridges, and beyond these the nose could just be reached. A gentle attempt was made to push the brow upwards and so convert the presentation to an occiput, but this failed, and it was decided to make a more determined effort with the help of an anaesthetist. By 6 p.m., under deep chloroform anaesthesia, a hand was introduced into the vagina and the head pushed upwards; the fingers were gently insinuated between the infant's face and back of the symphysis pubis until their tips were beyond the chin. The finger-tips were then hooked over the chin and traction exerted. The position changed with surprising ease into a face presentation, in the left mento-anterior position, and forceps were applied. The change of position completely altered the situation. With very slight traction the chin descended and turned to the front, the forceps being allowed to turn with the face. Further moderate traction delivered the chin, and the occiput slipped suddenly over the perineum. The chest and legs followed easily, and the placenta came away spontaneously ten minutes later while a first-degree tear of the perineum was being sutured.

The child was a male of 7¼ lb.; he had a marked caput over the frontal bones, and the face and lips were slightly swollen. He was in a state of mild shock, but began to breathe without intervention and was crying lustily half an hour later. One hour after delivery the mother was taking a light meal; the uterus was firmly contracted and the pulse 60 a minute. Convalescence was uninterrupted except for difficulty of micturition the next day, which required the passage of a catheter.

COMMENT

Although brow presentation probably occurs fairly often as an early transition stage in face presentations, it is recognized as a state of unstable equilibrium, and it is difficult to see how it can become persistent. In the case under consideration the face was pressed firmly against the back of the symphysis, with the chin above and the supra-orbital ridges and nose below that bone. Each uterine contraction caused a slight flexion by depression of the occiput, which only resulted in pushing the face more firmly against the symphysis. Complete flexion was prevented by the nose and supra-orbital ridges, which had passed below the symphysis and were unable to retrace the path of descent. Likewise, when the large occipito-mental diameter occupies the cavity of the pelvis, extension to a face presentation is prevented, as the face is pressed against the posterior surface of the symphysis pubis and the prominent bony chin cannot find room to slip down behind.

It appears then in a brow presentation, with a pelvis and head of normal size, that if the position does not rectify itself before the nose and supra-orbital ridges have passed below the symphysis, simple mechanical considerations afterwards prevent any change in the position.

G. H. H. BOOTH, M.B., B.Sc.

Reviews

THE VITAMINS IN MEDICINE

The Vitamins in Medicine. By Franklin Bicknell, D.M., M.R.C.P., and Frederick Prescott, M.Sc., Ph.D., A.I.C., M.R.C.S. (Pp. 662; illustrated. 45s.) London: William Heinemann. 1942.

It is often more difficult to do justice to a good book than to find fault with a poor one, and *The Vitamins in Medicine* is decidedly good. It contains ten chapters, devoted respectively to vitamin A, the vitamin B complex (including vitamin H (biotin), adenylic acid, pantothenic acid, vitamin B_6, and various other factors more or less well defined—e.g., choline, *p*-aminobenzoic acid, vitamins M, L_1 and L_2, U, bios, etc.), vitamin B_1, riboflavin, nicotinic acid, vitamin C, vitamin D, vitamin E, vitamin K, and vitamin P. References numbering in all more than 3,000 are given at the end of each chapter. The photographs of patients and structures of tissues have been very well reproduced. For many of them the country or nation to which the patient belonged is stated, indicating usefully that the people of Britain are not quite so free from gross vitamin deficiencies as they are sometimes supposed to be. The chemistry of each vitamin has been treated fully enough to help those readers primarily interested in the physiological and clinical aspects of the subject. One slip was detected: pure vitamin A has not been synthesized—only formed in very minute yield and not purified. The biological standardization of the vitamins is clearly and briefly described. Tables of the vitamin content of various common foods are given in each chapter.

Human requirements of each of the vitamins at different ages, in health and disease, and in relation to special conditions are dealt with by summarizing the findings of different workers and their hypotheses to account for these findings. Methods for detecting partial deficiencies of the vitamins in human beings are described and discussed critically, and typical cases of severe deficiency are depicted by means of photographs of the affected parts and, where possible, by photomicrographs of the affected tissues. The chief diseases that are thought to be due to a lack of vitamin A are toadskin or phrynoderma (probably the same as shark-skin, keratosis pilaris, ichthyosis follicularis, lichen pilaris, lichen spinulosus, and Darier's disease), impairment of dark-adaptation, xerophthalmia, Bitot's spots, asthenopia, lathyrism, etc. There is much conflicting evidence of the effect of vitamin B_6 therapy on cases of muscular atrophy and Parkinsonism. Beriberi is treated at some length, and also the general effects of a deficiency of vitamin B_1 on the nervous system, cardiovascular system, and gastro-intestinal tract. The variety of conditions improved by giving vitamin B_1 is almost astonishing. Results of vitamin therapy are not always the same, and it should be remembered that a diet may be lacking in one or many factors. One clinician may clear up the condition with the missing factor, another may have to supply several factors —e.g., trench mouth seems to require both riboflavin and nicotinic acid to relieve it, and one patient's diet may lack one of these and another's may lack the other.

Apparently many more cases of pellagra have been diagnosed in this country since the cure for it has become available. Vitamin C as a cure for scurvy seemed simple until vitamin P was discovered, but other functions of vitamin C have also been discovered—e.g., in the healing of wounds (and before and after operations), in overcoming various infections, in certain detoxicating processes in the body, etc. Pure ascorbic acid is available and cheap, and apparently never does harm even if taken in excess. The relation of vitamin D to calcification, tooth formation, the endocrine glands, the blood, and infection is discussed at some length, as well as its use in the bleeding tendency in jaundice, lead and radium poisoning, healing of fractures, arthritis, and certain skin diseases.

Evidence is quoted for advising caution against overdosage. The relation of vitamin E to growth, muscular dystrophy, and nervous degeneration is also dealt with. The evidence of any human requirement for vitamin E is very conflicting. The part played by vitamin K in animal (and human) processes as an antihaemorrhagic factor is generally accepted, and most doctors now believe in vitamin P as a factor in maintaining capillary resistance.

ILLUSTRATIONS OF SURGICAL TECHNIQUE

Illustrations of Surgical Treatment: Instruments and Appliances. By Eric L. Farquharson, M.D., F.R.C.S.Ed.; Major, R.A.M.C. With a foreword by Sir John Fraser, M.D., Ch.M., F.R.C.S.Ed. Second edition. (Pp. 392. 25s., plus 7d. postage.) Edinburgh: E. and S. Livingstone. 1942.

The popularity of what may be termed the pictorial type of medical book is now established, and it is a method of presentation particularly suited to so practical a subject as surgical technique. It is said that the greater number of people are "visualists"; if this is so, the majority are catered for very fully by this new tendency. But even the "aurist" could not fail to gain information, for most of these books have an interesting text accompanying the illustrations, which makes them as clear as a practical demonstration.

The new (second) edition of *Illustrations of Surgical Treatment,* by Eric Farquharson, is a good example of all this. For the most part the book concerns itself with the treatment of fractures; the detailed photographs, of exceptionally good quality, of cases under treatment and of the appliances used are so complete that it would seem that the instruction provided is almost as good as could be gained from a personal attendance at fracture clinics over a long period. The methods described are usually orthodox, but here and there the author's inventive ingenuity is displayed in the devising of special methods of splinting or new appliances.

This part of the work, together with a short section on infusion and transfusion, occupies over 250 pages. The remaining part consists of illustrations of surgical instruments and appliances. We find this portion less interesting, since it appears to be but a summary of the surgical instrument makers' catalogues, while the occasional short descriptions are too scanty to be of any real value. There is also some redundancy: Mayo's goitre retractor, for instance, is illustrated no fewer than three times. The student up for his "exams," however, may find it a rapid means of revising the names of the commoner instruments. The quick call for a second edition is sufficient indication that the book is meeting a demand; it is certainly one which can be recommended.

PERSONAL AND COMMUNITY HYGIENE

Personal and Community Health. By C. E. Turner, A.M., Sc.D., Dr.P.H. Sixth edition. (Pp. 642. 18s.) London: Henry Kimpton. 1942.

The sixth edition of Prof. Turner's *Personal and Community Health* continues to qualify for our commendation of an earlier edition. It is a "compendious and most readable" presentation of the subject with which it deals. Under the title "Personal Health" the problem of posture receives attention. Deforming bone diseases excepted, posture is held to be simply a question of muscular balance. Where the balance is awry the muscles should be strengthened by appropriate exercises. Suitable postures are pictured for standing, bending, and sitting. A correct posture, in the author's view, is a personal asset; it displays alertness in men and grace in women, and in both reveals training and helps efficiency. Under the title "Community Health" reference is made to the diligence of life assurance companies in the United States to promote, by education and otherwise, the health of their policy-holders. In this connexion the author attaches importance to the annual medical overhaul, for which purpose, as well as for treatment, the services of a competent physician should be sought. Such a person may be recognized by his good medical degree, his training in a first-class hospital, and his high ethical code, sustained by which he does not advertise himself or offer secret methods of cure, or flit from place to place after a brief sojourn in each in order to elude the wrath of his mistreated patients. A feature of the book is the reproduction of the Children's Charter, enunciating the standards for child welfare set by the Third White House Conference. The illustrations are excellent, excepting those of insects, which might have been better chosen.

Notes on Books

Two years ago we welcomed the appearance of Sir ARTHUR HURST'S *Medical Diseases of War* in its new form, the success of which is shown by the publication of a third edition (Edward Arnold, 21s.). It has been brought up to date by new chapters on typhus and diphtheria, both of which diseases have brought new problems. There are new bacteriological sections, and fresh information on such topical subjects as cerebral concussion, scabies, mustard gas, and the treatment of bacillary dysentery with sulphaguanidine. It is the best compendium of war medicine that we know.

Preparations and Appliances

SAFETY DEVICE FOR SUCTION PUMP USED FOR OBTAINING BLOOD FOR TRANSFUSION

Dr. E. M. WATSON, Professor of Pathological Chemistry, University of Western Ontario Medical School, London, Canada, writes:

The withdrawal of venous blood for the purpose of transfusion is commonly regarded as a simple and harmless procedure; nevertheless a fatal case of air embolism involving a blood donor was recorded in the *British Medical Journal* (1941, **2**, 311). The disaster was the result of the electric rotary pump which was used to create suction reversing its action when the current was switched off. While this may be an isolated incident, it serves as a tragic example of what may happen when a mechanical suction pump is employed for the taking of blood in the absence of special precautionary measures. The implication is clear in the light of the present need for donors. A pump may be made safe by adopting some simple modification such as the installation of a safety-valve in the suction tube.

In an attempt to comply with the timely warning contained in the above-mentioned article—in effect, that any hospital making use of the rotary suction pump should take steps to have the necessary alterations made in the apparatus—the device described below was constructed.

The main accessory consists essentially of a glass ball-valve interposed in the suction current (Fig. 1). As portrayed in greater detail in Fig. 2, the ball-valve has been fashioned from a piece of clear glass tubing, 10 mm. in diameter, within which is contained a float made from a piece of brown glass rod (A). The expanded pointed end of the float (B) has been ground to fit snugly into a hollow seat formed by a thickening of the wall of the tube (C). In order that the float may remain constantly in its proper upright position, a glass collar (D) and three short arms (E) were incorporated. When the apparatus is in operation the float bobs up and down with the action of the suction pump, but immediately the latter stops the float drops, causing the valve to close tightly; consequently air cannot escape past it toward the donor.

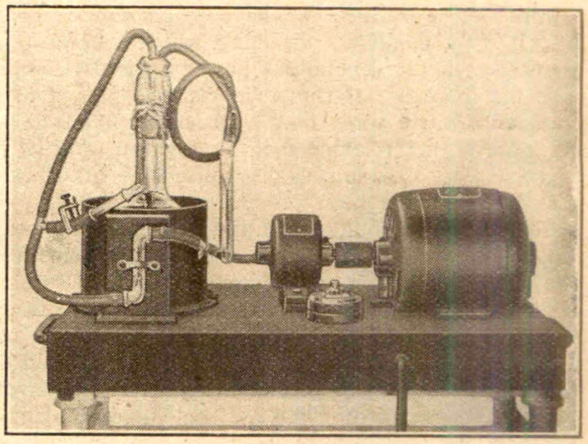
FIG. 1

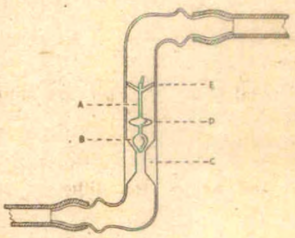

FIG. 2

As additional safeguards, two glass T-tubes are included in the system (Fig. 1). The one proximal to the safety-valve has a small external opening and serves to regulate the degree of suction as well as acting as a by-pass in the event of any back-pressure. The opening of the T-tube distal to the safety-valve contains some loosely packed cotton-wool and is controlled by means of a pinch-cock. After the desired amount of blood has been obtained from a donor the pinch-cock is released and the electric current to the motor switched off. The airtight valve closes, the pressure within and without the flask becomes equalized, and the possibility of air embolism is avoided. The contrivance has been found to work satisfactorily.

The installations described above were made and assembled by Mr. A. Barber of the Department of Pathological Chemistry, University of Western Ontario.

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REHABILITATION: THE DUTY OF SOCIAL MEDICINE

New words come into fashion from time to time, and, especially if they are polysyllables, are hailed as descriptions of new things. Even the scientific world, including medicine, is not exempt from the tyranny of the slogan. A current example is the word "rehabilitation." It is not always used with discrimination. Even the Beveridge report (para. 426) speaks of rehabilitation as "a new field of medical activity with great possibilities." The truth is, as Matthew Arnold said of the word "Philistinism," which suddenly became fashionable in his time, we have not had the word before because we have had so much of the thing. It is the name, not the thing, which is new.

Medical men for generations have practised rehabilitation in the sense of returning the disabled patient to his former work or to some new work suited to his diminished capacity, not relaxing their supervision until he has been completely re-established. In several branches of medicine there have been noteworthy movements along these lines. The more humane attitude towards the insane, which began with the abolition of the old system of restraint and has gone on to vast improvements in care and treatment, including occupational therapy, is an example of rehabilitation in a field which might have been considered almost hopeless, and it has been demonstrated that patients discharged from mental hospitals into after-care are by no means unemployable. The village settlements or colonies for the tuberculous, of which Papworth was the first, furnish another example; and the institutions—at Leatherhead, Exeter, Oswestry, and Erskine House, Glasgow—for restoring the disabled and limbless yet another. The Army long since provided physical development centres, convalescent depots, and hospitals for nervous conditions, all closely linked with the Service; and in industry there are the rehabilitation centres at Berry Hill Hall in the Midland coalfield, at the L.M.S. Hospital in the great railway centre at Crewe, and at the Albert Dock Hospital in London, all run by surgeons and by a team familiar with every kind of work in the industries concerned.

It is true, nevertheless, that rehabilitation has lately received a new significance. Members of the medical profession feel increasingly that their obligations extend beyond the recovery of the sick person. They realize how profoundly the convalescent stage may be affected by occupation or prospect of occupation, and how necessary it is for the convalescent to have medical guidance if, on the one hand, he is not to return to work too soon, and, on the other, he is not to delay until he has lost his skill and his heart for the work. As Brigadier Cairns says in the article which we publish in this issue, the new thing in rehabilitation is the very general realization by the medical profession of its responsibility for convalescence and its formal recognition of the part which a patient's personality plays in his readjustment after injury or disease.

Rehabilitation, which in its medical sense has not yet got into the Oxford Dictionary, was first mentioned in relation to co-ordinated efforts to condition the patient's recovery after a fracture, which is the most fertile single cause of permanent disability. It was regarded then as the function primarily of the physiotherapy department, and in a good many minds rehabilitation still means no more than physical medicine. Actually it reaches out far beyond that province and beyond the province of any group of specialists; it brings in occupational therapy, vocational training, and the arousal and maintenance of mental interests. The B.M.A. put forward its ideas on the subject in the report of its Committee on Fractures eight years ago, and developed them further in its evidence before the Departmental Committee on Workmen's Compensation and in a later report on industrial health. It proposed rehabilitation units for temporary light work in which a group of patients would be under the day-by-day personal supervision of a medical man. It was never in mind that there should be detached centres, a sort of distant annex to the factory, directed by non-medical personnel.

The Beveridge report uses a dubious phrase when it says that rehabilitation must be continued from the medical through the "post-medical stage" until the maximum of earning capacity is reached. A good deal depends on the definition of "post-medical"—the word itself is no definition at all. Is it a stage from which medical care is withdrawn, and rehabilitation (or reconditioning, or resettlement, or whatever word is used) is left in charge of industrial instructors, perhaps with the help of a masseuse? It must be in charge of somebody. The patient himself can, and indeed must, co-operate, but he cannot be the overseer of his own rehabilitation. The Tomlinson Committee (the Interdepartmental Committee on Rehabilitation),[1] which makes some wise and bold recommendations, does not use the word "post-medical," but it speaks of post-hospital rehabilitation in which, instead of continuous medical supervision, medical advice will be at call, the presumption being that it will only be called when there is some retrogression in the man's condition. The post-hospital period is expected to bridge the gap between the completion of hospital treatment and the establishment of fitness for such employment as is within reach of the disabled. This reconditioning is to take place at residential centres in various parts of the country, from which in due course the persons concerned will either go back to their old employment or enter upon an educational training course for a new job. But the Tomlinson Committee, enlightened as most of its recommendations are, comes down on the industrial rather than on the medical side of the process. It does not consider that whole-time medical superintendents are necessary at these centres. In other words, the function of medicine in this highly critical field will be consultative rather than supervisory.

The matter is important because the Tomlinson report, overshadowed though it is by the social security proposals, may well result in a very considerable reorganization of industry. The longer the war lasts the greater will be the number of the disabled, and as it is "total" war it is not this time a question only of the crippled soldier, but of dealing with crippled civilians—men, women, and children. No one can predict the final number, which may well be formidable, and to it are constantly being added the victims of mechanized industry and transport and those handicapped by conditions following upon disease or congenital deformity. This is not a matter for charity any more than is the payment of interest on the National Debt. The country must accept the fact that a certain proportion of its citizens are permanently disabled, although in the great majority of cases not to such an extent as to unfit them for some employment, and must consent to any slowing of the tempo of industry or any lessened skill in service which the absorption of these people may involve. The important thing, for the sake of the disabled themselves as well as for the sake of the community, is to readjust them to such work as they can do. It will mean a good deal of fitting, not merely of square or rounded pegs, but of pegs presenting every kind of asymmetry, into holes as appropriate and congenial as possible. In that task—as important as any in the post-war era—it is the medical profession which must take the leading share; and, with great respect to the famous author of the phrase, to talk of a "post-medical stage," meaning a non-medical stage, or even of a post-hospital stage in which the doctor is summoned only when something goes wrong, is to under-estimate some vital factors in the situation.

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[1] Cmd. 6415. H.M. Stationery Office. (9d.).

The situation at present, of course, is obscured by shortage of labour. There is now next to no unemployment among those who are fit to work at all. We are informed, for instance, that there are actually no deaf persons unemployed unless also incapacitated by age or by some additional infirmity, and it is said that there are no fewer than 340 different occupations which can be followed by the deaf. But it is necessary to envisage a time when normal industrial conditions will return, or perhaps a time of industrial depression and unemployment, when employers will naturally want to select the fit in preference to the unfit for such jobs as are available. Some means must be found for securing that the disabled are not cast on the scrapheap. No doubt much could be done by persuasion and example on the part of Government Departments, local authorities, public utility undertakings, and public-spirited private employers, but this is a national liability, and the voluntary principle will not fill the bill. The Tomlinson Committee has, it seems to us rightly, rejected the idea of subsidies to employers for taking disabled men. The alternative is a statutory obligation on employers to accept a quota of disabled, and the setting up of a register of handicapped persons and a schedule of occupations which will primarily, though not exclusively, be reserved for them. If such occupations as lift attendants and messengers are mentioned, it is because those are the first which come to mind. Actually such a schedule might be indefinitely extended, but to over-extend it, of course, might have grotesque results. Its construction will need the exercise of something like genius, but harder problems have been tackled.

The industries of this country are highly diversified: so are the jobs in each industry, and so are their demands on physical capacity. As has often been said, the loss of a finger may be a barrier to one job, whereas another can be done by a person without arms. But the question of fitness for the job goes much deeper than that. It takes cognizance not only of physical defects and their compensations, but of age, temperament, mentality, and social circumstances. An employer may not be greatly impressed by the figures for the Ford works in America, where 10% of those on the pay roll are physically defective and where it has been proved that cripples can earn full wages; he will be anxious about the accident-proneness of these handicapped people whom he is asked to employ, and about their increased susceptibility to fatigue and likely sickness absenteeism. Another factor to be dealt with may be unwillingness on the part of other workers to work with a disabled person. This is said to operate in the case of persons under treatment for tuberculosis; but the rehabilitation of the tuberculous, as also of heart cases, must be dealt with as a separate problem, not on that ground alone but because they need specially sheltered conditions.

In all these readjustments and adaptations the major problem is a medical or a medico-psychological one. After the "crooked" have been made straight there are innumerable "rough places" which must be made smooth. It is the understanding medical man, especially if he has studied industrial health, who can best assess the usefulness of his patient, advise on his place in industry, and ensure that his restored capacity is used without detriment to himself and to the best advantage in the field of productive effort.

Physical defectives are often unusually conscientious and reliable persons. The consciousness of one defect makes them use their other powers with special care and alertness. On the other hand, there are defectives who lose themselves in self-pity or fall back on the reflection that because of their disability not much is expected of them. Again, there are people who are uncertain of themselves and need the confidence which only the doctor can impart. In addition to the surgical group of disablements, which are more or less obvious, there are disablements in the medical group which are not so obvious and about which the industrial supervisor or foreman needs to be carefully informed. For all these reasons, rehabilitation, which after all is only treatment as the medical profession understands it, should not be split up into a medical and, after that, a non-medical phase in which the patient will be seen no more by the doctor. The medical man, whether surgeon or physician or general practitioner, must be allowed to treat his case to a conclusion, and the conclusion is the re-establishment of the patient as an economic unit to the full extent of his recovered capacity.

DEMOCRATIC MEDICINE

At this particular moment in the history of medicine it is perhaps as well to recall that the foundations of medical science and medical practice have been laid and built upon by men practising their profession freely, restrained only by the authority of their own consciences and by their freely accepted obligations to professional organizations, corporations, and colleges. Those two great English doctors, William Harvey and Thomas Sydenham, the one a royalist and the other a puritan, made their fundamental contributions to physiology and clinical science as freely practising physicians. John Hunter, Edward Jenner, John Snow, Joseph Lister, James Mackenzie, Richard Bright, Thomas Addison—these men brought their great gifts to fruition in a system of medicine which now appears to have more detractors than advocates. The master builder of the public health service—John Simon—was a surgeon at St. Thomas's Hospital, and he made it a condition that he should continue in this post when he accepted the appointment of Medical Officer to the Privy Council. This is not another way of saying, "What is good enough for my grandfather is good enough for me." It is not to say that the changed times in which we live do not demand a new approach, or new approaches, to the many difficulties that beset the practice of the art and the science of medicine. But those who are eager to pull down the existing structure in the illusion that they are going to build something quite new should perhaps be a little clearer in their own minds just what it is they wish to destroy. Tradition is not a meaningless term, and the tradition of freely accepted obligations to their own profession as well as to the public they serve is a powerful binding force among medical men and productive of great good.

Doctors generally have supported the attack made by Sir William Beveridge on want, idleness, squalor, and ignorance. The Atlantic Charter put the attainment of freedom from want and freedom from fear as objectives of world policy. Medical men are common enough witnesses to the disasters to the individual from fear and from want to see in the removal of these an essential step to the attainment of good health. But these are negative freedoms. Freedom to think, freedom to express thought in speech and in writing without the hindrance of authority, are the necessary conditions of all creative and scientific work. It is well, therefore, to take heed of the warning so cogently voiced by Dr. Geoffrey Bourne in an article published in the *Journal* of February 20. There he reminds us that this freedom of expression is denied by the largest and most powerful local authority in this country—the London County Council. No doctor in the service of the L.C.C. can submit for publication a scientific article, or a letter, unless he has the permission of the Chief Medical Officer to the L.C.C. From time to time we receive for publication letters from medical men employed by local authorities in which anonymity is requested on the grounds that criticism—moderately worded and well based—will offend the authority and so hinder the future promotion of the writer. The good work done by local authority medical services—and especially by the L.C.C. in hospital development—is fully recognized. But this petty censorship is something that should not happen in a world of adult men. It is, as Dr. Bourne points out, the working of an autocratic system, seen in another form in the local authority hospital, where the medical superintendent can impose, for example, his own personal whims of treatment upon the medical officers under his charge. This kind of thing kills initiative, undermines the sense of individual responsibility, and encourages sloth of mind.

"It is my nature," wrote Sydenham, "to think where others read; to ask less whether the world agrees with me than whether I agree with the truth; and to hold cheap the rumour and applause of the multitude." No medical man can work freely and productively if he has always to ask whether a medical administrator agrees with him or not. As opposed to the autocratic system Dr. Bourne sets the democratic system of the voluntary hospital. Again it is well to remind critics of the latter that it has been from the big voluntary teaching hospitals of this country that the main stream of medical research has proceeded. Most of the voluntary hospitals are managed medically by committees composed of members of the medical staff, all on a footing of equality. The control is horizontal, not vertical. There is no medical autocrat with power of veto. The spirit of freedom and independence fostered by such a system permeates the teaching hospital and is handed on generation after generation to the medical students that pass through its gates to practise their profession in the outside world. In this week's correspondence columns Dr. Lindsey Batten persuasively describes what this freedom means in the conduct of general practice.

What Dr. Bourne calls "the democratic system of medical service" is, he believes, "entirely compatible with State control"; and a State Medical Service "on a grand scale" he sees as an inevitable consequence of the implementing of the Beveridge plan. That the medical services of this country are in need of reorganization is widely accepted. That this will to some extent restrict the freedom of the individual doctor is recognized. That the State, working through local bodies, is likely to have a greater say in the conduct of medical practice is inevitable, whether on the basis of a whole-time salaried service or not. Whatever system may evolve, the scientific freedom of the individual doctor must be preserved; without this such things as free choice of doctor are meaningless. In the coming negotiations with the Ministry of Health the vocational safeguards laid down in the draft Interim Report of the Medical Planning Commission must be insisted upon. All along the line of any national comprehensive health service the vocational body must direct and control professional matters; the practising clinician must not be subservient to the administrator; in any professional group medical men must work as free equals. "What advantage," wrote Sydenham's great contemporary, Milton, "is it to be a man over it is to be a boy at school, if we have only escaped the ferula to come under the fescue of an Imprimatur, if serious and elaborate writings, as if they were no more than the theme of a grammar-lad under his pedagogue, must not be allowed without the cursory eyes of a temporising licenser?"

PROPAMIDINE

Propamidine, stilbamidine, and pentamidine are diamidine compounds recently introduced for the treatment of trypanosomiasis and other protozoal infections. With a view to determining whether they are likely also to have any useful antibacterial action A. T. Fuller[1] has recently performed simple *in vitro* tests embracing a long series of similar compounds and a wide range of bacterial species, thus affording a general picture of the relationship between structure and capacity to inhibit bacterial growth. Many of these substances are bacteriostatic in very low concentrations, their action being most marked on Gram-positive cocci, rather less pronounced on anaerobic Gram-positive bacilli, and least on Gram-negative bacilli. No curative effect was obtained by systemic administration on infection by *Strep. pyogenes* in mice. It has been considered that propamidine (4 : 4′-diamidinophenoxypropane dihydrochloride) has the most promising characters as an antiseptic, and its investigation from this point of view has reached the stage not only of *ad hoc* experiment but of clinical trial. W. R. Thrower and F. C. O. Valentine[2] have tested its action under various *in vitro* conditions on staphylococci and haemolytic streptococci. It has a powerful bacteriostatic action on both, but measured in terms of minimum inhibitory concentrations is about four times as effective against *Strep. pyogenes as against Staph. aureus*: as judged by the slide-cell method it is nevertheless somewhat superior to sulphathiazole against staphylococci. Blood appears to diminish its action somewhat, and pus markedly so, the concentrations required to kill these cocci in natural pus being much greater than those in broth. On the other hand, phagocytosis is unaffected by concentrations greater still, and in a strength of 0.1% leucocytes are unaffected, while these two species of organism should be destroyed in any medium. It would be interesting to have further laboratory data on other bacterial species, including observations on the rate of disinfection, the degree of interference with it by various types of added material, and some comparison with other antiseptics, such, for example, as the acridines. In due course some attempt will also doubtless be made to determine what is the nature of the action of propamidine on bacteria

These authors, and those of three succeeding papers, also describe the effects of applying propamidine to infected wounds. It has been used in a concentration of 0.1% in a methyl cellulose base, forming a jelly with which the wound was filled if it formed a cavity; burns and other superficial areas were covered with a thick layer of it, an occlusive dressing of vaseline gauze being applied in either case. The jelly was usually renewed every two days and the treatment continued for ten days in all. The reports are unanimous in describing striking beneficial effects: wounds which had been suppurating, in some cases for long periods, were cleaned up and began to heal. Of various bacteria concerned, streptococci disappeared most rapidly, staphylococci were less easily eradicated, while *Proteus* and *Ps. pyocyanea* were liable to persist in spite of treatment. There is a striking similarity between these accounts and the description by Mitchell and Buttle[3] of their experiences in treating suppurating wounds with proflavine powder. A direct comparison between the two methods in cases suitable for either would be instructive. Meanwhile it is becoming abundantly clear that the antiseptic treatment even of wounds in which infection is firmly established is feasible provided that the antiseptic itself is reasonably non-toxic, and that it is applied in such a way that its action is enabled to persist for several days. Propamidine has joined a company which already includes the sulphonamides, the acridines, penicillin, and gramicidin, and it may be that each will be found to have its particular indications when more is known about how to use them.

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[1] *Biochem. J.*, 1942, **36**, 54.
[2] *Lancet*, 1943, 1, 133.

SURGERY OF TENDONS

The problems associated with the physiology, pathology, and surgery of tendons continue to cause controversy. Some of these problems have been settled; for example, most surgeons now agree that in grossly contaminated wounds it is wiser to delay suture of divided tendons until the skin has been healed for several weeks. Very satisfactory results follow the repair of most tendons. Except in the hands of Bunnell and his pupils, however, operations on the divided flexors of the fingers are for the most part disappointing. The reasons for this have been, and perhaps still are, obscure. Recent work in this country may soon demonstrate that failure to restore full flexion has been due partly to inability to reproduce adequately the mechanical circumstances in which the flexor tendons of the fingers normally work. Another factor that may determine the final result is the length of time a tendon should be kept at rest after suture. There is need for a more thorough inquiry into the problem of the rate of healing of tendons in man, for it is on a knowledge of this that an intelligent regime of immobilization and mobilization must be founded. Much experimental work has been done already, and none better than that of Mason and Allen[4] on dogs. They set out to determine the rate at which the healing sutured tendon regains its tensile strength, what effect function has on the process of tendon repair, and what is the "holding power" of the tendon for sutures. Briefly their conclusions are as follows. There are three phases in tendon healing, as measured by its tensile strength: (*a*) that of rapid diminution, which lasts about five days; (*b*) that of increase up to a point reached about the sixteenth day; and (*c*) a second phase of increased strength starting between the nineteenth and twenty-first days and continuing for an undetermined period. Function and motion during the first two phases of healing lead to increased reaction and to separation at the suture line. Restricted use—i.e., active contractions with prevention of stretching by appropriate splinting—allowed at the beginning of the third phase (about the third week following suture) produces only a slight increase in reaction, and leads to a rapid increase in tensile strength of the union. Active *unguarded* use, even after three weeks of immobilization, always causes increased reaction and may result in stretching of the suture line. Tendons kept completely immobilized develop excellent gliding sheaths, while early unrestricted use prevents their formation. The "holding power" of the tendon for the suture shows a marked drop below its original power until the fifth day, when it begins to rise, reaching its immediate sutured strength only after fourteen days. The practical lessons to be learnt from these experiments are that complete immobilization is necessary for about three weeks; that active movements, with appropriate precautions to avoid stretching, from that period onwards consolidate the strength of the sutured tendon; and that the use of excessively strong suture material is futile because the tendon will not hold it against movement during the first seven to fourteen days: and even if it did, early mobilization produces sufficient reaction in and around the sutured tendon to prejudice the final result. Though it cannot be assumed that human tendons would react in every way similarly to those of the dog, the findings of Mason and Allen conform sufficiently closely with clinical observations to make them interesting and significant.

CZECHOSLOVAK MEDICAL DEGREES AT OXFORD

The Sheldonian Theatre saw a unique occasion on February 27, when the degree of Medicinae Universae Doctor (Czechoslovakia)—M.U.Dr.—was conferred upon 23 medical students exiled from the Charles University of Prague, the Masaryk University of Brno, and the Komensky University of Bratislava, who had been able to complete their studies in England. The Czechoslovak Government in England had asked the University of Oxford to act as sponsor for these three Czech universities, and with the Vice-Chancellor acting as Rector, the Regius Professor of Medicine as Dean, and the Nuffield Professor of Therapeutics as Promotor, the degrees were conferred in conformity with the legal requirements of the Czechoslovak universities. The students qualified under a special examination conducted by the Examining Board in England of the Royal College of Physicians of London and the Royal College of Surgeons of England. As the General Medical Council have agreed that the M.U.Dr. of Czechoslovakia is registrable under the Temporary Registration Orders, the new graduates will be available to assist the war effort here.

Dr. Benes, President of the Czechoslovak Republic, and Madame Benes were present, and among the large and distinguished gathering were Sir Alfred and Lady Webb-Johnson, Sir Adolphe Abrahams, Sir Henry and Lady Tidy, Lord Simon, Mr. Philip Nichols (British Ambassador to Czechoslovakia), and Dr. Labkowitz (Czechoslovak Ambassador to the Court of St. James). The ceremony, and the representative gathering which attended it, bore witness to the close spirit of co-operation existing between the Czechoslovak Government and ourselves; and it seemed particularly fitting that this co-operation should be manifest in so practical a form. The opening of facilities for scientific study among the refugees in these islands is a clear step towards facilitating reconstruction in the occupied countries after the war. Comradeship in scientific work is, moreover, a true foundation on which to build a Europe united within itself and working towards a common end. All but one of the new graduates appeared in battle dress, and their spokesman voiced the sentiments not only of his comrades but of the whole gathering when he said: "We think with sorrow and pride of our fellow students who died on November 17, 1939, and of the thousands of university teachers and students lingering in the concentration camps because of their loyal and faithful belief in the Czechoslovak Republic and its democratic ideals."

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[3] *Lancet*, 1942, 2, 416; see also this *Journal*, 1943, 1, 106.

[4] *Ann. Surg.*, 1941, 113, 424.

NON-FATAL EFFECTS OF EXHAUST-FUME POISONING

BY

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In my experience the effects of acute and subacute poisoning by the fumes from defective motor-cars are not well enough known. Judging from the number of cases seen by me these toxic effects cannot be very rare, and they are likely to occur still more often, as in these war days cars have a longer life on the road than formerly. The effects necessarily vary in severity with the concentration of the fumes when inhaled and with the frequency and duration of exposure to them.

Illustrative Cases

Case 1.—The first case of this kind the true nature of which I recognized was that of a young man in his twenties. He had consulted several practitioners, who all told him that they could not find anything wrong and that it was "just a case of nerves" His complaint was that he felt shaky, a little dizzy at times, and his legs were tired. I, too, found nothing definitely wrong As we sat down to have a talk he asked me: "Do you think that this can throw any light on the trouble? I feel worse after driving my car." Inquiry elicited that the ventilation of his car was defective and exhaust fumes entered it He received the necessary instructions, but no medicine, and made a perfect recovery.

Case 2.—Some time later I was consulted by a master builder, a man in the thirties and of powerful build. He complained of weakness in his limbs; he could no longer carry his little daughter of 2 years upstairs, while ascending the stairs itself was difficult at times. He also complained of headache, but this distressed him less than did the muscular weakness. His troubles came to a head on his arrival at Cardiff after driving in bad weather from Ilkley. The severity of his complaints had varied somewhat in the preceding 10 weeks. On being questioned he said he thought the weakness was greater after driving to his various undertakings in his little car on a wet day, when he had the windows shut, and he admitted that some fumes entered it. On examination his complexion was healthy, and the only abnormality found was weakness of the knee-jerks He was advised either to buy a new car or to drive in all weathers with the windows open. All his complaints disappeared in a fortnight.

The more severe effects of such fumes are illustrated by the following cases:

Case 3.—A lady superintendent of the orthopaedic and massage department of a provincial hospital, aged 31, who had always enjoyed good health, complained of headache one Sunday Next day this became worse and she found that she saw double. At the end of the day a weakness in the lower limbs, which she had noticed earlier, became so great that she needed the help of a companion on her way to the station. She was depressed and easily reduced to tears, quite unlike her usual self. The diplopia, which took place in several directions, could not be explained by the ophthalmic surgeon of the hospital. The ocular defect lasted two months or longer, as did the weakness of the legs. The knee-jerks, faint at first, gradually returned to normal. On inquiry it was found that the room in which she worked was badly overcrowded and ventilated. She therefore worked by an open window, beneath which ambulances and other cars would halt and discharge their fumes. These conditions were altered on resuming her duties, which she was able to do without a return of the trouble. To-day, seven years after her illness, she is in perfect health.

Case 4.—Another case is that of a man in the early sixties who had been taken ill five weeks before I attended him. Tumour of the brain was suspected. When seen by me he was confined to bed, temperature and pulse were normal. The gait was ataxic and there was incoordination of the movements of his upper limbs Ankle-jerks, knee-jerks, and tendon reflexes of the arm could not be elicited. There was diplopia on looking both to the right and to the left. The pupils were equal and reacted to light and accommodation. The disks were normal. Some dizziness was complained of as well as headache. There was no history of vomiting. Against the likelihood of a brain tumour was the history: the onset of the symptoms was too rapid; after a few hours of headache the disordered movement of legs and arms developed, soon followed by the diplopia. When seen by me the incoordination of the legs had already improved slightly. On further questioning it was elicited that the trouble began on the evening of a day on which he had helped to take voters to the booth. For eight hours he had sat in his car. Asked whether the car was well ventilated, he replied: "It stank like hell." I decided that his trouble was due to fumes, and ventured to give a good prognosis. A month or two later I heard that the patient had made an uninterrupted recovery.

Commentary

These cases differ from other forms of poisoning in that chemical and other tests, including the spectroscope, fail to demonstrate the poison because of the small amount of CO present in the blood. The diagnosis must therefore rest upon other evidence. Clinically it is noteworthy that, except in mild cases such as Case 2, the symptoms appear very rapidly—generally within 24 hours—and that, once developed, they do not tend to increase in severity, nor do new symptoms appear in the course of the illness provided there is no further exposure to the fumes. In some cases the action of the pupils is affected. This, too, comes on very rapidly. Disorder of pupil reaction, together with faintness or actual absence of the knee-jerks, may suggest tabes—a diagnosis which I have known to be made—but the rapidity of onset of these symptoms should caution the observer. Sometimes looseness of the bowels occurs in the beginning. Disorders of micturition I have never observed. In none of my patients was poisoning so intense as to affect consciousness, and this may account for the absence of later complications, such as epilepsy, which I have seen in patients found unconscious from CO poisoning. Patients do not always remember immediately on inquiry that the ventilation of their car is defective, but a leading question on the point has never been necessary. The prognosis is apparently good, though convalescence is often protracted.

MALARIA CONTROL IN INDIA

A paper describing the measures taken for the control of malaria in India was read by Sir RICKARD CHRISTOPHERS, F.R.S., in the India and Burma Section of the Royal Society of Arts on Feb. 5. Sir MALCOLM WATSON presided.

Endemic Malaria

The fundamental problem of Indian malaria, said Sir Rickard Christophers, was the endemic malaria of the rural population, which comprised 90% of the inhabitants of India. This occurred in every part of India, with the exception of the high mountains and such fortunate places as Kashmir, where the elevation ruled out the disease. In general, endemic malaria, following the distribution of the rainfall, was lightest in the north-west, and became heavier in the south and east, where there were extensive hyperendemic tracts. Such a problem would tax the resources of the richest and most developed of countries, and India was neither rich nor well developed in the sense of Western Europe. Nevertheless, something was being done, and there was hope that by the new methods of Paris-greening, as well as by education and co-operative action, amelioration might be achieved, at least in some areas.

One form of endemic malaria might be called "irrigation malaria." It was found in the great canal projects of India, projects which were unrivalled in scale anywhere else in the world. Often insufficient precautions were taken to prevent the slow onset of waterlogging with accompanying malaria, but a great deal of attention had been devoted during the last 35 years to the engineering side of malaria control in these regions. Another point about endemic malaria was that, although pre-eminently a rural problem, it was not always confined to the villages. It was a very marked feature in many of the smaller Indian towns of from 20,000 to 100,000 inhabitants, but here the problem was simpler, because educational and other factors could more readily be brought to bear upon it.

On the subject of quinine as a primary measure directed against endemic malaria, Sir Rickard Christophers said that recent work in the Zanzibar Protectorate had led to the conclusion that what was required was that quinine should be made available in such a way that it could be used whenever required by adult or child to tide over acute sickness. This was also the requisite in India, where the remarkable dispensary system offered a channel for the provision of adequate supplies.

Epidemic Malaria

It was characteristic of endemic malaria that, while children suffered from it, adults, thanks to the immunity which they had acquired in childhood, suffered but little. To save the children, therefore, entailed a greater risk in respect of the adults, and the same dilemma appeared in a more sinister form in epidemic malaria. Epidemic malaria was the result of low endemicity, and, the children growing up without immunity, when malaria did come it had the effect of an explosion. Roughly, the major epidemics had occurred, as far back at least as 1876, with a sort of cyclical regularity every eight years or so. It was the last of them, in 1908, which led to the summoning of the Imperial Malaria Conference, and its sequel was a scheme for organized research and preventive action against malaria in India. It was then clearly shown that these cataclysmic events were mainly due to the overflowing of rivers and the flooding of great tracts of country, and that they could be controlled by appropriate engineering measures. It was now 35 years since any further major outbreak had occurred. Colonel Gill, who had made a special study of these epidemics in the Punjab, had shown that by collecting suitable data the locality of the threatened areas could be determined in advance, and quinine and other assistance be brought in readiness.

In India, however, there were many other phases of malaria on a more localized and moderate scale, where direct control was more feasible. Among these was the malaria of cities and large towns and of industrial and engineering projects, such as the tea and jute estates, and of Army cantonments. At the Imperial Malaria Conference in 1910 a central and a number of provincial malaria organizations were formed. The function of the central organization, now the Malaria Institute of India, was to collect all relevant information concerning malaria in India, train personnel, and provide assistance and advice wherever required. It had undertaken research and initiated measures of control in almost all parts of India. Two other organizations working in India were the Ross Institute of Tropical Medicine, lately under the direction of Sir Malcolm Watson, and the Rockefeller Foundation, which had for some time carried on research and control, more especially in South India.

Specific Control Measures

In the last part of his paper Sir Rickard Christophers sketched some of the actual measures of control which have been carried out. In Bombay in 1908 it was found that malaria was being actively propagated in parts of the densely packed city by a particular species of anopheles, *A. stephensi*, which established itself in dark household wells in five-story-high Parsee tenements. A malaria survey was made, complete control established, and it soon became scarcely possible to find an unprotected well or cistern. Later the anopheles was found breeding in flooded cellars and in sheets of water on cement in large buildings under construction. Appropriate measures were again taken, and Bombay was now practically malaria-free.

Sir Rickard mentioned that he himself was sent to make an investigation into the prevalence of malaria among the convicts of Port Blair penal settlement in the Andamans, and discovered the role played by *A. ludlowi* (or *A. sundiacus*, as it was now called). The choice of more suitable sites in the healthy country away from shore and the filling in of local salt swamps made a great difference. He referred also to the Sarda canal scheme, a large-scale operation lasting some nine years and carried out in one of the most deadly hyperendemic tracts in India, in which every form of measure, direct and indirect, was used to combat the malaria menace. Other works in which malaria operations under competent malariologists were started from the earliest stages were the reclamation operations at Colaba to the south of Bombay and the construction of the new harbour and its railway at Vizagapatam.

New Delhi offered probably the first instance of the site of a projected capital being determined by a malaria survey. It was first proposed to build this modern city to the north of the existing Delhi, but overwhelming reasons on the basis of a malaria survey were found against this site, and the healthy site to the south was chosen. The speaker finally referred to the work carried out in the tea districts of Assam by the Ross Institute. Its most conspicuous feature had been the large-scale employment of new biological methods of control. One of the special methods was the use of shade plants of selected type to cover in the watercourses and so prevent the breeding of *A. minimus*, by far the most important carrier. Flushing by automatic apparatus was another much-used method.

Sir Rickard Christophers added that it was malaria research which had vitalized everything in connexion with control work, and to eliminate or subordinate research at this stage in order to confine attention to practical results would have a most damaging effect on progress.

Reports of Societies

MEDICO-LEGAL PITFALLS IN OBSTETRICAL AND GYNAECOLOGICAL PRACTICE

A joint meeting of the Medico-Legal Society and the Obstetrical and Gynaecological Section of the Royal Society of Medicine was held on February 19, Dame LOUISE MCILROY presiding, to discuss medico-legal pitfalls in obstetrical and gynaecological practice. Abortion was excluded from the discussion.

Negligence in the Operating Theatre

Judge W. G. EARENGEY, K.C., discussed the legal aspect of responsibility for instruments or swabs left in the body after operation. There was a dearth of reported cases on this subject in English courts. Conformity with the general practice of the profession did not compel a jury to find that there was no negligence; if it did, the profession would be setting up standards inconsistent with the general law, but evidence of general practice carried considerable weight. Nor was failure to conform with the usual methods necessarily evidence of negligence, otherwise the adoption of a new method would be fraught with grave risk for the surgeon. It would be difficult to persuade a jury that an instrument or swab could be left behind without negligence. Exceptional cases might occur, when the patient suddenly developed signs of collapse and in order to save his life must be sewn up before all precautions could be taken, but the burden of proving these facts strictly would rest upon the person alleging them. In James *v.* Dunlop[1] Lord Justice Greer was reported as stating that the duty resting on the theatre sister in this respect did not relieve the surgeon, and Lord Justice Scrutton laid it down that if a surgeon put swabs in a body it was his duty to take them out, and not merely to rely on the count of a skilled person. In Gold *v.* Essex C.C.[2] Lord Greene said that a nurse employed as the servant of a hospital did not cease to be such when placed under a surgeon's orders in the theatre; she was therefore not his servant, and he was not responsible as principal or employer for her negligence.

Special Problems in Obstetrics

Mr. EARDLEY HOLLAND said that there were probably more pitfalls in obstetrics and gynaecology than in any other branch of practice, this branch having so many important, intimate, and delicate implications in social life. He instanced the following problems:

1. Mistakes in diagnosis of pregnancy, especially when first disclosed in operating theatre.
2. Uncertainty about duration of pregnancy, including viability, prematurity, and post-maturity.
3. Definition of "live birth" and "dead birth" and signs thereof.
4. Surgical sterilization, including liability, if any, of the operator should pregnancy occur after operation for sterilization.
5. Consent to operations, especially those depriving a woman of child-bearing capacity.
6. Puerperal infections which could be said to have been favoured by absence of precautions on the part of doctor or hospital.
7. Artificial insemination between husband and wife and the precautions to be taken by the practitioner to safeguard himself and the child.
8. Evidence of virginity in nullity cases, and the deliberate destruction of the chief evidence of virginity by pre-marital hymenectomy (as a routine measure he considered this unjustifiable).

Gynaecological practitioners should keep the fullest clinical notes of all cases, all letters received, and copies of letters written, make a thorough examination of the patient, never take for granted the correctness of a diagnosis made by another doctor or gynaecologist, and never operate on a patient before personally interviewing and examining her. An eminent lawyer had said that more danger lay for the gynaecologist in what he said than in what he did. When a mistake was made and aspersions were cast, the practitioner should be always courteous, frank, tactful, and considerate, rather than take an attitude of righteous indignation and injured innocence; otherwise the tolerant patient might become the vindictive litigant. Some "pitfalls" were crafty devices to entrap the medical man. These generally concerned the termination of an unwanted pregnancy, and the young and unsuspecting gynaecologist was chosen as a victim. In very rare cases a doctor and patient might act in collusion. The doctor would send a request for the curetting of one of his patients for menorrhagia, or the patient might describe fictitious bleeding (he had even known a quantity of bullock's blood to be used to add colour to the deception). It was necessary to be on guard against the abortionist who started the business and left it to others to see it through.

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[1] *British Medical Journal*, 1931, 1, 730.

[2] 1942, 2 King's Bench, 293.

Legal Position of Sterilization

Dr. LETITIA FAIRFIELD said that the legal position of sterilization was fully explored in the decade preceding the war, and had in no way been altered since. Therapeutic sterilization—that is, an operation considered necessary for the patient's life or health—was legal, and the only way in which the gynaecologist could render himself vulnerable was by neglecting to obtain a full and explicit written consent from the patient and, if possible, from her husband. Eugenic sterilization—not necessary for the patient's health, but intended to prevent the propagation of unhealthy offspring—was on more debatable ground. In theory at least the surgeon performing such an operation laid himself open to prosecution under the ancient law of mayhem or under the Offences against the Person Act. But as modern conceptions of the hereditary transmission of disease were unknown, and the operation on the female not contemplated, when those laws were formulated, and as no relevant case had yet been before the courts, it was impossible to say what view a jury would take. All authorities seemed to be agreed that the sterilization of mental defectives with or without their consent or their parents' consent would be illegal.

Another pitfall, that of artificial insemination, was much less familiar, and she thought it had never been discussed from the legal standpoint in this country. The birth of a child by artificial insemination between husband and wife would not deter an action for nullity, but might well render the case more difficult to establish. A very different position was created with the use of alien or donated semen, a practice apparently growing in the United States. Even in the most favourable instances the position of the offspring was rendered dubious, while the practice obviously lent itself to trickery, such as the defrauding of the heir presumptive to title or estates. Two schools of thought had arisen in the medical profession in America. One took the view that the gynaecologist's only aim was the parents' happiness, that he should advise them to sign no document, forget all about it, and be prepared to support the statement by robust perjury if necessary that the child was theirs. But the American Medical Association[3] discouraged this view, realizing that the status of the child might be challenged by interested parties; therefore it advocated very explicit consent documents and legal adoption of the child, though it might be doubted whether any of the precautions would really be of much assistance in establishing the child's status or defeating a conspiracy to defraud.

"Negligence" in Obstetrics

Mr. ALECK BOURNE said that the professional idea of negligence and the layman's idea were different. The medical man knew that failure to apply certain tests or treatment—for example, examination of urine at frequent intervals in late pregnancy—constituted actual neglect of necessary precautions, but the patient did not realize that she had been neglected if the urine was tested once or twice during the whole time of the pregnancy. On the other hand, a patient might regard herself as neglected, because no interference was made during the protracted first stage of labour and the child was born dead. Complete note-taking at every ante-natal visit was an important precaution against a later charge of negligence. But the most important of all obligations was that of being present at the actual delivery. If a doctor failed to be present the antecedent reassurance that everything was normal counted for little in the lay mind. One result of failure to be present where there was no automatic gas apparatus was that the woman would be deprived of an anaesthetic, and this occasionally suggested the idea that the doctor was callous and indifferent to suffering, a more serious reflection on his reputation than almost any other.

Preservation of Professional Confidence

Dr. ROBERT FORBES, secretary of the Medical Defence Union, said that there was no field in medicine where more intimate secrets were revealed than in obstetrics and gynaecology. If such matters were learned by practitioners under the seal of confidence, how came it that there should be any need to discuss the difficulties inherent in the preservation of professional secrecy? By whom and in what circumstances was it challenged? The immediate answer was that there were a number of occasions when the rule of professional confidence had to be adjusted to the realities of the moment. As an ideal the observance of confidence was excellent, but occasions arose when modification or adaptation was essential. He believed that the continued existence of the rule of confidence in so high a proportion of cases was due to the waiver of the rule when common sense and natural justice dictated a relaxation. If practitioners were to insist upon its observance upon every occasion no matter who suffered or whose interests were imperilled, it would not be long before the prerogative was lost.

In some further brief discussion Mr. GREEN-ARMYTAGE mentioned the "pitfall" of puerperal sepsis following contact infection in the maternity ward. Dr. WILLIAMS mentioned a hypothetical case in which a couple, having given up the hope of children of their own, consented to the operation of artificial insemination and a child was born. Three or four years later, the difficulty apparently having been overcome, another child was born, and the question arose as to which was the real heir. Judge EARENGEY said that in the case of letters patent for an earldom the heirs were said to be those "of the body," which apparently would rule out the first child. Dame LOUISE MCILROY, speaking on the issue of professional confidence, expressed the view that nothing except a case of very serious crime justified the practitioner divulging anything in court which had been revealed to him by the patient unless the patient gave consent.

Correspondence

Freedom to Practise

SIR,—In his admirable letter (Feb. 13, p. 200) Dr. E. U. MacWilliam writes: "We want, before every other professional consideration, freedom to function as doctors in response to the demands of our patients. . . ."

There must be thousands of practitioners who wish above all to keep that freedom, and hundreds of thousands of citizens who wish us to keep it, yet we and they remain almost silent. I believe this is because, bred up as we have been to freedom and knowing that we have used it worthily, we cannot believe that in this country it will be taken from us. Yet Sir William Beveridge puts at one short remove the question, "Is private practice worth preserving?"; and it is clear that as a direct result of his Social Security Plan it may indeed cease to exist.

The freedom to agree with a patient to be his doctor, to arrange to see him at our house or his bedside, to give him the time his case requires, to give our personal opinion, accepting full responsibility for our advice, to abide by that opinion and see the matter through, to choose, on occasion, the surgeon or consultant we judge to be best suited to his needs, to take our part in consultation and operation, and to remain throughout the man in charge, to have no obligation to disclose any part of our transactions with our patients to anyone, seems to many of us the very essence of good medical practice, and it is in private practice alone that this freedom exists in full degree. It is for this professional freedom that we renounce such lesser freedoms as the right to be off-duty in our own homes, and are content to be, as you have put it, the servants of our patients. It is the consciousness of this freedom in a regimented world that sustains our self-respect and supports us through laborious days and hours, and I am sure it is this same freedom which gives us the respect of so many of our fellow citizens. It is as free individuals, not as members of any organization, that we are consulted and trusted.

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[3] *J. Amer med Ass.*, 1938, 1832

We and our patients know that we do, in general, serve them well. We know they do not choose us for the glossiness of our cars, but because they believe us to be good advisers. We know we are not reduced to antiquated futility by the absence of an electrocardiograph from our consulting room or by not being whole-time members of a clinical team. We know we are not deflected from honest practice by greed of gain. We know, in fact, that we are doing a good job, like our fathers before us, and we feel it right that we should be allowed to go on doing it, and our sons after us if they wish.

We are not unaware that circumstances limit these freedoms, sometimes severely, and we know they are sometimes abused. The obvious answer is to loosen the bonds of circumstance and to educate or discipline those who abuse their freedom; but to abolish the freedom, to make good independent practice permanently impossible, must seem to some of us an act of the same order of folly and destructiveness as to eliminate the family because some families are for ever quarrelling and some people are brotherless orphans.

Reformers tell us that many citizens have in fact only one doctor to choose from, that others do not exercise their right of choice, and that many doctors are fettered in their practice by poverty and other circumstances. They state or imply that we seek to defend a freedom which scarcely exists. No practitioner can offer statistical evidence on this point; he can only reply that he and his patients do, to his certain knowledge, fully exercise the freedom they at present enjoy; but in any case there is the world of difference between a freedom existing as a right, though stifled by economic circumstances or human inertia, and a freedom extinguished by legislation.

In a complete, whole-time medical service we should, of course, lose, *as a matter of right*, all the freedoms I have enumerated and many others as well. How many we should exercise under sufferance would depend upon our immediate or more remote superiors in the service, on the Minister in charge, and ultimately on Parliament and the electorate. No one with experience of State service can doubt that they would be substantially curtailed. But that is, perhaps, not the immediate prospect; it is, rather, an all-embracing "panel practice," and it may be argued that the "panel doctor" is still professionally free. He has, indeed, considerable theoretic freedom, though it hangs precariously on existing but mutable terms of service; his clinical notes are not his property, and he is conscious of the presence of a *tertium quid* in all his relations with his patients. But unless he is a philanthropist with a private fortune his power to give his insured patients really good service depends at present upon his having enough private patients to make it economically possible. Private practice, as matters stand, both sets the standard for good panel practice and actually pays for it.

Our private patients are not always good judges of doctors or doctoring, and they sometimes default, but this can be said for them: in general they demand from us the best we can give; by and large they reward us according to what we do or try to do for them; when they have the means they are ready to pay fees which make it possible to do good work, and they very often add their thanks. So far the State as an employer of practitioners does none of these things, and it shows no sign of repentance or intention to reform. Its only standard of excellence is that which produces no complaint; it gives no reward for good work; and it has consistently paid the smallest capitation fee for which the practitioner could be induced to work at all. It never thanks or honours us in any way.

Failing a revolution, spontaneous or enforced by a united profession, in the attitude of the State to general practice, is it not certain that we are heading for a service free for all but of a hopeless mediocrity, a service in which the daily flood of trivialities and the inadequate and grudging pay will stifle good work, repel good men, and drive the unsatisfied patient into the arms of the unqualified practitioner waiting outside? Something perhaps not very common but very good, one of the best manifestations of the art of medicine, one of the most satisfactory of human relationships yet devised, will have been lost to this country, which has especially cherished it; and if the family doctor is indeed, as he is so often called, "the backbone of the profession," then the profession will have caries of the spine.—I am, etc.,

Hampstead LINDSEY W. BATTEN.

Future of Women in Medicine

SIR,—There has been much recent discussion about post-war planning of medical education and the future of women in the profession of medicine. I believe that this subject needs an entirely fresh outlook. A debased "feminism" is still all too prevalent among women, and is very much in evidence in the medical profession. There is no need for women to pine after men's prerogatives, privileges, and honours. There is no need to clamour for admission to men's hospitals; to be greedily insistent on their "rights" to have the same training, to attend the same hospitals, to hold the same appointments, and to enjoy the same privileges as those open and available for men.

In reaching for the deceptively bright shadow, these ardent, and at times militant, enthusiasts miss the substance. Women are created women; men are created men. Each has its own abilities, possibilities, and obligations. In this age of ours the essential dignity and worth of a womanly woman in her own right and in her own sphere are being forgotten, and forgotten, unhappily, very often by women themselves. This dignity is violated when a woman tries to occupy the sphere which essentially belongs to a man, just as a man's dignity is violated when he tries to occupy the sphere of a woman. Woman was created for the dignity, nobility, and responsibility of wifehood and motherhood. If circumstances or character and vocation demand that a woman should follow some profession or "gainful occupation" before, instead of, or after, marriage, then to maintain the dignity and nobility of womanhood that profession or "gainful occupation" must remain still within a woman's sphere. This principle should be widely recognized in schools, universities, training centres, and employment bureaux.

I maintain that through neglect of these principles the average medical woman to-day is not pulling her full weight in the profession or in the community. Large numbers of the women qualified to-day—and I must count myself among them—have neither the character nor the vocation necessary, and should never have been encouraged by their parents and teachers to "take up" medicine nor permitted to continue to study it. Further, the training that they received was, and is, in many ways unsuitable for medical women.

It is with these thoughts urgently present in my mind that I beg the courtesy of your pages for this letter and the appended suggestions for the reform of medical women's education, knowing that only through your *Journal* will they reach the wide medical public and have the free discussion which the gravity of the subject demands. Finally, I would say that the remarks I make below about the training of medical women in social responsibility could well be applied to the training of medical men. If this had been so in the past we should not now be witnessing the deplorable cynicism and *laisser faire* which enable your *Journal* to publish letters like that by Dr. Lilias M. Blackett Jefferies (Dec. 12, p. 714) and by Dr. Marie Stopes (Jan. 2, p. 30) deploring the wide use of certain contraceptives because, forsooth, of their unreliability. Nor should we have beheld in the years between the two wars the acceptance of the principle of birth control by many local medical officers of health and borough councils and even by the Ministry of Health, nor the widespread acceptance of this principle by medical men and women to-day. This state of affairs is very largely responsible for a terrible and frightening prospect for our nation. In 30 short years—within the lifetime of many of us—we shall see the old age pensioners outnumbering the children in this country, and in 100 years the prospect of the complete extinction of our race (Beveridge Report, pp. 91 and 154).

I suggest the following changes in the education of medical women.

1. Co-education is fundamentally dangerous, especially in a medical school, for the following reasons: (*a*) impairment of concentration and work due to proximity of the sexes; (*b*) lowering of standards, first of modesty and then of morality. These evils can only be avoided in a community with deeply held Christian moral principles. This is unhappily not the rule to-day. Hospitals and medical schools for the training of women should be entirely separate from those for the training of men, both for the reasons given above and because the medical training of men and women should emphasize different aspects of medicine. "Quality not quantity" should be the aim of those in charge of the medical schools for women. To that end, therefore:

2. Let the entrance age for students be raised to 22 years; this will eliminate all, probably, but the best.

3. Let a condition of entrance be three years' training as a nurse in a general hospital. This will not only be a training valuable in itself, but ensure fixity of purpose and confer a mental discipline which is, believe me, highly necessary.

4. Let the aim of the teaching staff be to train medical women, not to teach women to try to be medical men.

5. Let it be accepted that women should administer to women and children only. In the hospitals to which the medical schools are attached male patients should not be admitted, even to the casualty department.

6. The hospitals should be staffed entirely by women. With the cream of women in the medical schools, never fear but that women of the quality of Dr. Garrett Anderson will come again to rule these hospitals.

7. Let the house staff be chosen on the basis of 75% by special house staff examination and 25% by character and qualities obviously useful to the hospital's future.

8. At the schools of medicine and at the hospitals special attention and training should be given to develop a sense of social and public responsibility, and to this end sensible experts, not necessarily medical, should be co-opted to the teaching staff, of the calibre, for example, of Dr. R. D. Lawrence's dietetic Sister. There will then be built up among medical women a tradition of leadership and special excellence in all matters important to the welfare of women, girls, and children.

9. There should be no birth control clinic at the hospitals. A birth control clinic ill becomes any hospital. Contraceptives ought to be especially abhorrent to women. It is more than pitiable that it should be a woman who confesses herself "proud" to have opened the first birth control clinic in this country. Marshal Pétain's plaint, "France has too few sons," might well be ours for England. Medical women should feel this deeply. It is their place and should be their mission to see that there are no more high priestesses of this woeful practice.

10. The qualifying regulations for women should be altered to fit in with these reforms.

Now is the time for every medical woman to think and to take stock of her position in the profession of medicine. Medicine is not for any and every woman; it is for the inspired, the gifted, the special few. This must be realized in choosing the future entrants to a school of medicine for women and in the training of these entrants. Also I cannot emphasize too strongly that medical men must be medical men, and medical women must be medical women, each with its own functions and responsibilities, working together for the common good. Then and only then will the medical woman pull her full weight in the profession and in the community, remembering and being proud of her sex and her special sphere.—I am, etc.,

Stoke Ferry JANE SCOTT CALDER.

The B.M.A. and the Beveridge Report

SIR,—The difference in wording of the two motions shortly to be placed before the Special Representative Meeting of the B.M.A. and the Special Conference of Representatives of Local Medical and Panel Committees may have some other significance than that the one reads even more placatory than the other. There is evidence of increasing resentment among doctors serving in the Forces at the increasing probability of the abandonment of their ancient privileges as practitioners of medicine in favour of new principles which they themselves have had no opportunity of debating, and which are, for their establishment, conditional upon the magnitude of their personal sacrifices. It is worth recalling, too, that the Minister of Health deprived us of the right to elect members of Local Medical and Panel Committees. These signal facts are a challenge to the right and competence of the special conference to meet and adopt a motion when no mandate has been conferred.

Debatable points of policy and principle are matters different from pseudo-collective attempts to secure any betterment of pre-existing terms and conditions of service. Local Medical and Panel Committees, through their representatives on the Insurance Acts Committee, have failed to achieve a reasonably expected increase in the capitation fee. Very recent political events, however, convince me that the fundamental point at issue is not that panel practitioners must continue to be underpaid, but whether or not there is any representative body with either the power or the ability to negotiate on their behalf. Even the chairman of the I.A.C. has given expression to a feeling of having been "browned off" in suggesting that the whole body of the profession should support the claim of the panel practitioner.

There is a mort of difference between wishful thinking and unthinking wishing. The one is ambitious, the other defeatist. The profession, upon the adoption of the motion I criticize, will succumb in the fight between democracy and the new bureaucracy. Action, if any be needed, must be taken now in no uncertain measure. No faith will be broken if the motion should read: "The profession will oppose any scheme for comprehensive health services unless the character, terms, and conditions of service are predetermined in agreement with the medical profession."—I am, etc.,

MAURICE E. WIGFIELD.

SIR,—There seems to be an impression that the Beveridge report has caught the B.M.A. unprepared: on the contrary, we are very well prepared indeed. The Medical Planning Commission has received the views of all the important bodies and has got very considerable agreement on the broad principles. In addition the discussions in study groups, panel committees, and so on have been of great value.

It is true that the profession has no detailed scheme to offer, but that is not our business. So far everything has worked out most opportunely. The principles are agreed by most of us, and the same principles appear to have the support of the Government (see Sir John Anderson's speech). The Minister of Health is a Liberal, who may be expected to sympathize with the statement put out by his party, which was so acceptable to the profession. And finally the whole matter is to be discussed in a calm atmosphere and is not to be made a party business at a general election.

Great credit is therefore due to the B.M.A., except that I think the hurried calling of meetings all over the country to attempt to persuade us to go back on our decision that the well-to-do should be excluded from the scheme is a most foolish and undignified move. It is always a mistake to give away bargaining counters in advance, and I hope it is not too late to repair this mistake.—I am, etc.,

Hendon, N.W.4. R. W. COCKSHUT

SIR,—The resolution to be moved at the Representative Meeting of the B.M.A. on March 31 accepts the principle of a comprehensive health service available to all members of the community, with the proviso that people who wish to should be able to obtain medical services from doctors within the scheme by private payment.

At the present time there is a national food service designed to give a fair distribution of essential foods to all members of the community. Those who buy and sell outside the scheme are called "black marketeers," and are open to universal contempt and to legal penalties. Surely, proviso (*b*), in demanding private practice outside a *comprehensive* service, is no more than a demand for an officially recognized "black market." It will be tragic if such a demand receives the approval of a Representative Meeting of the B.M.A.—I am, etc.,

London, N.11. C. M. FLETCHER.

SIR,—While welcoming the recommendation of the Council of the B.M.A. advising co-operation with the Beveridge scheme, I think the provisos they make call for further discussion.

First, it seems surprising that the medical profession should consider whether or not they will co-operate in such a scheme. We repeatedly and rightly state that our first consideration is service to the patient. Since we live in a democracy, Parliament represents both doctors and patients. If, therefore, Parliament decides that the comprehensive medical service should be adopted, it means that the majority of patients or potential patients are in favour of it. There is, I think, no question whether we should, to serve the patient, oppose the scheme. They have asked for it. We can only demand, and justly so, that we be consulted about the organization as it affects our ability to carry out this service in the most efficient manner.

Secondly, the recommendation states that only if the Beveridge scheme is accepted as a whole can we co-operate in putting it into action. Your leading article (Feb. 13, p. 193) rightly points out that the attack on want and idleness is "a public health measure of the first importance," and doubtless any comprehensive medical service would be far more effective if backed by these other plans for social security. But the expected has happened, and the Government has not accepted the report as a whole. We are surely not going to refuse to take at any rate one step towards a better medical service, although all the public health measures are not as ideal as we could have wished.

Thirdly, for what reasons do we make the proviso about private practice? The only conclusions as I see them are these: (1) We think it will increase efficiency. As one member of the Council put it, State-provided service and private practice would act as a spur to one another. But attention to private patients can only detract from the time and consequently the efficiency which can be given to insured patients, will divide the allegiance of the doctor, and tempt him to give better service to the paying patient. If private practice is spurred on, then insurance practice is forced back. (2) We intend to give better service to paying patients. This has been dealt with by correspondents and leads to the assumption that the new medical service is handing out second-rate treatment. (3) We want to make more money. If this is the case, it is never stated in the discussions. We have every right to demand adequate pay, but do we demand private practice to increase our incomes? If this is so, then it is a poor opponent to put up against those who are striving for the best medical service that can be devised at the present time.—I am, etc.,

Oxford. A. DELISLE BURNS.

SIR,—There is one aspect of the proposed extension of complete medical services to all and sundry which I have not seen mentioned in any of the letters in the *Journal*. The question is, If the whole population is to be more or less "on the panel," how will the present number of doctors be able to attend them? As once a patient, previously private, becomes a "panel" patient his attendances increase greatly.

The general practitioner for years has been overworked with very little time for leisure, and if medical attention is to be popularized by being made available at little cost there will be no limit to the exploitation of the medical profession. What safeguards are we to have against this? I hope our negotiators will bear this very important point in mind. Would any lawyer contract to do all legal work necessary for a client for 9s. 9d. a year if litigation was as common as minor ailments are?

Most general practitioners will agree that panel work is extremely exhausting; that is probably why local B.M.A. meetings are poorly attended: exhaustion of the doctor is the real reason, not apathy, as has been stated. I agree with Dr. A. E. Moore (*Supplement*, Feb. 20, p. 27) that only by a questionary addressed to each individual practitioner can the real wishes of the profession be arrived at. Our negotiators should be instructed to make it quite clear that consideration must be given to the health and welfare of the doctors who are to run the scheme, and that conditions which cause gross overwork such as have been prevalent for many years will not be tolerated.—I am, etc.,

Blackburn. F. E. EDWARDS.

Venereal Diseases

SIR,—In the war against this scourge the Archbishop of Canterbury deplores that only the medical point of view is taken into consideration and that the religious aspect is not in evidence. When we look into the past, how the Church condemned unfortunates who through misfortune and ignorance became victims, is it any wonder that the meddling and self-righteous divines should have been ignored?

In the past 50 years, the time I have been in active practice in many parts of the world among many peoples, I have been disgusted by the utter lack of sympathy of the clergy of the Church, who have done their best not only to wrap themselves up in ignorance and intolerance of the difficulties of life but actively to prevent members of their Church from intelligent inquiry. When the late Lord Roberts over 40 years ago took some active precautions to mitigate disease in India the princes of the Church condemned him as harbouring vice, and demanded withdrawal. When a colleague of mine wrote a strongly worded article about the same time advocating precautions, his appeal was turned down, mainly on religious grounds. Fortunately, science, education, and reason have gone ahead, and people are not influenced by religious and superstitious threats, and divines have had to identify themselves with public opinion as they have had to water down and modify their assertions on religious belief generally.

This is an entirely medical matter and should be treated in a reasonable and common-sense way. Education has been lacking in this direction, and information on the most important human function we possess, its object and control, and in the matter of keeping sexually fit has been mainly obtained through secretive and "smutty" channels. Let us hope that light is at last coming through the darkness, stupidity, and prudery of the past, and that this terrible scourge will be recognized as an ordinary disease. Only on such sensible lines can we hope for success.—I am, etc.,

Southbourne. E. A. CHARTRES.

Scientific Freedom and Social Medicine

SIR,—Dr. Geoffrey Bourne (Feb. 20, p. 227) has vigorously attacked a problem which badly needs ventilation. It is of the utmost importance that in our medical planning we safeguard the professional independence of the experienced clinician, and allow him an effective voice in the direction of the machine of which he is a part. Salaried medical men are usually too frightened of what might be the personal consequences to say what they feel on this subject. This is itself a serious criticism of the bureaucratic system, but probably an unjustified one. No sensible administrator regards the system under which he works as sacrosanct or will resent views expressed in good faith.—I am, etc.,

ELIOT SLATER.

Treatment of Cerebral Contusion

SIR,—Surg. Capt. Lambert Rogers (Feb. 6, p. 151) persuasively attempts to counter prevailing scepticism (to which the writer has long subscribed: *Brain*, 1932, **55**, 549) regarding the importance of cerebral oedema as a complication of cerebral contusion. There are, indeed, few head centres in this country which approve of the treatment he advises.

With regard to the clinical argument that his cases do better, it should be pointed out that to prove this he should inaugurate an accurate follow-up investigation on lines comparable to those described by Symonds and Russell (*Lancet*, 1943, **1**, 7) and Guttmann (*British Medical Journal*, 1943, **1**, 94).—I am, etc.,

W. RITCHIE RUSSELL,
Major, R.A.M.C.

Haemoglobinometry and Use of the Haematocrit

SIR,—We are glad to read the report to the Traumatic Shock Committee of the M.R.C. (Feb. 20, p. 209) and to note that serious attention is at long last being given in this country to the question of haemoglobin determinations. But the proposal to estimate the Hb concentration from a determination of the cellular iron is certain to lead to confusion. It has been shown by Barkan and confirmed by various workers, including ourselves, that the erythrocytes contain iron which is not in the form of Hb, and we have shown that the proportion of non-Hb cellular iron rises from 7% normal to as much as 40% of the whole in some anaemias.

In such circumstances we think it futile to remove the plasma before determining the total cellular iron. The plasma iron is negligible as an influence on the cellular total, and should be amply sufficient for general purposes to remove the supernatant plasma after centrifugalizing. The plasma remaining in the packed cells was demonstrated by one of us (C. E. J., 1932) to be about 10%, which would influence the total iron by about 1 part in 1,500. It is true that the committee emphasizes that the proposal is only an interim one, but interim methods have a habit of sticking. We consider that gas analysis with the van Slyke apparatus is far the best method of calibration.

We fail to understand the committee's opinion that a knowledge of the Hb of normal men would be desirable. Such information is already available. Many determinations by gas analysis have been done all over the world, and there is fairly good agreement that the male normal is about 15.5 to 16.0 g. %; in this country the only work published is by Jenkins and Don (1933). It was one of the largest gas analysis determinations ever undertaken in any country, and its results agreed with the rest of the world.

The technical difficulties inherent in photometric methods are well known, but most of them require nothing more than a little common sense. But the difficulty of a permanent standard is serious, and for that reason we think that the flicker Hb-meter, using the Simmance-Abady head (C. E. J., 1930), has much to recommend it. Our experience of it agrees with Stokes's statement that there is better agreement between different observers using a flicker photometer than with any other form of visual photometer.

The committee deserves every encouragement in work which may end 20 years' stagnation, and we will conclude by recording our own opinion as to the ideal method of measurement. We believe that the only satisfactory instrument is the spectrophotometer. It is essentially superior to every form of colorimeter, including the Pulfrich type; there is no trouble with standards—once calibrated its permanency is absolute: its standards are no more than a wave-length and an extinction coefficient. Its cost is very great, but we firmly believe that sooner or later it is bound to be the standard instrument of every laboratory.—We are, etc.,

C. E. JENKINS.
Manchester. M. L. THOMSON.

A Member Resigns

SIR,—I think a considerable amount of the feeling of stultification experienced by members of the B.M.A. is due to two facts. (1) The Council exercises an arbitrary choice as to which resolutions shall be debated at the Annual Representative Meeting. This difficulty could be met either by choosing certain resolutions from each subject by lot or by allowing the A.R.M. to elect three of its members to choose which resolutions shall be debated. (2) We feel that there are a large number of members on the Council who have been there for years, who are automatically re-elected every time, and who are completely out of touch with the feelings of their members. It would be a wholesome reform if any member of the Council who had been on it for 3 years should be ineligible for re-election when his term expired. He would become eligible again one election later.—I am, etc.,

Colchester. M. E. LAMPARD.

*** Many letters on this subject have been received, but limitations of space make it necessary to discontinue this correspondence.—ED., *B.M.J.*

Mitral Systolic Murmurs

SIR,—Dr. William Evans, in his article on mitral systolic murmurs (Jan. 2, p. 8), has certainly put the cat among the pigeons. At first I thought that, after nearly forty years of continuous auscultation of hearts and trying to estimate the significance of abnormal noises, especially while on medical boards, the complete fogging induced in my mind by his article was the result of my own senility, though I was not conscious of any mental deterioration. But now that Dr. C. H. Ross Carmichael (Feb. 6, p. 172) "and several colleagues" also find themselves a little confused I feel happier.

All noises or sounds must be the result of some physical phenomenon: nobody at least can dispute that; and I feel that I am now old enough to demand from the cardiologists something a great deal more definite than I am getting. I do not like to be put off by being told that such-and-such a murmur is "irrelevant" or "innocent" and that its cause does not matter. Again, Dr. Evans states in two consecutive paragraphs in juxtaposition that "when the murmur is decidedly louder in the upright posture it is the innocent kind"; and then, "when a systolic mitral murmur becomes louder in the reclining posture the innocent nature of the murmur can be presumed." In other words, whether it is louder sitting up or lying down it is "innocent." Frankly, that does not make sense to me. By "mitral systolic murmurs" I should understand murmurs heard at the mitral area and caused by lesions of, or in the vicinity of, the mitral valve; so why drag in aortic stenosis and incompetence?

Because, in necropsies, Dr. Evans does not always find enlargement of the left auricle, he forbids us to use the term "mitral incompetence," thereby implying that there is no such thing *per se*, and without mitral stenosis. But a little further down the paragraph he says: "This sign [auricular enlargement] is absent unless some cause other than mitral incompetence is operating," thereby tacitly admitting that mitral incompetence does occur *per se*. Lastly, and to get down to brass tacks, how can a loud or soft organic systolic murmur (granted that it comes under my definite heading of "mitral murmurs") impinging directly on or incorporated with the first sound heard at the mitral area be caused by mitral stenosis? Surely, stenosis or no stenosis, there must be regurgitation of blood back through the mitral orifice. What else could cause the sound we hear? The blood is already in the ventricle before we hear it, the ventricle contracts, and unless the sound is caused by regurgitation back through the valve it must be caused by something else, and is therefore not a mitral murmur. If it *is* caused by back-rush through a damaged valve, then the valve is incompetent; therefore there must be such a thing as "mitral incompetence." You cannot have it both ways.—I am, etc.,

Stowmarket H. S. GASKELL.

Periodicity of Relapses in Tuberculosis

SIR,—Your reviewer's quotation (Feb. 27, p. 255) from Dr. J. Burns Amberson on the need for promptness in the treatment of new tuberculous lesions if we "wish to accomplish maximum results at the most opportune time" reaffirms a main principle of value in the treatment of most diseases, but one often forgotten, and rarely applied as energetically as possible. Sometimes it can abort attacks, from respiratory catarrhs to cancer recurrences. As applied to relapse cases of tuberculosis its use would be greatly facilitated if there were any means of telling beforehand when any individual patient was in danger of a relapse (as by various methods of blood examination). Relapses have followed influenzal attacks often, but they may also have an intrinsic rhythm.

My recent study of over sixty cases of tuberculosis suggests that there is a cycle of activity in tuberculosis similar to that of the influenza-cancer cycle (Brownlee, 1919-23; Webster, 1938-42). Should this be confirmed by further research, follow-up methods would be facilitated (as, for example, the repeat examinations advised for mass radiography), and the principle of prompt treatment to new signs could be adopted more widely and more accurately.

Most of my personal observations have been in patients with tuberculous glands in the neck (*x*-ray and radium treatments), but a search in hospital reports and in the literature has shown a similar cycle in most types and sites. For example, an acute lung case (T. W., male, aged 36) showed four half-periods: onset 1914, July; worse in November; again in March, 1915; and July; and died in November (Powell and Hartley, *Diseases of Lungs and Pleurae*, 6th ed., 1921, p. 481). A more resistant case to begin with (Mrs. X, aged 29) showed a relapse after influenza at six periods, further exacerbation at one period, and death at the half-period (p. 484). Further studies are in progress. This preliminary note may stimulate others to search their records of relapse patients.—I am, etc.,

London, W.1. J. H. DOUGLAS WEBSTER.

Diphtheria and Diphtheria Carriers

SIR,—Few medical officers of health, one imagines, will fail to agree with the context of the letter by Dr. F. Lawrence Smith (Feb. 6, p. 171), nor with what appear to be his three most important contentions—namely: (1) That as a result of the progress of the national immunization campaign it "is not uncommon" to encounter "throats" where a "positive K.L.B. swab was a coincidence of no pathological importance." (2) That "it is imperative that medical officers of health should carefully investigate every case which is notified as diphtheria." (3) That in the absence of the precautions as indicated in (2), together with a deletion from the medical officer's register of such cases as were found to have been diagnosed on a positive swab but where the "diagnosis was completely at variance with the clinical evidence," the "Registrar-General's returns will continue more and more to give an erroneous impression of the influence, or lack of it, of immunization on diphtheria the disease."

Dr. Lawrence Smith's suggestion that the M.O.H. should on full investigation review and, if necessary, delete from his register notifications of diphtheria which he is satisfied are really diphtheria carriers is probably the best and most obvious in such districts where the M.O.H. has control of the isolation hospital or hospitals; but many of us whose areas are served by joint hospital boards have no such control. In our cases deletion presumably would follow only upon an agreement between the M.O.H. and the M.O. i/c hospital. In the absence of accepted definitions of "clinical diphtheria" and "diphtheria carrier" it is perhaps not surprising that there should be difficulty in arriving at this agreement.

Let me quote two definitions which do not appear to be very helpful: (*a*) In the Infectious Diseases Regulations (Scotland) a carrier is defined as one who has within himself the germs or other infective virus of an infectious disease, but has no other sign or symptom thereof, and who is certified by the medical officer of health and one other medical practitioner to be a danger to others. (*b*) Ker's *Manual of Fevers* (4th edition, p. 249) under "Types of Faucial Diphtheria" includes: "Those slight throat inflammations which are associated with, and probably due to, the diphtheria bacillus, but which do not present characteristic membrane and can hardly be regarded as clinical diphtheria. Some, indeed, may be merely instances of simple sore throat affecting a 'carrier' of the bacillus."

I suggest that the increased confusion visualized by my colleague can best be avoided by a policy which will be acceptable to the general practitioner, the M.O.H., and the M.O. i/c isolation hospital, and that such a plan should be encouraged by the Ministry of Health by a suggestion or order to the effect that: (1) Practitioners should be encouraged to swab all suspicious throats and to send to hospital all positive K.L.B. carriers. (2) Practitioners should be paid a fee for notification of carriers. (3) Isolation hospitals should undertake a Schick test of atoxic K.L.B.-positive cases as soon as the case is admitted. A Schick-negative result would warrant the elimination of diphtheria diagnosis. (4) Isolation hospitals should ensure the taking of a virulence test of the K.L.B.s. (5) The M.O.H. would be warranted in deleting a diphtheria notification upon evidence deduced from the results of (3) and/or (4), which results should invariably be transmitted to him by the isolation hospital.—I am, etc.,

H. G. DONALD,
Medical Officer of Health.

Bishop Auckland

War Neuroses

SIR,—I am greatly indebted to you and to Dr. W. Ronald D. Fairbairn for his article "The Nature and Significance of War Neuroses" (Feb. 13, p. 183). That I criticize details does not mean that I am not a whole-hearted supporter of his general thesis.

I cannot find myself in agreement with those who say that "so far as symptomatology is concerned the war neuroses possess no distinctive features differentiating them sharply from the various psychoneurotic and psychotic states which prevail in times of peace." My observation has been that it is precisely in symptomatology that *some* of the neuroses of war do differ from those of peace. I agree that the essential emotional structure is similar in neuroses of war and peace as also in normal and neurotic soldiers or civilians. But as I pointed out in an article you were good enough to publish in the winter of 1939, the circumstances of war, being emotional stimuli of unwonted intensity and suddenness, cause a symptomatology more florid, more extreme, and more essentially abnormal than do the more moderate and more slowly acting circumstances of peacetime life. This difference in degree of symptoms only really becomes obvious when weighed, in each case, against the personality of the patient before breakdown. Thus, in wartime a class of neurosis can be recognized in which the person was previously of good personality and quite without neurotic illness or even (discoverable) neurotic predisposition. These men and women under sufficient strain will break down, and often the symptoms then produced will be of this florid type. It is as though, in wartime, the ratio of "symptoms : personality," instead of being an inverse proportion, becomes at times a direct proportion: the better the personality the greater the symptoms (also the greater the stress required to cause them), whereas in peace it is more often the poorer the personality the greater the symptoms.

A young guardsman in the last war became a sergeant and received the D.C.M. and M.M. before he was 21. A near shell-burst during a severe bombardment rendered him unconscious. He regained consciousness in hospital in London. No physical injury being found, he was regarded as a case of "shell shock." He was invalided and has remained an invalid, a hopeless chronic hysteric. He had an exacerbation of symptoms in September, 1939. An editor of an important news service with an excellent record of health and personality became deluded and paranoid the day before the declaration of war in 1939, as a result of the stress of watching its approach. The whole content of his delusions was intrigue behind the scenes leading to war. A medical man of considerable achievement and good personality, and in a very responsible position, became a case of obsessional neurosis and in a highly aggravated state of obsessional doubt within a few weeks of the outbreak of war

In the last two cases removal from work and sympathetic and understanding management, without specific treatment, restored health and ability to work in two or three weeks. The doctor was able to carry out a similar responsible job throughout the bombing of London Of the editor I have not been able to hear, but I fancy he did equally well. Such violent breakdown and such easy cure are practically unknown in peacetime and depend upon the quality of the personality of the individual and the degree of the stress.

To understand neurosis, therefore, in war as in peace, is to understand personality. To do this one must realize that many of the phenomena we refer to as psychopathological are really psychobiological. By that I mean that the process which, in the upgrowing of a child, leads to the development of a healthy independent adult leaves a trail of emotional events and conflicts overcome, to the more difficult of which there may be a regressive return in times of great stress. Nor can regression itself be considered simply as a pathological mechanism. Two of my cases regressed, certainly, but when the significance of this regression was recognized and appropriate help given they were able to return to full adulthood. Had they not been quickly relieved of stress they might well have gone the way of the first case. The regressions that are thus a signal of distress should be recognized by doctors so that the personality may be saved. We must not be afraid of dependence It is sometimes, in adult life, useful as it was in childhood; but, as in childhood, it must be followed by a phase of wise weaning. The conflict, "infantile dependence" versus "adventuring into adult life," is present in all of us, normal and neurotic. Neurosis is merely a quantitative variation, at most a modification, and not a contradiction, of the normal.

With these and one or two other minor adjustments, one can accept the main thesis of Dr. Fairbairn's account of the nature of war neurosis. It is, after all, as he says, a psychopathology which is applicable to peacetime neurosis no less than to the neurosis of war. That these general ideas were the guiding principles of a large number of workers in this field before the war does not, however, appear from Dr. Fairbairn's article. The names of the Sutties—the late Dr. Ian Suttie and Dr. Jane Suttie—are particularly linked with the development of psychopathological ideas along this line; and those who are interested by the excellent article may like to read further in Dr. Ian Suttie's book, *The Origins of Love and Hate.*

—I am, etc.,

Cardiff. GEORGE PEGGE

"Calorie Control" Diabetic Diet

SIR,—Dr. R. D. Lawrence (Feb. 20, p. 234) thinks the basal principle of my diet untrue and dangerous and considers it as no argument for the new diet to claim that 528 patients have done well on it. Against such *ex cathedra* declarations argument is unavailing. The test of the "calorie control" diet is its usefulness in the control of diabetes. In my hands it has proved highly useful, and I hope that it may also prove useful in the hands of others.

Several questions have been asked about the treatment of in-patients. The following report is of one of the eight in-patients discussed in my article.

A girl aged 18 has been in the hospital repeatedly in diabetic or hypoglycaemic coma. On one occasion when she was admitted in ketosis her abdomen was opened on account of severe abdominal pain and a swelling which was thought to be a subphrenic abscess. A greatly enlarged liver was found and the abdomen was closed. The swelling disappeared after she had been stabilized. Subsequently she was admitted to Oldchurch Hospital in ketosis on Dec. 6, 1941. It was impossible to stabilize her on a normal fixed diet (No. 1 below) with protamine-zinc-insulin, and she was finally given 36 units of soluble insulin three times a day. She had a slight reaction at midday on the day before the following experiment was carried out:

She was given the following diets alternately:

Diet 1.	Carbohydrate 220 g.	Protein 68 g.	Fat 57 g.
Diet 2.	„ 389 g.	„ 26 g.	„ 6 g.
Diet 3.	„ 138 g.	„ 102 g.	„ 84 g.

The food was fairly evenly distributed between four meals at 8 a.m., 12 p.m., 3.30 p.m., and 6.30 p.m.

The blood sugar estimated at 2-hourly intervals was as follows:

Diet	1	2	3	2	3	1
7.30 a m ..	4	125	.21	31	.29	15
9 a.m	36	44	31	.21	25	31
11 a m .	18	11	24	08	105	.12
1 p.m	13	.125	13	17	07	.1
3 p.m ..	125	1	15	07	08	.25
5 p.m	25	2	09	125	11	.57
7 p.m ..	2	12	11	12	1	.2

This girl had no reactions during the experiment, but she is one of the most unstable diabetics I have met Since discharge she has been on a "calorie control" diet. She has attended the clinic regularly and has not had to be readmitted, because she has been comparatively stable ever since.

This and the seven other in-patients discussed in my paper convinced me that all types of diabetes requiring insulin could be controlled on the new diet. Since then more than 200 in-patients have been treated on weighed "calorie control" diets. —I am, etc.,

London, E 1 A. C. CROOKE.

Anaesthesia for Laryngofissure

SIR,—I am in some agreement with Mr. Lionel Colledge (Feb. 20, p. 230) in his criticism of Dr. C. B. Lewis's method of anaesthesia with regard to the use of morphine and of the inflatable laryngeal cuff, as the first is apt to be dangerous and the second unnecessary. I am, however, in total disagreement with him when he claims that temporary tracheotomy is necessary, and that the operation under intratracheal anaesthesia is a perilous procedure. I yield to none in my admiration for the late Sir StClair Thomson and the pioneer work that he did for laryngology in general and for this operation in particular. His method, however, was certainly perfected before the days of modern anaesthesia.

I myself have not employed a temporary tracheotomy for the past twelve years. I find that intratracheal anaesthesia gives a smooth and even anaesthesia free from anxiety, and the tube lying in the interarytenoid fold is not in the way of the operation. As the growth is almost invariably situated in the anterior part of the larynx (it would scarcely be suitable for laryngofissure if it were not so), it does not really require any unusual dexterity to slip the catheter, at the moment of inspiration, along the posterior commissure. After the larynx is opened, the trachea is packed off with gauze so that no blood or secretion can possibly enter it. A suction tube may be useful but is not essential. At the end of the operation, after the larynx is closed, the catheter is withdrawn and the patient breathes comfortably *per vias naturales*.

Mr. Colledge is, I think, in some slight error with regard to Hahn's tube. This was never meant to be used in the larynx. It was designed for the trachea, and the inflatable part when blown up was supposed to prevent blood passing it. It was abandoned when it was found that gauze packing inserted into the trachea from the larynx was more effective. I might add that the leading American laryngeal surgeons gave up the use of a temporary tracheotomy many years ago.—I am, etc.,

London, W 1. WALTER HOWARTH.

The Outbreak of Small-pox in Glasgow

SIR,—I beg to refer to the article by Dr. C. Killick Millard on the outbreak of small-pox in Glasgow (March 6, p. 288), in which he criticizes me for adopting an immediate policy of mass vaccination instead of putting my faith in the vaccination of contacts of cases as they occurred and otherwise trusting to luck. This criticism has received considerable prominence in the local press here.

Glasgow has had bitter experiences of severe and lingering epidemics of small-pox. Dr. Killick Millard quotes the considerable outbreak in 1903 which occurred in Leicester. At that time small-pox was occurring in Scotland, mainly in Glasgow, in successive waves of considerable dimensions from 1900 to 1904; again in 1920 an outbreak of small-pox involving over 500 cases lasted from February till November.

I know of no other way of dealing with small-pox abroad in the community except by adopting a policy of widespread vaccination at the very outset. When small-pox makes its appearance, what is the problem facing the medical officer of health? His first duty is to secure the vaccination of all possible contacts. This was done in Glasgow as a routine on an intensive scale, involving the inhabitants living near the patients over a wide area, children at the schools where child patients had been attending, work places where adults had been employed, and all other possible contacts—all with the object of placing a wide cordon of protected persons round each focus of infection. The second duty of a medical officer of health is to ask himself whether these measures are likely to be sufficient. In the case of the Glasgow outbreak I came to the conclusion that the additional precaution of mass vaccination was necessary for three main reasons: (1) The first cases in the city were widely scattered and unrelated; (2) I have a wholesome respect for the capacity of small-pox to strike at a distance; (3) it would have been wrong to postpone general vaccination until small-pox had obtained a firm hold on the city. I wonder what steps Dr. Killick Millard would have decided to take in face of the threatening situation on June 28 last, when it was apparent that small-pox had appeared in the city, affecting children and adults alike, without any source or sources that could be traced. The only difference between the administration of the recent outbreak and previous ones was that a policy of general vaccination at the very outset was adopted and pressed, a measure fully justified by the results. —I am, etc.,

Glasgow A. S. M. MACGREGOR.

CO$_2$ Absorption Technique

SIR,—Dr. E. Y. Slaughter (Feb. 20, p. 232) enumerates some of the advantages of the CO$_2$ absorption technique, and concludes with the words, "The saving of gas is, of course, offset by the cost of the machine and soda-lime." This statement is so much at variance with practical experience that I have worked out the running costs of N$_2$O–O$_2$ anaesthesia with the old partial rebreathing technique and with CO$_2$ absorption.

Most types of continuous-flow apparatus have a "critical flow" of from 5 to 6 litres per minute mixed gases. This flow must be maintained or exceeded in order to keep the CO$_2$ concentration within reasonable limits. Assuming that the machine on the average delivers 5 litres a minute N$_2$O and 1 litre O$_2$, it will consume about 66 gallons per hour N$_2$O and 13 of O$_2$. A closed-circuit apparatus, on the other hand (taking Dr. Slaughter's own figures), will use about 500 c.cm. per minute N$_2$O and 250 c.cm. O$_2$, or 6.6 gallons N$_2$O per hour and 3.3 gallons O$_2$. The saving in gases by using the latter type of apparatus will, therefore, be 59.4 gallons N$_2$O and 9.7 gallons O$_2$ per hour.

If the two machines are in use for an average period of 5 hours on 300 days of the year, the saving by the closed-circuit apparatus will be 89,100 gallons of N$_2$O costing about £215 and 14,550 gallons O$_2$ costing £14. The total saving per machine per year will therefore be £229 less £25 for soda-lime (1 lb. at 1s. 8d. lasting about 5 hours), equalling £204. If the cost of adapting existing apparatus is £25, this would be paid off in under two months' use. I have not taken into consideration the lessened quantities of ether, trichlorethylene, or other adjuvants when used with the closed-circuit technique, nor the saving in labour and storage space by employing fewer and smaller gas cylinders. If a medium-sized hospital employing three old-type gas-oxygen machines changed over to the CO$_2$ absorption technique, the annual saving should be over £600, a figure which few lay committees would regard as negligible.

The calculations have been based on wholesale or "hospital" prices. The private anaesthetist enjoys a greater saving in running cost per hour owing to the higher prices he has to pay for gases. It would therefore appear to be incontestable that, on economic grounds alone, the closed-circuit technique marks a considerable advance in anaesthesia.—I am, etc.,

St Albans, Herts C LANGTON HEWER.

Desert Sores

SIR,—The article by Capt. H. M. Rapport (July 25, 1942, p. 96) is of the greatest interest to all serving with M.E.F. The fact that Capt. Rapport makes no mention of the simple treatment that I have found effective in a large number of cases is the excuse for this unavoidably belated letter.

My experience has been mainly with British and African troops. I have had no opportunity for bacteriological examination of my cases, but in my opinion, judging from the appearance and course of "desert sores," the condition is generally a streptococcal infection. It is not confined to troops serving in the desert. There was an enormous incidence during the mountain warfare of the Italian East African campaign. I feel that some-such term as "tropical service ecthyma" is better descriptive of the condition than "desert sore."

I have been unable to convince myself that dietetic insufficiency plays any great part in the causation of the disease. I have seen it widespread in troops on an adequate ration of fresh meat, green vegetables, and fruit. Nor have I been able to demonstrate an increase in the healing rate following the addition of ascorbic acid to the diet. I consider that there are three main factors in the aetiology of "desert sores": (1) Increased liability to trauma under Service conditions and when wearing tropical uniform; under trauma must certainly be included insect bites. (2) Lack of proper facilities for personal hygiene. (3) Flies, which probably act both as vectors of infection and as irritants to slight breaches of the skin surface.

Rest is of primary importance in treatment. This is perhaps exemplified by Capt. Rapport's fourth case. In my cases I try to secure local rest and protection by the use of elastoplast. The ulcers and surroundings are gently cleaned. Bleeding from the ulcers should be avoided. The adjacent skin is thoroughly dried. The ulcer is completely occluded with overlapping strips of elastoplast, each about 1/2 inch wide. I find the elastoplast adheres more firmly if so applied, and it also more adequately prevents the penetration of sand under the strapping. A bandage is applied over the strapping to render it more secure, and the patient is told to report back in five days, or earlier if the strapping does not remain firm. After five days I usually remove the strapping, gently clean the ulcer site, and repeat the elastoplast and instructions. In cases in which the strapping is still firmly fixed after this period it is not necessary to remove it. In most cases the ulcer is granulating healthily after the first application, and in a majority is well healed after three applications.

I have combined this treatment with powdering the ulcer with sulphanilamide, but I do not think this measure greatly quickens healing. I have treated a number of cases by powdering with sulphanilamide, covering with vaseline gauze, and bandaging. My results have been good, but apart from the discomfort of the bandage the method demands the inconvenience of a daily dressing. To my mind it is most important to avoid trauma to the ulcer. This is the reason for the vaseline gauze. Lotion dressings, unless they can be changed so frequently as to prevent drying and sticking, are to be deprecated. When dry their changing is inseparable from trauma and pain.

Apart from its successful results in my hands, the main advantages of the treatment are its comfort to the patient, its simplicity, and its economy of time. In all save very bad cases a patient under elastoplast treatment can take his position in the line and has not to attend sick parade daily or oftener. A dressing applied with bandages is uncomfortable and hampering at the best of times, and is especially so under active service conditions. In addition, I am convinced that the constant friction of a bandaged dressing exacerbates the condition of the ulcer. The bandage I use over elastoplast cannot cause friction, and it can be easily readjusted by the patient himself as often as necessary.

That some degree of immunity often follows streptococcal infections of the skin is a familiar phenomenon. I think the same may be said of "desert sore." In my experience the man who has recovered from an attack of "desert sores" is much less susceptible to the disease than a newcomer. As a footnote I would add that it is as well to consider the possibility in African troops of an old syphilitic taint in the case of persistent lesions.—I am, etc.,

HENRY RICHARDS.

Any Questions?

SIR,—Hearty congratulations on your new section "Any Questions"; may it grow in size as you suggest it will. I am sure all general practitioners will appreciate this type of thing. In your article introducing this section you sympathize with the "tired doctor faced with the toil of reading an article three or four pages long when what he really wants to know is how to get rid of that troublesome pain complained of by Mrs. X," but that statement is rather vague. He would not perhaps mind reading an article—however tired he may be—if it were of real interest to him. He certainly will not sit down and digest—or endeavour to do so—a long article (complete with statistics) showing the incidence of some rare and obscure disease, or the value of some ? vitamin on debilitated rats in the Far East, this latter presented with expensively produced photomicrographs! I am not minimizing the value of these articles, but surely they belong to the more specialized literature which the busy G.P. has not the time or perhaps the inclination to peruse. As you rightly point out, it is the everyday things of general practice—e.g., the treatment of chilblains, rheumatism, etc.—on which he requires brief but useful and guiding information on up-to-date methods. I am looking forward to this new section with great pleasure.—I am, etc.,

T. ASTLEY COOPER.

Obituary

R. H. JOCELYN SWAN, O.B.E., F.R.C.S.

We regret to announce the death on March 2, at the age of 66, of Mr. Jocelyn Swan, consulting surgeon to the Royal Cancer Hospital. The son of a medical man, Russell Henry Jocelyn Swan was educated at Wilson's School and Guy's Hospital. He took the M.B., B.S. of London University in 1898, gaining first-class honours in medicine. Four years later he took both the M.S. of London University and the F.R.C.S. At Guy's he was demonstrator in anatomy and biology, and held the post of house-surgeon and resident obstetric officer. He was also house surgical officer to St. Peter's Hospital for Stone, a post which determined the specialty which he pursued so successfully. He wrote numerous papers on diseases of the kidney, and contributed articles on genito-urinary diseases to French's *Index of Differential Diagnosis*. Swan was consulting surgeon to St. Paul's Hospital for Genito-Urinary Diseases, was on the editorial committee of the *British Journal of Urology*, and at one time was president of the Section of Urology of the Royal Society of Medicine. His other main interest was in cancer, and he was surgical registrar, assistant surgeon, surgeon, and emeritus surgeon successively to the Royal Cancer Hospital in Fulham Road. He published articles on such matters as sarcoma of the tongue, carcinoma of the breast, and tumours of the urinary tract. Mr. Swan served on the Grand Council of the British Empire Cancer Campaign. In the last war he was a temporary major in the R.A.M.C., and was mentioned in dispatches. He was surgeon to the Royal Herbert Hospital, Woolwich, and also to the American Red Cross Hospital for Officers. When the present war broke out he gave up private practice and took up duty as divisional surgeon at the E.M.S. hospital at Park Prewett, Basingstoke.

A colleague writes: Jocelyn Swan was a surgeon of first-class ability in many different "lines." Best known for his renal and all-round genito-urinary work—in which he was far more than merely a fine operator, but was most careful and thorough in investigation as well as of excellent judgment—he was also in the front rank in many other branches, as those who attended the practice of the Cancer Hospital knew very well. His operations for cancer of the breast were models of the best and most thorough technique of the times, and his gastric work was equally good. He knew when not to operate, which is one of the marks of a real surgeon, and his calm air of decision and invariable gentleness and courtesy in handling every type of patient always gained the confidence of those he was treating. In his day at Guy's (where he would surely have been a great acquisition to the staff) he had been a notably elusive rugger half-back, worthy of the best Guy's tradition; and he was also a pretty good golfer and more than average at lawn tennis. He had his share of adverse fortune: he lost his first wife by a very rare form of malignant disease not even mentioned in textbooks; and when he married again his second wife was stricken on their honeymoon with a serious disease which nearly cost her life and left her a paralysed invalid for many months.

C. H. CATTLE, M.D., F.R.C.P.

Consulting Physician, General Hospital, Nottingham

By the death of Dr. C. H. Cattle on Feb. 9, at the age of 87, Nottingham lost its oldest medical practitioner and a link with the latter half of the Victorian era. The son of a Wesleyan clergyman, Charles Henry Cattle was educated at a Wesleyan college and began his medical education at the Leeds Medical School, afterwards incorporated in the Leeds University. It was here that he became acquainted with Sir Clifford Allbutt, and a friendship arose which lasted throughout their lives. Cattle took his M.R.C.S.Eng. in 1876 and soon afterwards graduated M.B.Lond., proceeding M.D. in 1880. He was in general practice in Nottingham for some years, and was greatly helped at that time by Dr. W. H. Ransom, F.R.S., who was then senior physician at the General Hospital. He went on to obtain his M.R.C.P., and in 1908 he was elected a Fellow of that College. In 1901 he was appointed hon. assistant physician to the General Hospital, Nottingham, and he then became a consulting physician, which had always been his ambition and intention. He followed as full physician in 1906, and he was also physician to the Ransom Sanatorium for Tuberculosis. The whole of his professional life was spent in Nottingham, where he soon gained a high place in the esteem of his fellows, and also a large consulting practice.

Cattle made many contributions to medical literature, especially on affections of the heart and lungs. He took an active part in the discussions of the Nottingham Medico-Chirurgical Society, of which he was secretary for many years and, later on, president. Deeply interested in the affairs of his profession, he was a member of the B.M.A. for 63 years. A keen cyclist, he wandered over the greater part of England, Wales, and Scotland on a pedal machine, which he rode up to the age of 74. He was also a great walker, and kept this up till nearly the end. His library was well stocked with medical and general literature, as was only to be expected from one who read so extensively and found such solace in the best books. He had a retiring, kind, simple, and sympathetic nature, and no desire for publicity. His religion meant much to him. The high esteem and affection in which he was held was manifested by the large number, including many colleagues, who attended the memorial service.

JOHN LIONEL STRETTON, M.R.C.S., J.P.

We regret to announce the death at the age of 82 on Feb. 14 after a few days' illness of Dr. J. L. Stretton, honorary consulting surgeon to the Kidderminster and District General Hospital. Born at Kidderminster in 1860, John Lionel Stretton received his medical education at St. Bartholomew's Hospital, and qualified M.R.C.S. in 1881. In the following year he took the L.R.C.P. and the L.S.A. He was appointed assistant anaesthetist at St. Bartholomew's and was to have been resident gynaecologist and house-surgeon, but he returned home to join his father's practice. In 1882 he succeeded his father as an honorary surgeon to the Kidderminster Hospital and was an active member of the staff for 56 years. When he resigned at the end of 1938 he accepted the position of honorary consulting surgeon. He was president of the hospital from 1924 to 1937. His professional ability and administrative skill were of incalculable value to the hospital, and his work for it was a dominating factor in his life. His method of sterilizing the skin with iodine was described in the *Journal* in 1909 and 1910 and afterwards generally adopted. The most remarkable of his pathological specimens were exhibited before the war in the Wellcome Museum in London, where they are now in safe keeping. In 1936 Mr. Stretton gave his private nursing-home, with its equipment, to the hospital, to be used for paying patients.

He was a Justice of the Peace, and other offices he held included that of chairman of the Worcestershire Division of the B.M.A. in 1911, 1912, 1916, and 1920, and president of the Worcestershire and Herefordshire Branch (1914); chairman of the Local Medical Committee for the County of Worcester (1914-18); chairman of the Local Medical War Committee for the Worcester and Bromsgrove area (1939-42); chairman of the County of Worcester Local Medical and Panel Committee (1912-42); and president of the Kidderminster Medical Society. A man of sound judgment and strong views, he was inflexible in upholding what he considered right. His guiding principles were self-sacrificing devotion and unswerving loyalty to his ideals, his profession, and his friends. He leaves a widow, two sons, and a daughter; the younger son, John W. Stretton, F.R.C.S., is senior honorary surgeon to the Kidderminster Hospital, and thus represents the third generation of his family on the staff.

Dr. H. NEVILLE CROWE writes: I knew of Dr. Lionel Stretton before I started in practice in 1909, and got to know him personally when I became honorary secretary of the Worcester Division of the B.M.A. in 1909; I was instrumental in securing his appointment as chairman of the Division in 1911 and 1912, at the time the Insurance Act came into force. I was impressed with his grasp of the business and his conduct of many difficult meetings. He was chairman of many meetings of which I was a member after this, and I got to know his true worth. Later I was appointed radiologist to the Kidderminster General Hospital and came to appreciate his professional skill more fully. He lived for his hospital and was an example to all his colleagues. He was beloved by all his patients and by all who worked with him for his sterling qualities, his devotion to duty, and his straightforwardness.

Dr. U. W. N. MILES sends the following appreciation: When I first knew Dr. J. L. Stretton, in 1897, he was engaged in the extensive country practice which he inherited from his father. He was even then recognized as the leading member of the profession in this part of Worcestershire, and we general practitioners turned to him for help in all our difficulties—medical, surgical, and obstetrical—and he never failed to give us prompt and skilful assistance. This experience gave him a very broad outlook when, later, he devoted himself entirely to surgical work, and made him a valuable chairman of the various professional societies over which he presided. For twenty years, from 1916, I had the privilege of acting as his anaesthetist and can bear witness to his great skill as a surgeon. He was a man of tireless energy, who never got flurried in any emergency, and who was always considerate and courteous to his assistants and nurses. He was a true friend and adviser to all younger members of the profession in this district in many things beside their professional difficulties. He was spoken of as "Father" in his hospital and well deserved that tribute of respect and affection, not only from his nursing staff but from all his professional colleagues.

G. B. DIXON, M.R.C.S., L.R.C.P.

The death of Dr. G. B. Dixon has removed one of the most distinguished of the now diminishing band of men who took up duty as tuberculosis officers on the initiation of the N.H.I. Act just over thirty years ago. Godfrey Brookes Dixon was a Cumbrian by birth, and received his medical education at Charing Cross Hospital, where as a student he won the gold medal in medicine. Under the influence of Dr. Mitchell Bruce, to whom he was house-physician, his interest was directed to tuberculosis early in his career, and soon after qualifying in 1901 he spent the best part of two years at Davos in Switzerland studying the treatment of tuberculous patients there. He then became assistant medical officer and later superintendent of the Walton Infirmary, Liverpool, where he was one of the first to institute the open-air treatment of patients suffering from pulmonary tuberculosis in a Poor Law infirmary. Later he was for a time assistant medical officer at the Vale of Clwyd Sanatorium. Subsequently he spent five years in general practice as assistant to his cousin, Dr. J. H. Salter of Tolleshunt D'Arcy in Essex. The turning point in his career came in 1910, when, at the age of 33, having had to retire from general practice following an attack of pneumonia, he was appointed medical superintendent of the Birmingham Municipal Sanatorium at Yardley Road, then on the outskirts of the city. In 1912 he intended to apply for the post of superintendent of the Brompton Hospital Sanatorium at Frimley, but was dissuaded from doing so by Dr. John Robertson, medical officer of health for Birmingham, who recognized his great ability and insisted on retaining his services as tuberculosis officer for Birmingham. From small beginnings the tuberculosis service of the city became built up around his person and under his guidance, and for thirty years he performed the double duty of superintendent of a sanatorium of over 300 beds and chief tuberculosis officer to a city of 1,000,000 population with the supervision of three other sanatoria.

Dixon was one of those rare individuals who are both good clinicians and sound administrators. In all he did he was extremely painstaking. He possessed a real flair for organization, no detail being too small to escape him. Though never averse from new ideas he liked first to assure himself that they were sound. His advice on administrative problems was frequently sought by tuberculosis officers and medical officers of health of other localities as well as by the Ministry of Health. In later years it gave him much gratification to be elected to serve on the Council of the National Association for the Prevention of Tuberculosis and on the Joint Tuberculosis Council, and he took great interest in this work. The best tribute to his reputation as a tuberculosis physician among the medical profession in Birmingham is to be found in the fact that he was repeatedly consulted by medical men on behalf of themselves and their families. He had a high sense of duty and never spared himself in doing what his conscience dictated; no community could have had a more faithful public servant. Though always a stubborn fighter for what he believed to be right, he was an extremely sensitive man, and was apt to feel acutely things that might not have affected one less sensitive. He was a man of outstanding personality, and his passing leaves a gap that will be hard to fill.

J. R. T.

Dr. JAMES BRAILSFORD writes: Tuberculosis officers when first appointed had no easy task to establish their position. G. B. Dixon was one of the first to be appointed, and his triumph over the many difficulties which I know to have been put in his path redounds to his credit. The care, patience, and skill which he brought to bear during the thorough clinical and scientific investigation of the patients referred to him enhanced his prestige with his colleagues and brought him the good will of his many patients. He was able to assess the value of diagnostic and therapeutic procedures, and applied them accordingly. He commanded respect from all with whom he was associated, and was ready at all times to give help to all that sought it.

We regret to announce the death on Feb. 7 of Dr. JOHN STEWART of Crosshill, Glasgow. He was born at Lochgilphead, Argyllshire, in 1862, and educated at the Highland Memorial School, Glasgow, and at Glasgow University, where he graduated M.B., C.M. (with commendation) in 1886, proceeding M.D. in 1891. In 1932 he was elected a Fellow of the Royal Faculty of Physicians and Surgeons of Glasgow. Dr. Stewart practised in the south side of Glasgow for over 50 years, and was a member of the Local Panel Committee. He had also been president of the Glasgow Southern Medical Society. He took a keen interest in the Victoria Infirmary, of which he was a governor for 30 years. Dr. Stewart had been a member of the B.M.A. since 1894, and represented his constituency at the Annual Representative Meeting held at Leicester in 1905.

We regret to record the death recently of Dr. GEORGE BRUCE PEARSON of Buckingham, at the age of 72. Educated at Guy's Hospital he qualified in 1901, and after a short period as an assistant at Retford he went to Buckingham, where he continued to practise until his death. Throughout these years he was prominent in the life of the town. He was medical officer to the Buckingham Guardians Union, to the Fire Brigade, and to the Police. As medical officer of health to the rural district he took special interest in helping to maintain a clean milk supply and in the arrangements for main water supply to surrounding villages. For a number of years he was divisional surgeon to the St. John Ambulance Association, and was especially proud of the fact that during this time his women's team won the Perrott Shield in two successive years. For 30 years he was an enthusiastic chairman of the local cricket club. He had been a member of the British Medical Association since 1903, and was chairman of the Buckingham Division in 1926–7. An original member of the Bucks Local Medical and Panel Committee, he attended their meetings regularly and took the chair on many occasions. During the last war he served with the Royal Bucks Hussars in Gallipoli, where he was wounded, and later in Palestine and Egypt. As a general practitioner of the best type and as a genial host he will be missed by his patients and his friends.

A colleague writes: Many will think of him not merely as their doctor but above all as their friend, for he was a faithful friend. With a hatred of sham and pretence, he could be disconcerting in the plainness of his speaking and opinion, which he never concealed from anyone. Probably his directness and plain speaking concealed his genuine kindness of heart from some who did not understand it. But no one who was in real trouble or anxiety ever went to him in vain, for he treated all alike. To the poorest of his patients he was the same as to the richest; they were all of them important for all of them needed his help.

Medical Notes in Parliament

Scottish Medical Advisory Committee

Replying to Commander Galbraith on Feb. 16 Mr. JOHNSTON said that by long-established practice the Department of Health for Scotland had from time to time sought outside expert advice upon special medical problems. He found in the profession a general desire for a regularly constituted committee to advise the Department on the many problems with a wide medical interest which confronted the country. He had therefore set up a medical advisory committee whose terms of reference were "to advise on the medical aspects of problems relating to the health of the people." Its members were: Sir John Fraser (chairman), Prof. E. P. Cathcart, Dr. G. Matthew Fyfe, Dr. Catherine Harrower, Prof. James Hendry, Col. T. D. Inch, M.D., Dr. D. Dale Logan, Sir Alexander Macgregor, Dr. E. K. MacKenzie, Dr. A. F. Wilkie Millar, Dr. R. Richards, Sir John Orr, Prof. A. Patrick, and Prof. Sydney Smith.

Mortality among Mental Patients

Mr. ERNEST BROWN on Feb. 18 furnished the following tables of deaths in mental and mental deficiency institutions and the percentage to total population of those institutions:

I. *Mental Institutions*

Year	No. of Deaths	Percentage
1938	9,136	6.57
1939	10,207	7.30
1940	11,623	8.38
1941	12,598	9.22

II. *Mental Deficiency Institutions*

Year	No. of Deaths	Percentage
1938	442	1.24
1939	499	1.33
1940	636	1.65
1941	734	1.87

The institutions included in Table I are county and borough mental hospitals, registered hospitals, licensed houses, hospitals and nursing homes approved under the Mental Treatment Act, 1930, naval and military hospitals, and the Criminal Lunatic Asylum, Broadmoor. Those included in Table II are the State institution, certified institutions, certified houses, and approved homes. Percentages are based on the daily average number of patients resident.

National Institute for Medical Research and M.R.C.

Sir ERNEST GRAHAM-LITTLE asked on Feb. 24 whether the Lord President of the Council was aware that the recently appointed director of the National Institute for Medical Research, who succeeded in that office a Nobel Prize winner in medicine, possessed no medical qualification and had no medical training. Sir Ernest asked the present composition of the Medical Research Council and whether there was adequate representation of clinical medicine on that body. Sir JOHN ANDERSON replied that the new director of the National Institute for Medical Research was a distinguished investigator in an important branch of medical science, who had already been head of a department in a medical school of the University of London. He was not medically qualified, but the clinical departments of the Medical Research Council were not comprised in the National Institute. The present members of the Medical Research Council were: Lord Balfour (chairman), Sir William Goodenough (treasurer), Sir Charles MacAndrew, Prof. T. R. Elliott, Sir Wilson Jameson, Prof. S. P. Bedson, Mr. E. Rock Carling, Prof. F. C. Bartlett, Prof. E. D. Adrian, Sir Henry Dale, and Prof. D. Keilin. The principal subjects represented by the 8 members appointed in respect of their scientific qualifications were clinical medicine, surgery, preventive medicine, pathology and bacteriology, pharmacology, physiology and neurology, biochemistry, and psychology. Sir John was satisfied that this provided a well-balanced representation of the different branches of medical science.

Rehabilitation in the Army

Introducing the Army Estimates on Feb. 25, Sir JAMES GRIGG said he did not mention the health of the troops because in that matter the Army's history for the past year had been a blank, to the immense credit of the Army medical and nursing services.

Sir THOMAS MOORE raised the question of the hospital treatment of the Home Guard officer; he was turned out of officers' convalescent hospitals. A document issued by the War Office on Oct. 13, 1942, said Home Guard officers must be treated as private soldiers and relegated to the nearest ordinary hospital. Mr. HENDERSON said it would not be consistent with the basis of the Home Guard if different treatment were given to Home Guard officers compared with other members.

Major NEVEN SPENCE stated that the chief worry of the serving soldier was the doctor's bill when there was sickness in his home. Sir James Grigg should arrange forthwith for free medical treatment of all dependants. It would be tremendously popular with young married soldiers.

Mr. ARTHUR HENDERSON spoke on rehabilitation carried out both in hospitals and at military convalescent depots. The first stage of remedial treatment was given in the physiotherapy department of the hospital. It consisted of massage, exercises, and radiant heat and ultraviolet-ray treatment. When hospital treatment was no longer necessary the patient was sent to a military convalescent depot and physical fitness was restored by graduated exercises and training. There were 13 military convalescent depots in the United Kingdom with 11,078 beds for soldiers. For rehabilitation of cases of neurosis a unit of 200 hospital beds and 600 convalescent beds had been established outside Birmingham. Success had attended the establishment of two centres for dealing with men with remediable defects such as curved spine or flat feet, and with men who were physically under-developed when they joined the Army. At one centre about 80% were up-graded to A1. It had been decided to establish four other centres.

Beveridge Report

During the resumed debate on the Beveridge report on Feb. 25 Lord ADDISON said that 23 years ago, when he was Minister of Health, Lord Dawson, with other medical men, reported to him upon an agreed scheme for the establishment of clinics, centres for early diagnosis, minor aids in the treatment of eyes and ears, and other services. That showed how slowly the country moved. A little had been done in that respect thanks to the energy and work of the medical profession, but if ever a subject were ripe for action it was this. He hoped the Government would instruct the Minister of Health and his colleague in Scotland to make progress with this part of the scheme. Lord RUSHCLIFFE considered that if the Beveridge report was put into the hands of a Government draftsman as it was, it would be outside his power to draft a Bill carrying it into effect. A universal health service was indissolubly bound up with the kind of scheme proposed by Sir William Beveridge, and health insurance was the core of the whole scheme. Until Parliament had ascertained what it was going to do with health, and how the health service could be fitted into the insurance proposals, it could not proceed further. Difficult and far-reaching questions between nurses, doctors, hospitals, and so on must be settled before they could begin to consider how to frame the legislation.

Lord SNELL said the Beveridge report, after a searching debate, emerged with the general approval of Parliament, of the Government, and of the nation. Between 80 and 90% of the report had been approved by the Government.

Venereal Diseases: Publicity Campaign

Mr. DAVID ADAMS inquired on Feb. 25 whether the propaganda campaign for the prevention and elimination of venereal disease would include a national appeal to all parents and guardians of children to instruct them in an elementary knowledge of sex and the natural functions of the body. Mr. BROWN said that at present he proposed to leave such action to the initiative of parents, but the Central Council for Health Education arranged sex education talks to parents and young people at the request of local authorities, local education authorities, and youth organizations. The campaign also included pamphlets addressed to adolescents distributed through local authorities and in other ways.

The Services

The M.C. has been awarded to Capts. S. M. P. Conway, D. Macrae, J. J. McCall, and P. Unwin, R.A.M.C., in recognition of gallant and distinguished services in the Middle East.

CASUALTIES IN THE MEDICAL SERVICES

Lieut. ROBIN GERALD SPICER, R.A.M.C., who was killed on active service last month, was born on Sept. 12, 1917, the youngest son of the late Mr. G. B. Spicer, C.B., and of Mrs. Spicer of Ardingly, Sussex. He received his professional education at the London Hospital, qualifying M.R.C.S., L.R.C.P. in 1942. Before entering the R.A.M.C. in Oct. last he held appointments at Warley Woods Hospital, Brentwood, and Addenbrooke's Hospital, Cambridge. He was married on Jan. 23 at St. Giles Cathedral, Edinburgh, to Joan Elizabeth, the younger daughter of the late Dr. Percy Stewart and of Mrs. Stewart of Edinburgh.

Capt. THOMAS PICTON MYLES, R.A.M.C., who died in India in Nov., 1942, was educated at the University of Cambridge and at St. Mary's Hospital, qualifying M.R.C.S., L.R.C.P. in 1936. He also took the M.B., B.Chir. degrees in 1937 and the D.O.M.S. of the English Royal Colleges in 1939. After holding house appointments at Sheffield Royal Infirmary and St. James Hospital, Balham, he entered the R.A.M.C. as lieut. in Sept., 1937, and was promoted capt. a little over a year later. He joined the B.M.A. in 1937.

Prisoners of War.—Fl. Lieut. R. F. Braithwaite, R.A.F.V.R., Wing Cmdr. C. W. Coffey, R.A.F., Squad. Ldr. J. A. MacCarthy, G.M., R.A.F. Fl. Lieut. N. J. W. Thompson, R.A.F.V.R.

Missing.—Lieut. J. G. Warren, R.A.M.C.

Universities and Colleges

UNIVERSITY OF OXFORD

An election of two members of the Board of the Faculty of Medicine will be held on June 9. The members elected will come into office on the first day of Michaelmas Term, 1943, and will hold office, the senior for two years and the junior for one year, from that day.

The general medical electorate consists of all Oxford graduates in medicine who are members of Convocation. The Board of the Faculty of Medicine includes two members elected by the general medical electorate who must be members of that body and of whom one at least must be a person engaged in teaching one or more of the clinical subjects of the Faculty.

Nominations of duly qualified candidates for election will be received by the Secretary of Faculties at the University Registry up to 10 a.m. on May 19. Each nomination must be signed by six members of the general medical electorate, and no candidate will be eligible whose nomination has not been received by that date.

In a Congregation held on Feb. 27 the following medical degrees were conferred:

B.M., B.CH.—J. M. Garvie, R. I. K. Elliott, D. G. T.-Hicks, J. C. Prestwich (in absence).

UNIVERSITY OF CAMBRIDGE

At a Congregation held on Feb. 26 the following medical and surgical degrees were conferred:

M.D.—A. G. Cross, R. H. A. Swain (by proxy), F. H. King (in person).
M.B., B.CHIR.—R. B. Meyer, G. M. Barrett, S. C. H. Hood, D. E. C. Whittome, P. N. Cunliffe, G. C. L. Roberts (all by proxy).

W. M. Beattie has been examined and approved for the degree of M.Chir.

Medical News

Sir Henry Dale, P.R.S., will deliver a series of lectures on "Chemistry in Modern Medicinal Treatment" at the Royal Institution, 21, Albemarle Street, W., on Tuesdays, March 16, 23, and 30 and April 6, at 3 p.m.

Sir Alfred Egerton, F.R.S., will give a discourse on "Warmth and Comfort Indoors" at the Royal Institution, 21, Albemarle Street, W., on Friday, March 19, at 5 p.m.

The lecture by Prof. H. Dingle (Professor of Natural Philosophy at the Imperial College of Science) on "Space and Time in Modern Physics" (postponed from Jan. 22 owing to the sudden illness of the lecturer) will now be delivered at the British Institute of Philosophy on Friday, March 19, at 5 p.m. Cards of admission may be obtained free of charge from the Director of Studies at University Hall.

A joint meeting of the Therapy Section of the Faculty of Radiologists with the British Institute of Radiology and the Faraday Society will be held at 32, Welbeck Street, W., on Friday, March 19, at 2 p.m., when there will be a discussion on "The Physical and Chemical Action of Radiations in Relation to their Biological Effects," to be opened by Drs. D. E. Lea, C. B. Allsopp, and J. S. Mitchell.

A meeting of the Middlesex County Medical Society will be held at North Middlesex County Hospital, Silver Street, Edmonton, N., on Wednesday, March 17, at 3 p.m., when clinical cases will be demonstrated and discussed. Visitors, especially members of the American and Canadian Forces, will be welcome.

A second conference on x-ray analysis, arranged by the Institute of Physics, will be held at Cambridge on April 9 and 10. The provisional programme includes a lecture on future developments in x-ray crystallography by Prof. J. D. Bernal, and discussions on quantitative treatment of powder photographs and the fine structure of x-ray diffraction. There will also be a report on the progress made in the preparation of an index to x-ray diffraction photographs. Further particulars may be obtained from the Secretary of the Institute of Physics, the University, Reading.

The 63rd annual meeting of the Mental After Care Association will be held at Burlington House, Piccadilly, London, W.1, on Tuesday, March 23, at 2.45 p.m.

A sessional meeting of the Royal Sanitary Institute will be held at 90, Buckingham Palace Road, S.W., on Tuesday, March 23, at 2.30 p.m., when a paper on "Mosquito Problems in Static Water Tanks" will be read by Mr. P. G. Shute, Adviser on Mosquito Control to the Ministry of Health.

The Ministry of Health has decided to effect certain changes in the salaries of whole-time officers of the E.M.S. As from Feb. 1 last officers in the £350 grade are to be placed on a range of salary from £350 to £450, those at £550 a year on a range between £550 and £650, and those at £800 a year on a range of £800 to £900, the amount in lieu of emoluments remaining at its present figure of £100.

Mr. George H. Macnab, honorary assistant surgeon, Westminster Hospital, is to be Dean of the hospital in succession to Sir Adolphe Abrahams.

The Socialist Medical Association, at a meeting held on Feb. 28, considered its policy in view of the Government's decisions on the Beveridge report. The following resolutions were unanimously adopted: "(1) The S.M.A. reiterates its welcome to the Beveridge report as an effort to deal with two factors in the causation of ill-health: the existence of poverty and the absence of an organized health service. It views with regret, therefore, the failure of the Government to implement the report. It wishes to emphasize that from the health point of view the provisions of the report, based as they are on subsistence and not on optimum dietary standards, cannot be lowered. The acceptance of Assumption B is warmly welcomed. We urge that 'the restoration of the sick is a duty of the State and the citizen, prior to any other consideration,' as suggested in the report, should be accepted as the keynote of the service which the Minister of Health is discussing. The efficiency of that service in the care of health, and not a doctrinaire belief in the necessity of preserving the voluntary hospital principle or any other existing service, must be the basis of a comprehensive National Medical Service. (2) This meeting of the S.M.A. believes that there should be one standard of medical service for all beneficiaries in a comprehensive National Medical Service, and that doctors employed by this service should not be permitted to accept private fees."

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* there was a further rise during the week in the notifications of measles, 907, but a drop in the other infectious diseases—scarlet fever 151, acute pneumonia 143, diphtheria 67, cerebrospinal fever 28, whooping-cough 15.

The largest variations from the totals of the previous week were: for scarlet fever a fall of 25 in London and a rise of 21 in Lancashire; for diphtheria a fall of 21 in Yorks West Riding and a rise of 14 in Lancashire; for whooping-cough a rise of 32 in Staffordshire and a fall of 29 in Yorks West Riding.

The fall in the notifications of acute pneumonia was the result of experience in the North. In the South, including London and the South-Eastern, South-Western, and South Midland counties, there was a slight rise from 323 to 345 cases. The largest decreases were those of Lancashire 55, Yorks West Riding 37, and Staffordshire 35.

The only feature of note in the returns for dysentery was an outbreak involving 13 persons in Lincolnshire, Caistor R.D.

The incidence of measles has mounted steadily during the past month, and the total of 18,215 cases reported during the week is the largest weekly total since notification of this disease began in the autumn of 1939. The biggest rises during the week were those of Durham 280, Sussex 210, Leicestershire 128, Surrey 127, Devonshire 115, Glamorganshire 138. In several counties decreases were recorded, the largest being Yorks North Riding 293, Middlesex 134, and Cheshire 106.

In *Scotland* the rise in the notifications of measles and of whooping-cough was due to the experience of Glasgow, with an increase of 44 for measles and 24 for whooping-cough.

In *Eire* the returns were dominated by a few areas: 29 of the 54 cases of whooping-cough and 16 of the 21 of measles were reported from the rural district of Enniscorthy, Co. Wexford. Half the notifications of diphtheria were from the cities of Dublin and Cork, and half the cases of scarlet fever from the city of Dublin and Balrothery R.D., Co. Dublin.

The Week Ending February 27

The notifications of infectious diseases in England and Wales during the week included the following: scarlet fever 1,934, whooping-cough 1,786, diphtheria 813, measles 20,082, acute pneumonia 1,373, cerebrospinal fever 103, dysentery 96, paratyphoid 6, typhoid 3. Influenza was the cause of 87 deaths in the great towns.

No. 7

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Feb. 20.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943 (a)	(b)	(c)	(d)	(e)	1942 (Corresponding Week (a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	96	9	27	5	3	187	11	34	—	9
Deaths		2	1				—	1		
Diphtheria	828	38	188	96	32	855	35	230	51	30
Deaths	25	2	5	7	1	32	3	8	3	1
Dysentery	89	7	38	—	—	137	12	49	—	—
Deaths		—	—	—	—		1	—	—	—
Encephalitis lethargica, acute	—	—	1	—	—	5	—	1	—	—
Deaths		—	—				—	—		
Erysipelas			62	6	2			51	11	2
Deaths		—	—				1	—		
Infective enteritis or diarrhoea under 2 years				14						
Deaths	45	7	10	11	4	30	4	6	9	2
Measles	18,215	1,182	363	21	52	1,996	151	148	95	12
Deaths	24	—	—	—	1	1	—	3	1	—
Ophthalmia neonatorum	87	2	17	1	3	85	7	18	4	—
Deaths										
Paratyphoid fever ..	7	—	1	1	—	6	1	3	—	
Deaths	—	—	—	—	—	1	—	—	—	
Pneumonia, influenzal*	1,399	73	30	5	8	996	41	17	3	3
Deaths (from influenza)	102	13	10	—	6	62	1	5	1	1
Pneumonia, primary ..			415	24				278	21	
Deaths		—		11	14		57		14	9
Polio-encephalitis, acute	—	—				1	—			
Deaths		—					—			
Poliomyelitis, acute ..	5	—	—	5	—	6	1	1	3	—
Deaths		—	—				—	—		
Puerperal fever ..	—	3	17	2	—	1	1	19	1	—
Deaths		—					—			
Puerperal pyrexia ..	146	9	21		—	181	8	22		2
Deaths										
Relapsing fever ..	—	—			—	—	—			—
Deaths										
Scarlet fever	1,922	134	300	41	47	1,159	46	193	40	19
Deaths	1	—	—	—	1	1	—	—	—	—
Small-pox	—	—	—		—	—	—	—		—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever† ..	6	2	3	7	—	3	—	7	8	1
Deaths	—	—	—	—	—	2	—			
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths			—	—	—			—	—	—
Whooping-cough ..	1,581	118	143	54	9	1,211	133	67	16	23
Deaths	16	4	1	3	—	8	2	—	—	—
Deaths (0–1 year) ..	434	47	77	59	22	390	44	80	43	19
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	5,200	752	742	265	165	5,522	773	804	235	129
Annual death rate (per 1,000 persons living)			16·7	17·4	‡			18·1	15·7	‡
Live births	6,386	780	910	342	289	5,643	600	798	311	223
Annual rate per 1,000 persons living ..			18·6	22·5	‡			16·5	20·8	‡
Stillbirths	231	19	40			239	32	46		
Rate per 1,000 total births (including stillborn)			42					55		

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes paratyphoid A and B for Northern Ireland.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

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ANY QUESTIONS?

Cramp in Arteriosclerosis

Q.—*An elderly male patient suffers severely almost every night with cramp in the leg muscles. For a time relief was obtained from the suggestion given in an earlier number of the* JOURNAL—*to pinch firmly the nearest tendon. Is anything likely to help this sudden and distressing symptom? The man is an arteriosclerotic with nephritis and asthma.*

A.—The complicated clinical picture makes a simple answer difficult. Bathing the legs in hot saline (1 teaspoon to the pint) for 15 minutes before retiring may help. Nicotinic acid, 50 mg. daily, is also worth trying.

Treatment of Dysmenorrhoea

Q.—*Is there any really effective cure for dysmenorrhoea? I have several fairly severe cases. In the past some of my patients have been treated by dilatation of the cervix—usually with disappointing results. Remedial exercises have relieved others; but there seems to be a type of case which is not relieved by any treatment except opiates, which are undesirable.*

A.—Dysmenorrhoea is a symptom and not a disease. For this reason no one method can be effective in all cases and only a minority will respond to dilatation of the cervix. When pain is hypogastric in site, begins with the onset of the menstrual flow, and is associated with a moderate loss and either acute anteflexion or retroflexion of the uterus, the response to dilatation is likely to be satisfactory. If the dysmenorrhoea occurs shortly after puberty, is hypogastric in site, and is associated with a poorly developed uterus and scanty flow, intermittent oestrogen therapy is the most hopeful line of treatment. Stilboestrol can be used in doses of 1 mg. for 14 days, beginning as soon as the period ends. It should be continued after subsequent periods for 3 months or longer. When there is no evidence of genital hypofunction good results may be obtained by the injection of adrenaline in oil with the onset of pain, or by the combination of dilatation of the cervix with injection of the paracervical plexus with 80% alcohol. This should not be done by the occasional operator. Acquired dysmenorrhoea beginning in later life is usually an indication of pelvic inflammation, congestion, or endometriosis. The pain is likely to be in the iliac fossae or back, indicating adnexal disease. The subject is not easy, and good results can be obtained only if cases are carefully selected and appropriately treated. In all, attention to personal hygiene is of paramount importance.

Morphine and Shock

Q.—*Does the injection of morphine increase or lessen shock after bomb injuries?*

A.—The main action of morphine is to decrease the perception of pain; the next most important effect is its depressant action on the respiratory centre. Its action in "shock" depends on the dosage and route of administration, as well as on what is meant by this abused and almost meaningless term.

If pain is severe and just enough morphine be given to relieve it (gr. 1/4 or 1/2 subcutaneously), this will not adversely affect any peripheral circulatory failure that may be present due to decreased blood volume from haemorrhage or plasma loss—that is, in relation to the patient as a whole it will be beneficial; but will not take the place of the transfusion of blood or plasma which is essential to replace that lost. If a much larger dose be given, and especially if given in the later stages of peripheral circulatory failure, when there is anoxia, it may be harmful because of its depressant effect on the respiratory centre. The indiscriminate use of morphine for "shock," which in most cases so diagnosed during a blitz is largely fright, is to be deplored; *it should be used to relieve pain.*

The route of administration is important. With a severe degree of peripheral vasoconstriction uptake from subcutaneous tissue is slow, and it is better given intramuscularly, or by placing two 1/4-gr. tablets beneath the tongue, or by giving gr. 1/6 diluted to 1 or 2 c.cm. with saline intravenously.

Too Much Iron?

Q.—*Is it possible to give too much iron, especially to children? And if so, what are the symptoms?*

A.—The only ill effect of excessive dosage of iron which appears to be at all common is the formation of intestinal concretions with consequent obstruction of the bowel. In children there is the special risk of precipitation of phosphorus as insoluble ferric phosphate in the intestine and consequent liability to rickets. Iron encephalopathy with convulsions has been described, but it is generally believed to be extremely rare. Nevertheless, it seems unwise to administer unnecessarily large doses of iron, and it is a growing practice to give ferrous salts for routine therapy in pharmacopoeial dosage only, and to devote special individual attention to cases in which this dosage seems inadequate.

INCOME TAX

Cessation of Appointment

C.'s appointment and salary ceased at the end of April, 1942. Tax had been deducted from the payments made to him, but the collector is now claiming a sum of £100 as not having been included in the deductions.

*** The tax deducted in the year ended Oct. 31, 1941, was that due for the financial year ended April 5, 1941, and the tax deducted from Nov. 1, 1941, to the end of April, 1942, say £x, was in respect of the tax for the year ended April 5, 1942. C. is now liable to account for the excess of the full tax for the latter year over £x, and any liability in respect of the amount earned between April 5, 1942, and the date of cessation.

Depreciation of Car

"A. B. C." used two cars up to May 1, 1942, on which date one of the cars was left unlicensed. Can he claim the depreciation allowance on that car? Also, if he were to sell the car for £450, which would exceed the written-down value, and buy another car for £900, would he be entitled to the allowance on £900?

*** The allowance provided is for depreciation by reason of "wear and tear," and no allowance is therefore due for the period when a car is unlicensed and out of use. The answer to the further question is that in such circumstances an allowance would be due based on the cost price of £900.

LETTERS, NOTES, ETC.

Liq. Ferri Perchlor. for Sore Throat

Dr. RALPH JONES (London, W.11) writes: I used frequently until the introduction of the sulphonamides liq. ferri perchlor. (with or without pot. chlor.) for sore throats. Lately I had three patients—one adult and two children—who could not take any form of sulphonamide without severe nausea and even vomiting. I gave these patients liq. ferri perchlor. (alone), and they cleared up very quickly. I did not take a swab of the adult patient's throat, but I did of those of the children, and in each case haemolytic streptococci were found. I should like to mention this for the benefit of those who may have forgotten or never tried this very old remedy.

Methaemoglobin in Normal Human Blood

Emeritus Prof. C. R. MARSHALL (Burley-in-Wharfedale) writes: In the report on haemoglobinometry by the subcommittee of the Committee on Traumatic Shock (Feb. 20, p. 209) the discovery of methaemoglobin in normal human blood is ascribed to Ammunsen in 1941. The first announcement of the presence of methaemoglobin in normal human blood was made by Wilfrid Marshall in the *Journal* of Jan. 16, 1932 (p. 98). He suggested that a balanced state exists, a minute concentration of methaemoglobin being in equilibrium with the oxyhaemoglobin of normal blood.

Medicine and Pharmacy in Other Countries

Dr. D. OCKMAN (Kearsley) writes: Dr. K. E. Barlow's letter (Feb. 6, p. 178) describing the pre-war chemist's shop in Denmark will be a revelation to those practitioners who, like myself, have not been able to observe at first hand the medical arrangements in other countries. Certainly it seems that what some people would regard as an unattainable medical Utopia for this country appears to be the ordinary normal state of affairs for Denmark. Perhaps our excessive insularity will be democratized by a period of Allied occupation of Europe, with intimate co-operation in the organization of medical relief, etc. In the meantime could we not have some regular information, like Dr. Barlow's, on the minutiae of medical arrangements in other countries as an aid to our own plannings?

BRITISH MEDICAL JOURNAL

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THE PRESENT STATUS OF AMINOACRIDINE COMPOUNDS (FLAVINES) AS SURFACE ANTISEPTICS

BY

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Infected war wounds again demand efficient chemotherapy as an adjunct to surgery; and while fulfilment of the high promise of penicillin waits on ample supplies, limitations in the performance of the sulphonamide series present themselves (Spooner, 1941; Francis, 1942; Mitchell and Buttle, 1942). The last-named workers have now returned to proflavine. Acriflavine and its precursor, proflavine (salt of 2:8-diaminoacridine), were introduced by us in 1917 as surface antiseptics because—they are powerfully bacteriostatic towards the important pyogenic organisms; serum does not diminish this action, although blood somewhat reduces it and pus greatly; toxicity for the body as a whole is not high; they are comparatively unirritating; and phagocytosis is little interfered with. It is appropriate to review briefly the present status of the aminoacridine group of drugs ("flavines") and possibilities of future improvements in them. Experimental results will be stressed, since patients should be subjected to new compounds only after their action has been closely studied in the laboratory. Further, experiments can be duplicated with the minimum of variation, which is difficult clinically.[*] When drugs with outstanding properties are discovered in the laboratory it remains for clinical skill to utilize them to full advantage.

Antiseptic Action

The diaminoacridine compounds proflavine and acriflavine are antiseptics whose action is intensified rather than reduced when the medium contains serum (Browning and Gilmour, 1913). This feature distinguishes them from all the powerful older antiseptics. When surgical experience after 1914 clamoured for improved treatment, these antiseptics were studied anew and proved highly potent. In serum, concentrations of 1:100,000 to 1:200,000 sterilize *Staphylococcus aureus* and typical *B. coli,* and in dilute peptone water 1:200,000 and 1:20,000 respectively. *Streptococcus pyogenes* is even more susceptible. Such high values are attained slowly, after 24 hours' contact—bacteriostatic action. However, brief contact with the drug, short of producing death, reduces the virulence of the organisms. *B. pyocyaneus, B. proteus,* and certain atypical *B. coli* may be highly resistant. Enhancement of antiseptic action is not displayed in a medium with only a low concentration of serum (10%). Although action is increased at a slightly alkaline *p*H, this may not entirely explain the serum effect. In defibrinated blood the killing rate is slowed (Rubbo *et al.,* 1942); nevertheless there is powerful antisepsis. Pus greatly reduces antiseptic action, although not invariably (Gay and Morrison, 1921).

Acriflavine of commerce usually contains some of its precursor, proflavine; but mixtures of the two in varying proportions differ little in antiseptic action (Berry, 1941). These dyes are strongly fixed by tissues and cotton fabrics, etc.: thus after 3 minutes' soaking in 100 c.cm. of acriflavine 1:1000 the fluid expressed from an average 5-g. gauze swab contains 1:1600 of the antiseptic; with 1:5000 the expressed fluid contains 1:9000 (Graham). In applying wet dressings allowance must be made for this.

Recently Albert *et al.* (1938) and Rubbo *et al.* (1942) have introduced potent new acridine antiseptics, especially 2:7-diaminoacridine and 5-aminoacridine, the latter having the great advantage of being non-staining.

Action on Cells and Tissues

Toxicity for the Animal as a Whole.—Toxicity of a drug often varies remarkably according to the mode of application; a striking illustration is the poisonous action of iron parenterally, as compared with its innocuousness in the alimentary tract. Amounts of antiseptics likely to be absorbed from wounds should not be harmful to the body as a whole. On subcutaneous injection into mice the "average lethal dose" of proflavine which causes the death of 50% of the animals in 2 to 3 days is 0.2 g. per kg. of body weight; of acriflavine, 0.05 g. (Albert *et al.,* 1937). Accordingly, even the latter is not "a substance of great toxicity to animal tissues." In the treatment of gonorrhoea intravenous doses of 0.1 g. thrice weekly (Jausion *et al.,* 1931)[†] or 10 doses each of 0.04 to 0.08 g. at 2- or 3-day intervals (Assinder) have been well tolerated. These amounts are equivalent to 40 to 100 c.cm. of 1:1000 solution; thus toxic damage in man from acriflavine or proflavine absorbed from wounds has not occurred. Skin idiosyncrasy has been met with, although very rarely (Young and Hawking). 2:7-diaminoacridine is less toxic for mice than proflavine, and 5-aminoacridine is intermediate between proflavine and acriflavine. At the site of injection of flavines into the *closed* tissues necrosis tends to occur with the higher concentrations, hence care should be exercised in this method of administration.

Epithelium.—Irritation of the rabbit's conjunctiva is very slight after 3 minutes' contact with 1:50 proflavine solution or 1:150 acriflavine; in contrast, brilliant green 1:1000 is irritating, which corresponds with its effect on the human urethral mucosa. By this test the suitability of drugs for the local treatment of gonorrhoea was estimated. However, since irritation of wound surfaces is not caused by brilliant green, such results again emphasize the importance of the mode of application.

Brain.—Russell and Falconer (1941) exposed part of a cerebral hemisphere in rabbits and applied to the surface for 10 minutes "lintine" soaked in a solution of antiseptic; simultaneously 0.1 c.cm. was injected into the cortex. 1:1000 solutions of proflavine and 2:7-diaminoacridine in isotonic saline buffered at a *p*H of 6.2 were practically harmless, like neutral isotonic saline, judging by histological examinations made 1 to 8 days later. On the other hand, acriflavine 1:1000 and euflavine 1:2000, like most other antiseptics, caused marked haemorrhage and necrosis. The effect *in vitro* of antiseptics on the respiration of brain tissue paralleled the above results (Manifold, 1941). The tolerance to compounds of proflavine type is clearly of high significance for brain surgery.

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[*] For a thorough discussion of the principles of investigating chemotherapeutic antiseptics, see Garrod, L. P., *Lancet,* 1940, 1, 798, 845.

[†] 97,000 injections were given to about 6,000 patients. In some cases the dose was 0.2 or 0.3 g.

Leucocytes —In the usual opsonic experiments *in vitro* the presence of 1 : 500 to 1 : 1000 acriflavine or proflavine reduced the phagocytosis of a suspension of pyogenic staphylococci or streptococci to about 50% of the control. 5-aminoacridine behaved similarly, while the 2 : 7 derivative was somewhat more inhibitory (Albert *et al.*, 1938; Rubbo *et al.*, 1942). With mercuric chloride, iodine, or crystal violet 1 : 3500 to 1 : 7000 led to a similar reduction. After 2 hours' contact with 1 : 10,000 of the acridine drugs the phagocytic power of the leucocytes was little affected; according to Fleming longer contact with higher dilutions caused damage. The tests of Welch *et al.* (1942) indicated that acriflavine is not highly toxic for leucocytes. Albert *et al.* (1938) found that polymorphonuclear leucocytes after contact with 1 : 2000 proflavine or acriflavine for 90 minutes at 38° C. were still moderately motile, although stained bright yellow. But Abraham *et al.* (1941) recorded rapid high toxicity with proflavine. Bond (1917) had shown previously that, as measured by the iodophil reaction, leucocytes in granulation tissue were not seriously injured by contact with preparations containing 1 : 1000 acriflavine. Fleming concluded that even a momentary application of flavine 1 : 1000 to the leucocytes sufficed to destroy their bactericidal power. However, Gay and Morrison's observations on mixtures of acriflavine, virulent streptococci, specific antiserum (heated), and leucocytes showed that (*a*) low concentrations of the drug (1 : 128,000) produced sterilization, and (*b*) in its absence sterilization did not occur even when fresh normal serum (alexin) was added also. These extreme divergencies suggest that the workers' methods decide their results *in vitro*.

Tissue Culture.—According to Mueller, Hata, Wolff, and others, proflavine, acriflavine, and certain related compounds are distinguished by inhibiting streptococci in concentrations which are the same as or less than those damaging the tissues. On the other hand, Jacoby, Medawar, and Willmer (1941) found proflavine highly toxic for fibroblasts, macrophages, etc. Here again gross discrepancies appear. Since "culture" conditions represent a *tour de force* for animal cells rather than a normal state, comparisons reflecting adversely on the behaviour of cells in contrast to bacteria probably have little applicability *in vivo*. There are pathologists expert in tissue culture technique who consider that meanwhile this is too deeply involved in difficult problems of its own to be able to offer at the best more than a partial contribution to the solution of others.

Granulation Tissue.—I am indebted to Prof. D. F. Cappell and Dr. H. E. Hutchison (Pathology Department, St. Andrews University) for unpublished observations on absorption from treated wound surfaces. Flask-shaped wounds were made in the skin and subcutaneous tissues of rats by a special method; into these were introduced gauze and the solutions to be tested. Following the application of 1:1000 proflavine or acriflavine several times daily, the wound surface failed to develop impermeability to tetanus toxin, which occurs in untreated wounds usually within a week. Similarly, granulating wounds which had acquired impermeability became permeable again after treatment for some days. There was no difference in action between the two drugs under these conditions. On histological examination scantiness or alteration of the granulation tissue lining was a feature of the permeable wounds. But generalizations regarding permeability to toxins are not possible, because it was found that while newly inflicted wounds were permeable to the toxin of *Cl. oedematiens*, a state of impermeability set in after 18 hours; and this condition was not affected by the antiseptics. Further, in such experiments the anti-infective property of the drugs was intentionally excluded by using preformed toxins. Actually, these treated wounds were kept practically free from pyogenic infection, which occurred conspicuously in the untreated controls.

Chemotherapy of Recent Infections

Inoculation of recent wounds in guinea-pigs with virulent *B. diphtheriae* or in mice with virulent streptococci, or intraperitoneal inoculation of the latter, affords a most valuable test object. Failure to devitalize the organisms in each case quickly leads to death of the hosts. With *B. diphtheriae* brief washing of the infected wound with acriflavine solution (1 : 100 to 1 : 2500) 1 to 2 hours after inoculation regularly saved the animal's life. Washing with isotonic or 5% saline failed (13 acute deaths out of 14 animals), as usually also did treatment with carbolic acid 1:20 to 1:100 or bipp. Successful results with aminoacridine compounds have been repeatedly obtained in recent wounds of mice inoculated with streptococci. So, too, after intraperitoneal inoculation one intraperitoneal injection of the antiseptic after an hour's interval saved the life of 60% (Browning *et al.*, 1931). It is noteworthy that drug treatment of wounds infected with streptococci may succeed although excision fails to prevent general infection. An important fact is that a dose of the antiseptic sufficient to save the animal's life may, in the same concentration, take some hours to kill the streptococci *in vitro*. Thus the therapeutic action is clearly a co-operative effect—the defensive powers of the host disposing finally of organisms whose virulence has been reduced first by the drug. This reduction in virulence would explain clinically successful suture of treated wounds whose surfaces still harbour many organisms. These drugs also are effective in some infections with anaerobes. Recently McIntosh and Selbie (1942) inoculated mice intramuscularly with at least 100 times the fatal dose of *Cl. welchii* and then treated the site by injecting a drug. A well-tolerated dose of proflavine (0.5 mg.) was somewhat more efficacious in preventing death than 80 times as much sulphanilamide or sulphathiazole. Both classes of compounds acted when injected after an interval sufficient for some penetration of the organisms into the tissues, whereas zinc peroxide failed under the latter conditions. Hawking (1941) likewise found proflavine effective in guinea-pigs. Accordingly, *so far as the aminoacridine antiseptics are concerned, an unequivocal "yes" can be given to the question, "Is it possible, by the use of an antiseptic, to destroy an infection in a freshly inflicted wound before the bacteria have had time to grow out?"*

There is no evidence that subcutaneous and muscular tissues of animals behave so differently from those of the human that what holds true in principle of the former will fail in the latter. Successful prophylactic treatment of recent wounds in man with acriflavine or proflavine has often been recorded (Drummond and McNee; Colledge *et al.*, 1917). Two criticisms have been expressed. First, the results could be obtained equally by débridement alone. In view of the experimental work this objection falls. Secondly, "Is it justifiable for the surgical pessimist who distrusts his own cleanliness to use antiseptics in an attempt to cover up his own deficiencies?" This taunt ignores the fact that even surgical wounds are sites of diminished resistance and so are liable to infection—e.g., from the circulation. The development of spontaneous metastatic gas gangrene affords clear evidence of this route of infection (Learmonth, 1924). *Suitable antiseptics should be used prophylactically for all wounds*, simply because no one can foretell when, without their aid, even a minor trauma will result in major sepsis. Charteris's work with the oily preparation of proflavine oleate for avoidance of sepsis in radium therapy is another outstanding surgical application.

Treatment of Established Local Sepsis

Suppurating wounds as met with in man are not readily imitated in laboratory animals. Consequently one must examine well-controlled clinical evidence. For example, in Carslaw's case (No. 15), suffering from extensive bomb wounds of the face, great loss of tissue, and much suppuration in spite of treatment successively with iodoform gauze and moist eusol dressing, resort to flavine was followed in two days by great improvement in the general state, the inflammatory condition of the skin and soft tissues rapidly diminishing and large sloughs separating. "This case illustrates the rapidity with which flavine can clean up a foul lacerated wound which was not yielding to other methods of treatment." Graham recorded an unexceptionable experiment: three fairly severe burns of similar size affecting the hand and forearm—the whole depth of the epithelium being destroyed—were treated within an hour with acriflavine. After two days the dressing on the least severe burn was changed to wet boric acid lint, whereupon, unlike the others, it became painful and suppurated; return to acriflavine restored the good progress.

Carslaw's general method in war wounds was to secure an "open" wound with adequate drainage, any accessible foreign body being removed. Strips of gauze well soaked in 1:1000 flavine were lightly packed into the depths of the wound, which was then covered with folds of gauze similarly soaked, the whole being covered with waterproof. The folds of gauze were changed once or twice a day, but the packing was not as a rule removed until 48 hours after introduction. Bashford and his co-workers, while emphasizing defects of treatment with these antiseptics, nevertheless stated that "pus was generally very small in amount, and even where it had been present it usually rapidly diminished in quantity. . . . Any spreading infection that already existed generally subsided quickly. . . . The patient is apparently protected in some way from the absorption of toxic products"—surely no mean achievement. Recently in the Middle East Mitchell and Buttle have dealt with "wounded men who, either in spite of chemotherapy or more probably owing to its inadequate application, arrive at the base with their wounds in a grossly infected and purulent condition. In these cases the sulphanilamide drugs can do no more than prevent the spread of infection and they have comparatively little influence on the course of the local suppuration." The wounds were commonly deep or extensive, often involving bones or joints. The novel procedure of applying proflavine in dry powder form was adopted, it being spread over the whole surface of extensive wounds or cavities—never exceeding 2 g. in any case, and usually only about 0.5 g. or less, depending on the size of the lesion. It was never employed on more than two or three consecutive occasions, at intervals of 4 to 28 days. Most patients found the dressing painless. Improvement followed proflavine irrespective of the type of infective organism; and good results might be attained in cases which had failed to respond to one of the sulphonamide series. No other drug was as effective as proflavine in controlling or eliminating staphylococcal infection. Oily preparations of proflavine oleate, originally used by Berkeley and Bonney for dressing large raw surfaces, are also valuable—e.g., on septic sites preparatory to radium therapy (Charteris, 1937).

Influence on Healing

After 4 to 7 days' treatment a yellowish fibrinous membrane often covered the wounds (Carslaw; Drummond and McNee; Colledge *et al.*). At this stage the flavines had fulfilled their therapeutic purpose in preventing or overcoming sepsis, and a change of treatment was indicated—e.g., on using eusol the pellicle disappeared, while granulation and growth of epithelium proceeded (Carslaw). Bashford and his collaborators, working at the Surgical Observation Hut organized by Surg. Gen. Sir George Makins, picked for trial with the flavines 50 patients of whom they said "almost all had been treated previously at the front by the Carrel-Dakin method within 24 hours of being wounded, and, in the majority of instances, very efficiently." The reason for this selection of cases already effectively treated by another method is hard to explain. However, despite the beneficial effects mentioned above, they chiefly dwelt on the delay in all the processes of repair; later, this work was quoted extensively by Makins (1922) in the *Official History of the War.* Pilcher and Hull, writing at the time from their own experience of over 5,000 cases in military hospitals, made the following comment: "For ease of preparation and application, rapidity when dealing with large numbers of cases, complete absence of surgical fidget, early cleaning of the wounds, and abatement of constitutional reaction to absorption, flavine is an admirable application under all circumstances, but especially where surgeons are few, time is short, and wounds are many." The factors in treatment which may retard healing have not yet been fully defined. Bennett did not experience it in over 600 cases. In tissues from this series Blacklock found mitoses of various cell types at levels of 1/50 to 1/5 mm. below the actual growing surface. The margin between the optimum and too high a concentration of the drug due to frequent renewal or evaporation may be narrow. A modified treatment consisting of less frequent applications and weaker solutions—1 : 5000 or under—in later stages has not been widely enough tried. Mitchell and Buttle attributed possible interference with healing to proflavine powder only once in 80 cases.

Conclusions

1. Aminoacridine ("flavine") compounds were introduced as surface chemotherapeutic agents for wounds because they combined outstanding antiseptic properties with relatively low toxicity, as demonstrated by simple methods *in vivo* and *in vitro*. Later tests *in vitro* have yielded discordant results *inter se*, which throw doubt on their value as a practical means of selecting drugs for such purposes.

2. Proflavine is the precursor of acriflavine, and so cheaper. Also, while equally antiseptic, proflavine is the less toxic generally, and especially is very little harmful to brain tissue. Recently introduced members of the series may prove even more suitable for therapy.

3. It has been shown under experimental conditions that the flavines when applied to the tissues at the site of inoculation are highly effective in preventing the development of infection with various organisms, including streptococci and certain gas-gangrene anaerobes.

4. Also, there is good clinical evidence that they can control established suppuration in wounds. This may occur where drugs of the sulphonamide group have failed.

5. Retardation of granulation and healing tends to follow continued use of the flavines, so that it may be advantageous to resort to other treatment later. But the point important practically is the capacity of the flavines to prevent or control infection. This so-called "pickling" or "cold-storage" effect has enabled wounded men to be transported without re-dressing, in the fair likelihood that their wounds would remain *in statu quo ante* as regards infection.

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HERNIA THROUGH THE FORAMEN OF WINSLOW, EMERGING THROUGH THE GASTRO-HEPATIC OMENTUM

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Hernia through the foramen of Winslow into the lesser sac is one of the more uncommon abdominal surgical conditions, and the re-entry of the herniated bowel back into the general abdominal cavity through the lesser omentum appears to be still more rare. The transverse colon probably acts as a barrier to herniation. The anterior and posterior boundaries of the foramen during life are in direct contact, and the opening is a slit-like passage (Cunningham's *Anatomy*, 7th ed., p. 576).

Moynihan and Dobson (1906) state that herniation through this foramen requires one of the following conditions: (*a*) a common mesentery of the whole intestine; (*b*) absence of secondary fusion of the ascending portion of the colon; (*c*) an abnormally large foramen; (*d*) abnormal length of mesentery and consequently marked mobility of the intestine. These writers call attention to the unlikelihood of a hernia into the lesser sac because of the normal anatomical conditions at the potential "foramen."

Since 1910 29 cases of internal herniae have been seen at the Mayo Clinic; of these one occurred into the lesser sac (Mayo *et al.*, 1940). Silverstone (1939) describes a case. He states that it is unlikely to occur in a normal abdomen. The condition is more common in men than in women—28 of the former to 11 of the latter. In his view there are two clinical groups: acute, with intestinal obstruction; chronic, with digestive symptoms for years. The small intestine is twice as often involved as the large bowel, and the site of strangulation appears to be at the margins of the foramen, which in Silverstone's case was enlarged and admitted the index and middle fingers at the time of operation. It was found possible to reduce the hernia, but the patient died a few hours later. In Mitchell's (1938) case the caecum, appendix, and 9 in. of the lower ileum had passed into the lesser sac in a male infant of 15 months. After reduction of the bowel at operation the foramen admitted the forefinger with difficulty. In Barrington-Ward's (1937) series, in the case reported by Haw the involved portion of bowel (lower part of ileum, caecum, and appendix) could not even be reduced at the necropsy till the gastro-hepatic omentum had been divided.

Cases in the Literature

Four cases occur in the literature which seem to resemble the one described below. The first is that reported by Treves (1888), in which a coil of colon had entered the foramen and forced its way through the lesser omentum so that the vermiform appendix was actually lying on the anterior aspect of the lesser curvature of the stomach, close to the oesophagus. In Copenhaver's (1923) case the caecum and ascending colon had a long free mesentery: after entering the lesser sac, rupture had occurred through the anterior leaf of the lesser omentum and they were hanging down in front of the stomach. It was found impossible to reduce the hernia, but later a fatal volvulus developed. In that of Rock Carling and Smith (1925) the patient had been perfectly well the previous day. The following morning he felt rather sick, and towards night there was severe pain. This pain was extreme, and sitting up in bed tended to give some slight relief. He was admitted to hospital on the third day, when a leaking gastric ulcer was diagnosed. The pulse was 68 and the temperature 97° F. There was some tenderness in the upper abdomen, but this was not pronounced. At operation a loop of small bowel was seen to have herniated through the foramen of Winslow and then re-entered the general abdominal cavity through a gap in the gastro-hepatic omentum. The gut was reduced and the rent in the omentum repaired. The bowel involved was the middle 20 in. of the ileum. The mesentery was unduly long. Post-operative recovery was complete. In Schmilinsky's (1919) case a similar condition was found, and this patient was operated on successfully. Some similar features were also observed by Blandin (1834), but in this case the gut after entering the lesser sac had left it and then re-entered the lesser sac through the transverse mesocolon.

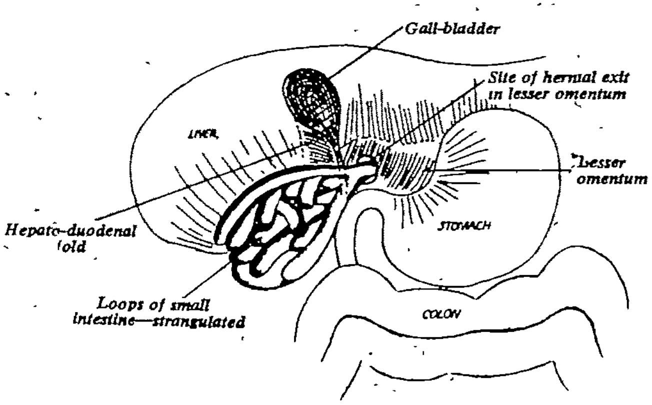
This type of hernia is accompanied by a considerable mortality. In Rendle Short's (1924) series of retroperitoneal herniae 24 were through the foramen of Winslow; 6 men were not operated on, but died of strangulation; 11 died in spite of operation; and 7 survived. Souttar (1940) states that it is fortunate that internal herniae are rare, since if strangulation does occur the condition is almost invariably fatal.

A fifth case of this type of herniation is now placed on record.

History of the Present Case

A young guardsman aged 26 was admitted to a Service hospital with a history of dull, aching, non-radiating pain in the upper abdomen of some eight hours' duration. About two hours after the onset he had vomited twice; this vomit consisted of food, and no blood had been seen. No constipation was present, his bowels having been opened the previous day. A few similar attacks had occurred in the past. On admission the pulse was 64, temperature 98° F., and respirations 21; the blood pressure was 120/96. Abdominal examination revealed some tenderness and resistance in the upper part, but the respiratory excursions were maintained. Liver dullness appeared normal. The other systems showed no abnormality. A few hours later his general condition worsened: generalized abdominal rigidity and tenderness set in; the liver dullness disappeared; the pulse, after falling, increased considerably; and the systolic blood pressure dropped to 90. A transfusion with plasma was given, and laparotomy was performed under local anaesthesia followed by oxygen and ether. The abdomen contained much blood-stained fluid and, in the right upper quadrant below the liver, a large mass of engorged haemorrhagic small bowel. The bowel was seen to pass through the foramen of Winslow, which easily admitted one finger. The patient collapsed on the operating table, and attempts at resuscitation failed.

At the post-mortem examination the abdomen was found extremely distended. The heart was normal apart from some terminal dilatation, the mitral valve taking three fingers and the tricuspid four; the aortic and pulmonary valves were also normal. The lungs showed some congestion. An increased amount of thymus tissue was present. The abdominal cavity contained much blood-stained fluid, and lying under the liver were loops of strangulated small intestine which had passed through the foramen of Winslow and then re-entered the general abdominal cavity through an opening in the lesser omentum (see Fig.). The site of strangulation was seen to be at the opening in the omentum and not at the margins of the foramen. The bowel involved in the strangulation was the lower ileum except the terminal 12 in., and it measured 6 ft. The proximal portion of the bowel was much distended and congested. The stomach was ballooned out, and contained 1¼ pints of fluid and undigested food. Liver, spleen, kidney, suprarenals, urinary bladder, and prostate showed nothing of note, and the brain was normal.


Gall-bladder
Site of hernial exit in lesser omentum
LIVER
Lesser omentum
STOMACH
Hepato-duodenal fold
Loops of small intestine—strangulated
COLON

The strangulated portion of bowel could only be reduced with difficulty, but it was not necessary to divide the lesser omentum. After reduction the mesentery was seen to be unduly long. The foramen of Winslow was dilated, taking two fingers easily; no rounded anterior margin was present, but there was a dense band of fibrous tissue stretching between the gall-bladder and the first part of the duodenum; this appeared to blend with the lesser omentum (see Fig.). The bile duct, portal vein, and hepatic artery were present in the lesser omentum, occupying a position midway between the free margin of the fibrous band and the right lateral wall of the artificial opening in the lesser omentum. The breadth of the band of fibrous tissue from the cystic duct to the free margin measured 4 cm. The further opening into the lesser sac was immediately beneath the opening in the lesser omentum. The artificial opening in the omentum measured 1.5 cm. in length by 1.25 cm. in breadth. No fluid, blood adhesion, or other abnormality was seen in the lesser sac.

Discussion

The slow pulse rate was rather unexpected. The condition of the patient on admission was undoubtedly serious, and yet the rate was only 64, with a further drop later. It did not increase till a few hours before death. A slow pulse rate was also present in Rendle Short's case. This degree of bradycardia may clinically be misleading, and is possibly due to the close association between the nerve supply of the site of the artificial opening in the lesser omentum and the innervation of the heart. The site of the strangulated coils in the present case varies slightly from that of the cases described by others. In our case no coils were overlying the stomach, the amount of intestine was greater, and there was the extreme gastric distension which would push the strangulated bowel towards the right lobe of the liver.

The herniation itself presents interesting features which merit consideration—the opening in the lesser omentum and the accessory band of tissue between the gall-bladder and the duodenum. Prof. Blair has given us his opinion of these. The aperture in the lesser omentum is not likely to be congenital; it is more likely to be "acquired." He has not seen such a congenital defect, nor does he know of any developmental reason why it should occur. In the dissecting-room the lesser omentum is of so delicate a nature that one can imagine it would be readily torn by any hernia spreading within that part of the lesser sac. Indeed, in the anatomy room the lesser omentum is often torn through at the first attempt to pull down the stomach a little in order to explore the region between it and the liver. The band of tissue between the gall-bladder and the duodenum was an unusually well-developed example of the hepato-duodenal fold, which is not infrequently present to a lesser degree and represents a thinned-out part of the lower free border of the ventral mesentery of the fore-gut, which amounts to a prolongation, rather further to the right than usual, of the lesser omentum. The presence of this cystico-duodenal fold of membrane would produce a funnel-shaped approach to the foramen of Winslow and considerably assist an unusually mobile loop of bowel towards the foramen and into the lesser sac. This appears to us a considered and well-founded explanation of the appearances found post mortem.

The appearance of the foramen at the necropsy led one to suspect that perhaps a loop of bowel had been herniated for some time. Such a condition has been described by Schwalbe (1904) in which strangulation did not occur.

In comparison with herniae into the lesser sac, herniation into paraduodenal fossae is relatively common and the literature on such is now quite voluminous.

Summary

A fifth case of this unusual type of herniation is now described. Three abnormal features were present in the abdominal cavity: (1) a well-developed hepato-duodenal fold which had produced a funnel-shaped approach to the lesser sac; (2) a dilated foramen of Winslow; (3) an undue length of mesentery of the small bowel.

We consider that the first and third factors, in association with the normal peristaltic movements, could produce a dilatation of the foramen and so give rise more readily to the herniation which had ruptured through the lesser omentum.

It is a pleasure to us to express our gratitude to Prof. D. Blair, Regius Professor of Anatomy, University of Glasgow, for his co-operation and help, and to Col. M. J. Williamson, *M.C.*, late R.A.M.C., for permission to record this case.

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Hospitals in the Midlands (especially those in Birmingham), children in Yugoslavia and Greece, and youth organizations are among the beneficiaries under the will of Sir Charles Hyde. He has left £10,000 for the benefit of children in Yugoslavia and Greece, and £2,000 each to the Royal Cripples Hospital, Birmingham, and the Coventry and Warwickshire Hospital. A number of hospitals in Birmingham and Worcester will receive £1,000 each, and £3,000 is for the Ophthalmic Hospital at Jerusalem. The Senate of Birmingham University is to receive £20,000 for enlargement of the students' union, and Clifton College a similar sum for scholarships. The residue of the estate is to be divided equally between the University of Birmingham, Queen Elizabeth Hospital, Birmingham, King George's Jubilee Trust, and Dr. Barnardo's Homes.

USE OF METHEDRINE, A NEW BLOOD-PRESSURE-RAISING DRUG, IN SURGICAL OPERATIONS

REPORT OF A CLINICAL STUDY

BY

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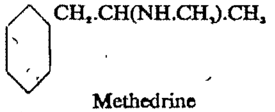
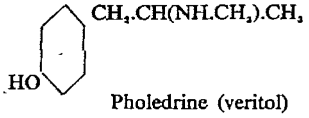
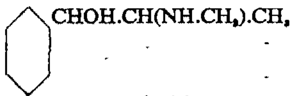
During the last ten years one of us (H. D.) has studied the use of pressor agents to counteract the serious falls of blood pressure unaccompanied by severe reduction of blood volume that often occur during major operations. The pressor effects of adrenaline, ephedrine, pholedrine (veritol), and neosynephrin have been recorded, but none of these drugs is effective for more than 30 to 45 minutes, and repeated injections are often necessary. S-methylisothiourea has recently been reported on (Smirk and McGeorge, 1942), but has the disadvantage that it must be injected intravenously. In a search for an effective pressor agent with a sustained action that could be administered by any route under average clinical conditions we examined methedrine.* This is a sympathomimetic drug, and was chosen because of its relation to pholedrine.



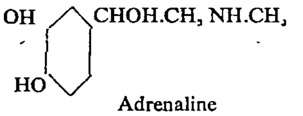
Methedrine



Pholedrine (veritol)



Ephedrine



Adrenaline

Conditions of Use

Blood pressures and pulse rates were recorded every three to five minutes in 130 operations, many of them major, and in 54 of these the systolic pressure or the pulse pressure dropped sufficiently for the patient to need a pressor agent. Methedrine was used solely in these cases—no other agents or stimulants were given—and was administered when the systolic pressure fell to and remained at 80 mm. or less, or when the pulse pressure was 10 mm. or less; 20 minutes was allowed first for natural recovery. According to Hewer (1943) the systolic pressure during operation should not be allowed to drop below 80 mm. for more than 20 minutes. Methedrine was administered only when the surgeon, anaesthetist, and recorder agreed that the patient's condition required it. If the systolic pressure fell to 60 mm. or less during the operation methedrine was usually given after a few minutes, as such low levels were considered inadequate for the vital processes to be sustained, and if prolonged might lead to surgical shock (McMichael, 1942). The low blood pressure often resulting from spinal anaesthesia is regarded by some as a type of secondary shock (Schuberth, 1936). We found that spontaneous recovery from blood pressures as low as 60 mm. did not occur within 1½ hours.

We wish to point out the necessity for the routine determination of blood pressures in all major operations, irrespective of risk, to anticipate and prevent surgical shock. The behaviour of the patient cannot be predicted. We have seen elderly poor-risk patients survive a splenectomy or a complicated gastric resection with hardly any fall in blood pressure, yet young and moderately fit patients have shown a pronounced fall in comparatively minor operations.

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* "Methedrine" is the Burroughs Wellcome and Co. trade mark for N-methylamphetamine, the hydrochloride of which was used in this study. The Continental name is pervitin.

Anaesthetics Used

The anaesthetics employed included (*a*) *spinal,* 1 in 1,500 or 1 in 2,000 nupercaine, alone or supplemented by general anaesthetics; local procaine or amethocaine, or pentothal; (*b*) *general anaesthetics* such as gas and oxygen, gas–oxygen–ether, open ether, and trichlorethylene; (*c*) *local anaesthetics* such as procaine or amethocaine, alone or supplemented with the general anaesthetics mentioned above or with pentothal; (*d*) *intravenous anaesthesia* with pentothal, either alone or with a general anaesthetic.

A fall in blood pressure usually, although not always, occurs after giving a spinal anaesthetic. Pressor agents are often given prophylactically to prevent this, but we preferred to correct the fall if and when it occurred, after allowing 20 minutes for spontaneous recovery, although this does not normally result until sensation is returning (Koster, 1942). If the spinal anaesthetic does not bring about a fall in blood pressure and a pressor agent is administered, the resulting rise in blood pressure causes increased haemorrhage from the operation wound.

Administration and Dosage

Methedrine is effective subcutaneously, intramuscularly, and intravenously. In cases with a profound fall in blood pressure the best results were obtained with a combination of the intravenous and intramuscular routes, the intravenous injection producing an almost instant rise, while the intramuscular injection acted more slowly (in 2 to 10 minutes), but maintained the blood pressure for a considerable time after the intravenous dose had ceased to act. Patients with a low blood pressure often had collapsed veins. In such cases we did not lose time trying to enter them, but gave the methedrine intramuscularly.

A total of 68 injections was given intramuscularly and 17 intravenously; of the latter 14 were given simultaneously with intramuscular injections.

Single Doses.—The dose for a single intramuscular injection of methedrine varied from 15 to 30 mg., and for a single intravenous injection from 10 to 20 mg. The dose depended upon the patient's condition. In 44 out of 54 cases studied—i.e., 81%—a single injection was sufficient to restore the blood pressure to normal limits. In *minor operations* (e.g., for hernia or varicose veins), if the systolic pressure dropped to 90 mm. and the pulse pressure to 15 to 10 mm. or less, an intramuscular injection of from 15 to 20 mg. was given; this was increased to 25 mg. if the systolic pressure fell to 80 mm. or below. Intravenous injection is not necessary in these cases. In *major operations* in which the blood pressure fell below 80 mm. the dosage of methedrine was from 25 to 30 mg., given either intramuscularly in a single dose or as a combined injection of from 10 to 15 mg. intravenously and 15 to 20 mg. intramuscularly. When the systolic blood pressure fell to 60 to 40 mm. or less, from 15 to 20 mg. of methedrine was given intramuscularly and 15 to 20 mg. intravenously. Only two patients received the maximum single dose of 20 mg. i.m. plus 20 mg. i.v. Patients with a low blood pressure need larger doses. We would emphasize that each case must be critically evaluated in the light of the patient's condition, age, and physique as well as the blood pressure and respiration.

Multiple Injections.—In 10 of our cases more than one injection was given, although subsequent experience revealed that the first dose was too low in 4 of these, leaving 6 who really required more than one injection. At least 20 minutes was allowed for the first injection to exert its full effect before giving another. Seven patients required two injections to restore the blood pressure to normal, although in 4 of these the initial dosage was experimental and too cautious, leaving 3 who actually needed a second injection. In 3 cases three injections were necessary to raise the blood pressure to normal levels; one of these was a mastectomy, in which three small doses were given deliberately to minimize the risk of haemorrhage from the large traumatized area.

Although the maximum single dose of methedrine given was a combined injection of 20 mg. intramuscularly and 20 mg. intravenously (i.e., a total of 40 mg.), the maximum total dosage received by any one patient was 75 mg., given in three injections over a period of 1¼ hours. Other patients received total doses of 70, 65, 55, and 50 mg. respectively. No untoward effects were observed in these patients, and with one exception, in which post-operative vomiting occurred, they all made an uneventful recovery.

Time taken for Methedrine to Act

Intravenously.—After an intravenous injection the blood pressure began to rise almost at once—certainly within a minute. The time taken for the blood pressure to reach its maximum value depended on the dose and varied considerably from individual to individual. The shortest time was 2 minutes and the longest 10 minutes in the cases studied, with an average of 5½ minutes.

Intramuscularly.—An intramuscular dose of 15 to 30 mg. of methedrine produced a measurable rise of blood pressure in from 2 to 10 minutes (one case took 15 minutes), with an average of 4 minutes. The maximum rise in blood pressure after an intramuscular injection was reached in from 4 to 38 minutes, with an average of 18 minutes. In the 10 cases studied second intramuscular doses reached their maximum effect in from 5 to 20 minutes, with an average of 15 minutes.

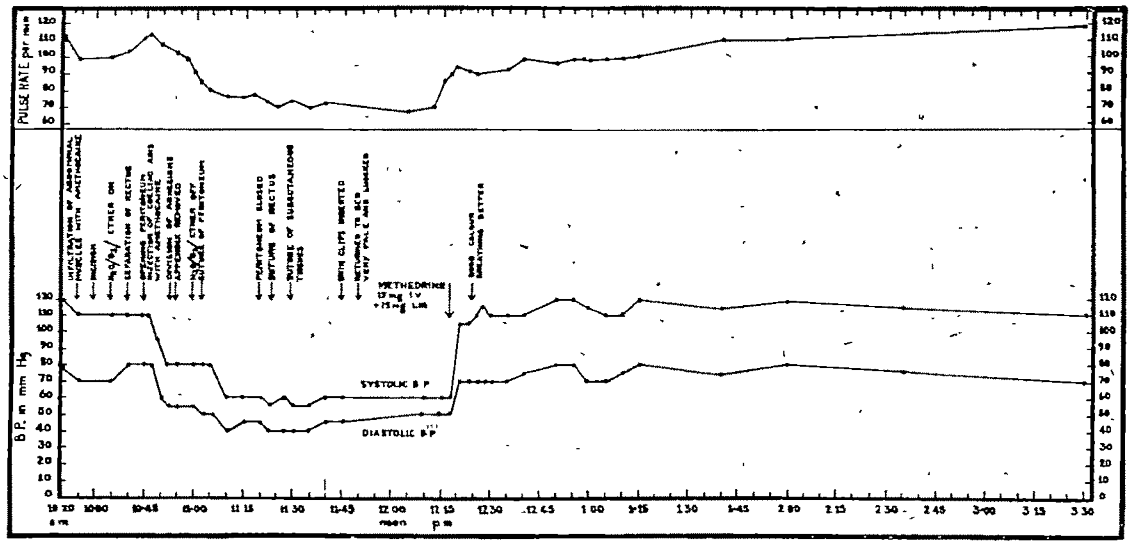

FIG. 1.—Effect of combined intramuscular and intravenous injection of methedrine on blood pressure and pulse rate after a laparotomy in which the blood pressure fell to 60 mm. Hg and showed no sign of natural recovery.

Duration of Action of Methedrine

The duration of action of an intravenous dose of methedrine is variable. It may last for half an hour or for several hours. A carefully calculated intramuscular dose or a combined intramuscular-intravenous dose produces an effect which lasts for many hours. In 44 out of the 54 cases a single intramuscular injection or combined intramuscular-intravenous injection permanently restored the systolic pressure to its pre-operative level or to within 90% of it. This pressure was sustained, with small variations, throughout the operation and for recorded periods of from half an hour to over 48 hours afterwards. Nine cases required more than one injection to raise the blood-pressure to normal values; in all of these the effect was sustained throughout the operation and for several hours afterwards. In only 1 of the 54 cases did the methedrine fail to restore and maintain the systolic blood pressure above 100 mm.

Evaluation of Pressor Effect of Methedrine

Systolic Pressure.—We have been impressed by the effective and sustained pressor action of methedrine. Omitting the first case, in which the dosage and mode of administration were largely a question of trial and error, only one case failed to respond to the drug. In 97% of the cases the blood pressure was restored to normal levels in a period varying from 2 to 18 minutes. The general effect of a carefully calculated injection, given by the combined intravenous-intramuscular route, on a patient with a systolic blood pressure that has fallen from normal levels to between 80 and 40 mm. is as follows. A measurable rise in systolic pressure occurs in 1 minute, reaches a maximum in a period varying from 5 to 15 minutes, and is sustained over a period of several hours after the operation (see Fig. 1). There is no precipitate rise and fall such as occurs with pressor agents like adrenaline and ephedrine (Dodd, 1940). The blood-pressure curve is of a plateau and not a peak type. After an intramuscular injection (Fig. 2) the rise in blood pressure is not so rapid, but the maximum pressure is of the same order as after an intravenous injection, and the action is usually more prolonged.

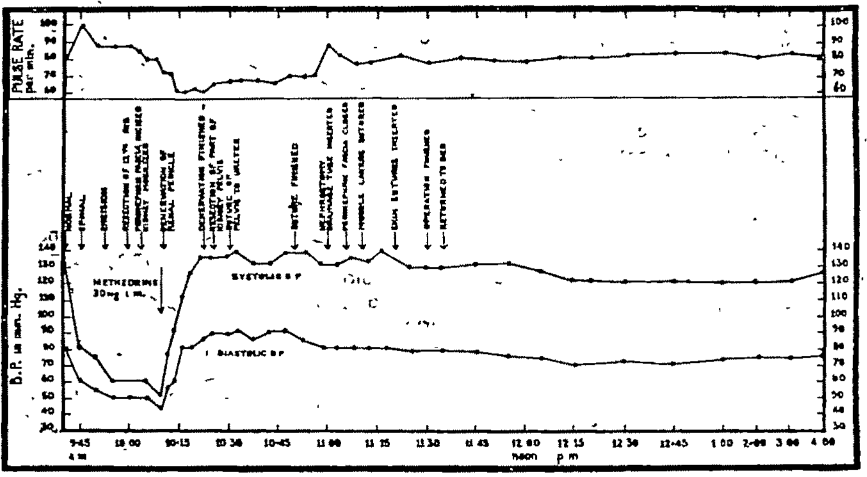

FIG. 2.—Effect of intramuscular injection of methedrine on blood pressure and pulse rate during operation for renal sympathectomy, pyeloplasty, and nephrostomy.

The maximum systolic pressure after the injection rarely rises much above the pre-operative value unless an overdose is given. In only 3 of our cases did it rise more than 30 mm. above this value. The blood pressure quickly settled down to the pre-operative level or within 90% of it. The average systolic blood pressure of our 54 patients just before operation was 137 mm. The average systolic pressure of these patients when the methedrine was given was 66 mm., which rose to an average maximum of 135 mm. in an average time of 18 minutes. The average figure to which it finally settled, measured at periods of from half an hour to 48 hours after operation, was 124 mm. This corresponds to a permanent rise to an average of 91% of the pre-operative level. Repeated observation of the blood pressure over periods of several hours after operation showed that this level was maintained.

Diastolic Pressure.—The average diastolic pressure just before administering methedrine was 52 mm.; after the drug was given it rose and was sustained at an average value of 84 mm. The corresponding figures for the average pulse pressures were 14 and 40 mm. respectively.

Pulse Rate.—The effect of the methedrine on the pulse rate was variable. Generally there was an increase of 15 beats to the minute on the average, although in 6 patients there was a fall of an average of 12 beats per minute. In 3 cases the pulse rate was unaffected. After administering methedrine to collapsed and pulseless patients the pulse soon became full and bounding.

Respiration.—This was not systematically recorded, but an increase in the rate and depth of respiration was noted in many patients.

Repeated Doses.—Repeated injections were effective, but the best response was obtained by a carefully selected adequate dose given in one injection rather than in divided doses. Small repeated doses are unsatisfactory.

Reactions

Apart from extrasystoles no abnormal clinical findings were observed in patients who were given methedrine in the correct dosage. Extrasystoles were noted in 3 patients; these were also observed under anaesthesia when methedrine had not been given. In normal persons methedrine acts as a cortical stimulant (Golla *et al.*, 1940), but this effect was not observed in our patients, being presumably annulled by the premedication, the anaesthetic, and the post-operative morphine that they received. Three patients out of 54 became excited or delirious post-operatively, but we consider this incidence to be within normal.

When one of us received 70 mg. of methedrine intramuscularly in divided doses over five hours the systolic blood pressure rose from 130 to 180 mm., and vomiting, cortical stimulation, persistent tachycardia, and severe palpitations were experienced. The acute symptoms lasted 24 hours and the tachycardia and palpitations for several days. We would therefore suggest caution in giving total doses of more than, say, 60 mg. of methedrine, although this dose appears to be well tolerated by patients with a low blood pressure. Pressor agents are potent drugs and must always be used with caution; they should never be given without reading the blood pressure before each injection. Overdosage may be disastrous in a patient with cardiovascular disease or hyperthyroidism.

Electrocardiograms

These were taken in 3 patients, two of whom received the maximum single dose of 40 mg. No significant permanent changes were observed. In one case we observed a shortened RST segment in lead II, iso-electric waves in lead I, and upward displacement of the ST segment in leads II and III. These changes were transient, and we attach no significance to them. An E.C.G. of one of us taken 24 hours after the administration of 70 mg. of methedrine was normal. It must be remembered that anaesthetics, surgical trauma, and many drugs used in emergencies produce temporary changes in the E.C.G. (Kurtz *et al.*, 1936; Brechling and Hansen, 1939; Graybiel and White, 1941; Hartwell *et al.*, 1942).

Comparison with other Pressor Agents

One of us (Dodd, 1939, 1940, 1942) has had the opportunity of comparing clinically the pressor effects of methedrine with those of adrenaline, ephedrine, and pholedrine (veritol). We consider that the pressor effect of methedrine is superior to that of these drugs because: (*a*) it does not produce a precipitate rise and fall of blood pressure; (*b*) the blood pressure is restored to and maintained at its pre-operative level or within 90% of it for several hours, not for 30 to 45 minutes; (*c*) one injection is usually enough.

We have not had the opportunity of testing neosynephrin and paredrine, two sympathomimetic pressor drugs recently used in America during operations under spinal anaesthesia. The duration of action of a single dose of neosynephrin is only half to three-quarters of an hour, and several injections (from two to six) are sometimes necessary to raise and maintain the blood pressure during the course of operations under spinal anaesthesia (Johnson, 1937; Lorhan and Oliverio, 1938; Bittrich, 1939; Brunner and de Takats, 1939; Silvers and Leonard, 1940; Lorhan and Lalich, 1940). The initial rise in blood pressure due to the drug may also be excessive, and the bradycardia which it causes has resulted in partial heart-block (Brunner and de Takats, 1939). Paredrine may also produce an excessive rise in blood pressure—e.g., to 250 mm. systolic (Loman *et al.*, 1939; Altschule and Gilman, 1939).

It would thus seem that methedrine is the most valuable of the drugs so far tested for counteracting the serious falls in blood pressure that often occur in surgical operations. The 54 cases of the series under review are summarized in the table below.

Summary of Cases showing Effect of Methedrine on Blood Pressure

No.	Operation	Dose in mg.	Pre-operative B P.	Lowes B.P	Max. B P after Methedrine	Final B P. in Ward
1	Excision of rectum	3×10 i.m. +2×10 i.v.	150/ 90	0	120/ 70	?
2	Laparotomy	15 i.v. +15 i.m.	120/ 75	70/50	125/ 80	110/ 65
3	"	15 i.v. +15 i.m	120/ 80	60/50	115/ 70	110/ 70
4	Gastro-enterostomy	10 i.v. +15 i.m.	120/ 80	70/55	120/ 85	105/ 70
5	Cholecystectomy	30 i.m.+15 i.v. +10 i.m.	150/ 90	50/45	150/100	150/ 85
6	"	20 i.v. +20 i.m.	130/ 80	60/55	150/ 80	115/ 65
7	" +gastrectomy	15 i.m.+15 i.v.	140/ 80	40/30	140/ 80	120/ 80
8	Hernia	20 i.v. +20 i.m.	160/ 90	60/50	180/100	135/ 85
9	"	10+15 i.v.	130/ 70	60/50	145/ 90	110/ 70
10	"	15 i.v. +15 i.m.	140/ 80	50/40	135/ 75	130/ 70
11	"	25 i.m.	140/ 90	70/60	130/ 80	125/ 75
12	"	20+20 i.m.	150/100	80/70	140/ 80	130/ 70
13	"	25 i.m.	180/ 90	60/50	150/ 80	150/ 80
14	"	20 i.m.	140/ 80	90/70	140/ 85	140/ 90
15	"	20 i.m.	180/100	70/60	160/105	130/ 80
16	"	25 i.m.	120/ 80	75/55	180/100	120/ 80
17	Hydrocele	20 i.m.	100/ 70	90/80	130/ 90	100/ 70
18	Orchidectomy	15 i.m.	140/ 70	95/85	140/ 80	135/ 80
19	Varicose veins	15 i.m.	120/ 70	100/90	135/ 70	120/ 70
20	"	20 i.m.	130/ 90	85/75	140/100	130/ 90
21	"	20 i.m.	140/100	95/85	190/130	140/100
22	Torek	20 i.m.	120/ 70	70/60	120/ 70	120/ 70
23	Stomach II	20 i.m.	220/150	55/50	145/ 75	130/ 75
24	Cholecystectomy	25 i.m.	110/ 60	70/50	130/ 70	130/ 80
25	"	30+15 i.m.	135/ 95	0	125/ 80	120/ 80
26	"	20 i.m.	140/ 70	65/35	120/ 60	120/ 75
27	"	25+15+25 i.m.	140/100	50/40	105/ 85	100/ 70
28	"	20 i.m	170/110	110/85	170/100	170/100
29	Amputation	15 i.m.	120/ 70	80/60	120/ 70	110/ 70
30	Cervical sympathectomy	30 i.m.	120/ 70	70/55	130/ 80	120/ 65
31	"	25 i.m.	120/ 70	50/40	120/ 60	115/ 75
32	Excision of rectum	10 i.m.	120/ 80	90/75	120/ 60	115/ 75
33	Haemorrhoids	20 i.m.	160/ 95	50/40	150/ 80	140/ 80
34	Pilonidal sinus	30 i.m.	120/ 80	90/75	100/ 60	100/ 60
35	Thyroidectomy	10 i.m.	120/ 80	90/60	110/ 60	110/ 60
36	Hysterectomy	30 i.m.	150/ 90	90/60	240/150	150/ 90
37	Laparotomy	30 i.m.	120/ 70	0	150/ 90	120/ 70
38	"	25 i.m.	130/ 85	50/40	110/ 70	110/ 70
39	Ureter	25 i.m.	110/ 70	70/65	110/ 75	110/ 75
40	Bladder	30 i.m.	140/ 70	100/80	120/ 70	120/ 70
41	Mastectomy	3×15 i.m.	120/ 90	0	120/ 80	115/ 80
42	Kidney	30+20 i.m.	125/ 80	35/30	125/ 90	125/ 90
43	"	30+30+15 i.m.	115/ 80	65/60	90/ 65	90/ 70
44	"	30 i.m.	130/ 80	55/45	140/ 90	128/ 78
45	"	30 i.m.	130/ 80	65/45	135/ 75	120/ 80
46	Varicose veins	20 i.m.	140/100	95/85	160/100	140/100
47	"	15 i.m.+15 i.v.	130/ 80	55/40	145/ 90	125/ 70
48	Hernia	25 i.m.	125/ 80	70/65	150/ 80	125/ 80
49	Excision of rectum	30+20 i.m.+20 i.v.	110/ 70	70/65	115/ 75	115/ 75
50	Gastrectomy	20 i.m.	150/ 90	95/80	150/ 80	140/ 85
51	Gastro-jejunostomy	25 i.m.	110/ 65	80/60	130/ 75	110/ 65
52	Laparotomy	25 i.m.	120/ 80	80/65	135/ 80	120/ 80
53	Gastro-jejunostomy	10 i.v.+20 i.m.	110/ 80	70/55	125/ 85	100/ 70
54	Hernia	20 i.v.	120/ 75	0	120/ 80	118/ 80

We have not had the opportunity of using methedrine in cases of traumatic shock, but we think that the outstanding properties of the drug make it worthy of trial in such cases, particularly in those which fail to respond to measures designed to increase the blood volume.

Summary

Out of 130 observed operations 54 patients were found suffering from an unduly low systolic or pulse pressure and some degree of impending surgical shock. The capacity of methedrine to meet the needs of these patients has been studied under average general hospital operating conditions. Anaesthetics included all those in common use. Under these conditions methedrine has been found to be an effective blood-pressure-raising drug with a prolonged action.

The effective dose is from 15 to 30 mg. intramuscularly, or 10 to 20 mg. intravenously plus a depot dose of 10 to 20 g. intramuscularly.

In 97% of the cases the systolic pressure was restored to normal levels in a period varying from 2 to 18 minutes. The systolic pressure was raised from an average of 66 mm. to an average maximum of 135 mm., and settled to an average minimum of 124 mm. This last figure corresponds to 91% of the average pre-operative value (137 mm.). There is no abnormally high rise if the dose is carefully calculated. One injection was adequate in 81% of patients; repeated injections were given in 17%; 1 case (2%) did not respond.

The blood pressure was maintained throughout operation and for several hours after.

Reasons are given for considering methedrine to be superior to adrenaline, ephedrine, pholedrine, neosynephrin, and paredrine for counteracting serious falls of blood pressure in surgical operations.

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TETRACHLORETHANE POISONING

BY

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Tetrachlorethane ($C_2H_2Cl_4$) is a colourless mobile liquid with an odour resembling that of carbon tetrachloride and chloroform. It is non-inflammable, and the commercial product has a boiling-point varying from 140 to 150° C. and a specific gravity of from 1600 to 1602 (Browning, 1937). It is a solvent for cellulose acetate and nitrate, bitumen, waxes, resins, pitch, tar, sulphur, rubber, and oils.

This substance is sold under various trade names, such as "westron," "alanol," "emaillet" (Browning, 1937), and "cellon" (Willcox, 1915). It is issued to the Army as "silk-cleansing fluid" for the purpose of cleaning the silk of duplicators (Hepple, 1927; Elliott, 1933). Corry's white fly fumigant, which is stocked by most nurserymen and seedsmen for sale in small quantities, is composed of nearly pure tetrachlorethane. Its sale is not controlled by the Dangerous Drugs Acts, 1920-32, and though not commonly stocked by retail chemists it may be bought from some at the price of 2s. a pint.

Commercial Uses

During the early stages of the war of 1914-18 tetrachlorethane was extensively used, both in this country and on the Continent, as a constituent of the solution employed to treat aeroplane fabric so as to render the wings of aircraft impervious to air and moisture. In July, 1916, its use for this purpose was prohibited, as by that time 70 cases of jaundice with 12 deaths had occurred as a direct result of inhalation of the vapour (Willcox, 1915), and a substitute of a non-toxic nature was provided as a solvent for cellulose acetate. Tetrachlorethane, however, has a very wide field of application in other industries, on account of both its high solvent power and its properties as an insecticide. The following list of its commercial uses is given in the report of the Industrial Health Research Board (Browning, 1937):

1. As a dry-cleaning agent.
2. As a lacquer solvent in the manufacture of straw hats.
3. In the film industry as a celluloid solvent.
4. In the artificial silk industry, particularly in the "lustron" process.
5. In Germany and France, principally as a solvent for a mixture of acetyl-cellulose and "essence d'orient" in the manufacture of artificial pearls.
6. As a cement in the manufacture of shoes.
7. As a parasiticide, especially as a hair wash for dogs, perfumed substances being added.
8. In the estimation of the water content of tobacco and many drugs.
9. In the manufacture of tube cements, adhesives, and floor waxes.
10. As a constituent of the adhesive used in the manufacture of gas masks.
11. As a component in the contents of foam fire extinguishers.
12. For the impregnation of furs and skins.
13. In the manufacture of safety glass.
14. In the rubber industry to some slight extent.

Absorption, Distribution, and Excretion

Tetrachlorethane is mainly absorbed through the lungs, but, as shown by Schwander (1936), enough may be absorbed through the skin to produce complete narcosis. It can of course be absorbed from the alimentary canal. It is largely excreted through the lungs, but this takes place slowly, as shown by animal experiments. Part of the absorbed material is excreted in the urine (von Oettingen, 1937).

Toxicity

Tetrachlorethane is generally considered the most toxic of the chlorinated hydrocarbons (Hamilton, 1934; Browning, 1937), whether of the saturated or of the unsaturated series, not only exerting a narcotic effect but producing profound organic damage, especially atrophy of the liver. As a narcotic poison it works more slowly than chloroform, but its effects are more lasting. As it is not volatile, acute narcosis from the fumes of this substance is never very bad; but, on the other hand, chronic poisoning is notoriously severe, and affects a fairly high proportion of those exposed. Hamilton quotes Lehman to the effect that, based on experimental evidence, tetrachlorethane is four times as toxic as chloroform. Veley—according to Willcox—found that it is 2.8 times as toxic as chloroform. Von Oettingen cites Müller to the effect that tetrachlorethane is 3.5 times more toxic to mice than chloroform. Lehman and Schmidt-Kehl (quoted by von Oettingen, 1937) found that, in man, concentrations of 0.02 mg. per litre may be detected by odour, 0.09 mg. per litre may be tolerated without effect for 10 minutes, but that inhalation of 1 mg. per litre for 30 minutes or 2.3 mg. per litre for 10 minutes will cause irritation of the mucous membranes, pressure in the head, vertigo, and fatigue. According to their findings, 45 to 46% of the inhaled material is absorbed through the lungs.

Tetrachlorethane Poisoning in Man

Poisoning by this substance may be either acute or chronic. The former is rare, the latter more common.

Acute Poisoning

So far as I have been able to discover, only two cases of poisoning following ingestion of this solvent have been recorded. The reason for this is not far to seek, as tetrachlorethane is most unpalatable and has a distinctly disagreeable odour.

The first case was reported by Hepple in 1927, the second by Elliott in 1933. The two cases are very similar. In both the victims were members of H.M. Forces, and they both drank "silk-cleansing fluid." They became unconscious shortly after ingestion of the substance, with cyanosis and loss of corneal reflexes. They both died, one eight hours and the other twelve hours after taking the drug, in spite of every possible type of resuscitation treatment. Post-mortem examinations showed hyperaemia of the gastric mucosa, and in Hepple's case small areas of superficial erosion at the cardiac and pyloric ends of the viscus. Congestion of the kidneys and acute congestion of the lungs were present. No lesions of the liver were found apart from cloudy swelling and congestion in the case reported by Hepple. From the accounts it is quite clear that death took place in both cases from central respiratory paralysis. In Hepple's case the stomach was washed out, but in spite of this an analysis of its contents recovered at the necropsy yielded 12 c.cm. of a fluid with a specific gravity of 1600 and a boiling-point of 147° C. Further tests proved this to be tetrachlorethane, and it is postulated by the author that the high specific gravity of this substance explains why so little tetrachlorethane was contained in the stomach washings. No analysis of the other organs was carried out. In Elliott's case no details are given of the results of analysis of the stomach contents or of the viscera. Elliott states that "records of poisoning by this substance show that the fatal dose may be as low as 5 c.cm." He quotes no authority for this assertion.

It appears, therefore, that in cases of acute tetrachlorethane poisoning a fatal termination is brought about by narcotic action on the vital centres, and death supervenes so quickly that no effect on the liver, kidneys, and heart, of the kind seen in fatal cases of chronic poisoning by inhalation of the vapour, has time to appear. It is likely, however, that, should the patient survive the narcosis induced by a sublethal dose of the drug taken by the mouth, then he would show the symptoms of liver damage seen in cases of chronic poisoning by inhalation.

Chronic Poisoning

Many cases of chronic poisoning by inhalation of the vapour of tetrachlorethane have been reported, but the incidence of such cases in this country has become less frequent since the use of the substance in aeroplane factories was prohibited. However, in France and Germany tetrachlorethane is employed extensively in the manufacture of artificial pearls and as a constituent of an adhesive in the manufacture of shoes (Browning, 1937), and cases are still being reported (von Oettingen, 1937). Willcox had the opportunity of studying a number of cases of toxic jaundice due to tetrachlorethane poisoning, and he gives the following description of the symptoms, which correspond closely to those observed by various other workers.

> "For some days the patients complain of general malaise, drowsiness while at work, loss of appetite, nausea, retching in the morning, unpleasant taste in the throat, constipation usually, and headache. Abdominal discomfort is present in some cases. After indefinite symptoms of this kind lasting several days or even weeks definite jaundice develops, and this is associated with pale stools and bilious urine. Vomiting is now likely to become more marked. The patient may become mentally confused, stuporose, and delirious. In acute cases haematemesis or convulsions may occur. Coma supervenes and death results. In the toxic stage of the disease purpuric rash and haemorrhages may occur. Suppression of urine also occurs towards the end. There seems to be a marked variation in the susceptibility of certain persons to the poison, and this corresponds to the varying susceptibility of patients to other liver poisons —e.g., chloroform."

It is generally agreed that young girls are particularly susceptible to the drug.

In some cases nervous symptoms first manifest themselves. These consist of tremors, headache, pain in the limbs, numbness, "pins and needles" of the extremities, loss of the knee-jerks, and excessive sweating (Willcox, 1915). Some doubt as to whether these symptoms are due to tetrachlorethane alone or to that substance mixed with other toxic material is evinced by Browning.

Before obvious symptoms appear changes in the blood can be detected. From the study of 68 cases, Minot and Smith (1921) found that the blood changes in moderate poisoning consist of a mononucleosis with a marked increase of the endothelial leucocytes, and if the case progresses degenerative forms of these cells are seen. They also noted a progressive but slight anaemia and a slight increase in the number of platelets. They suggested that an increase of the large mononuclear cells to more than 12% should be regarded as the sign of a toxic action of tetrachlorethane, and that the appearance of a considerable number of young large mononuclear cells should be looked upon as indicating a severer condition than when the same number of mature large mononuclear cells was present. Parmenter (1920-1) used the changes in the blood as an indication of subclinical poisoning in workers in a silk mill, and in this way prevented the development of a single case of jaundice.

Post-mortem Findings

In fatal cases the liver is reduced in size and severely affected by fatty degeneration. If the disease runs a rapid course there are large areas of complete disintegration with fatty degeneration in the remaining liver tissue. There may be round-celled infiltration of the necrotic areas but no fibrosis or attempts at hypertrophy of the remaining tissue. When the disease is more chronic, replacement fibrosis and active hypertrophy may be seen (Spilsbury, 1917). Fatty degeneration also affects the myocardium and the kidneys (Rolleston, 1922). According to Spilsbury the jaundice is haemohepatogenous, obstructive in nature, and due to the inflammation of the small intrahepatic bile ducts by the direct action of the tetrachlorethane on the cells. A toxic fatty degeneration thus develops in the central zones and spreads through the lobules, leading to necrosis.

Animal Experiments

In animals the acute effects of tetrachlorethane inhalations resemble those of other chlorinated hydrocarbons, and death occurs from central respiratory paralysis. The chronic intoxication produces fatty degeneration of the liver. According to Browning, Müller did not find in his experimental animals the acute yellow atrophy of the liver characteristic of the human intoxication. He suggests that this may be due to the fact that, owing to their different alimentary metabolism, death occurs in animals before the "reactive inflammation" of acute yellow atrophy has time to develop. It has been found that tetrachlorethane applied to the shaved abdomen of a rabbit produces fatty degeneration of the liver by absorption through the skin.

Lehman (according to Hamilton, 1934) found that prolonged exposure to the substance caused emaciation, with evidence of damage to the liver and kidneys and of haemolysis, as shown by a low red cell count, stippled red cells, and haemoglobinuria. She also reports that Heffter and Joachimoglu observed similar changes, with in addition fatty degeneration of the kidneys and heart musculature. These changes were also produced experimentally in animals by Spilsbury and Willcox.

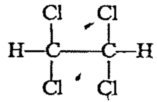
Case Report

At 6 20 p.m. on June 19, 1942, a labourer aged 33 was seen by a family friend to drink some fluid from a bottle which he had brought home with him. Thereafter he promptly went to sleep on a settee. The family thought he was sleeping naturally, until, at 10.30 p.m., attempts to arouse him proving unavailing, they realized that there was something amiss and sent for assistance. The patient was removed to hospital, where he was admitted at 11.50 p.m. On admission he was found to be deeply comatose, deeply cyanosed, and with shallow respirations. His breath had a sweetish smell suggestive of chloroform. In spite of attempts at resuscitation, which were started at once, his condition rapidly became worse and respirations ceased. Quantities of frothy fluid appeared at his mouth and nose, and he died at 12.30 a.m. on June 20—i.e., about 6 hours from the time he had ingested the toxic material.

Post-mortem Findings.—A necropsy was conducted on June 22, the following being the only noteworthy features. *Alimentary system :* There were no marks of corrosion round the mouth. The tongue, lips, gums, and oesophagus were normal. The stomach contained 1¼ oz. of watery fluid somewhat tinged with blood, which emitted a pungent sweetish odour. The mucous membrane along the lesser curvature showed intense congestion on the top of the rugae, the intervening areas being normal. The duodenum was also inflamed, the inflammation extending down to the upper part of the jejunum. The rest of the large and small bowels was normal. The liver showed no naked-eye evidence of fatty change or of necrosis; it was normal in size and the capsule was smooth. The pancreas was healthy. *Respiratory system :* The larynx and trachea were normal. Each pleural cavity contained some adhesions, and between these there was some serous fluid. The lungs were engorged and very oedematous, particularly at the bases, but were otherwise healthy. There were a few subpleural haemorrhages. The trachea and lungs smelt of the offending material. *Brain and meninges :* Congested. *Bladder :* This viscus contained 6 oz. of cloudy urine. *Histology :* The liver tissue was histologically normal and the lungs showed acute congestion and oedema, particularly at the bases.

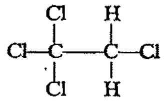
The bottle from which the deceased was seen to drink was recovered, and it still contained 9 c.cm. of yellow fluid, which had exactly the same smell as the stomach contents and lungs. It was obvious that it was the toxic agent responsible for his death. This fluid and the contents of the stomach and bowel, together with the liver, lungs, brain, and urine, were submitted to Dr. Mabel L. Hemming of the department of chemistry, Sheffield University, who very kindly undertook their analysis. She embodied her results in the following report:

"The original liquid was distilled and the boiling-point of the bulk corresponded to that of symmetrical tetrachlorethane: there was evidence of about 1 c.cm. (in a total volume of 9 c.cm.) of the lower-boiling isomer, unsymmetrical tetrachlorethane.



$$\mathrm{H{-}\underset{Cl}{\overset{Cl}{C}}{-}\underset{Cl}{\overset{Cl}{C}}{-}H}$$

Symmetrical tetrachlorethane ;
B.P. 147° C (normal pressure).



$$\mathrm{Cl{-}\underset{Cl}{\overset{Cl}{C}}{-}\underset{H}{\overset{H}{C}}{-}Cl}$$

Unsymmetrical tetrachlorethane ;
B P. 129–130° C. (normal pressure).

"A Carius estimation for chlorine on the distilled liquid indicated that it was probably 98% pure tetrachlorethane. Three estimations gave the following figures for the percentage chlorine in the liquid: 80.83, 81.27, 80.90, and the theoretical value for pure tetrachlorethane is 82.57%.

"Each of the samples supplied was treated in the following manner. The sample was minced up when necessary, and distilled in steam. When the liquid distilling over was no longer turbid distillation was discontinued and the steam distillate extracted with ether. The ether extract was dried over sodium sulphate and then the ether was distilled off through a Widmer column. The residue was analysed for chlorine by the Carius method, and hence the tetrachlorethane in the various parts could be calculated. The results are as follows: Stomach contents, 2.134 g.; liver, *nil*; lungs, 5 mg.; bowel contents, 1.47 mg.; brain, *nil;* urine, 4.32 mg. A blank Carius estimation was done and no measurable amount of chlorine found, suggesting that, although some of the above figures are very small, they are probably real."

Comments

Tetrachlorethane poisoning occurs as a chronic condition in which absorption takes place through the lungs or skin, and death is due to acute yellow atrophy of the liver. When seen in the acute form the poison is absorbed from the alimentary canal, and death results from central respiratory paralysis. The case reported above is similar to the two cases previously recorded by Elliott and Hepple. The results of the analysis support the view that excretion occurs partly by the lungs and partly in the urine. It will be noted that only relatively small amounts of the drug were recovered by analysis, but of course no estimation was made of the quantities in the blood, cerebrospinal fluid, muscles, etc. In addition, during the six hours which elapsed between ingestion and death an appreciable quantity of the material would have been excreted in the breath. I find it impossible, therefore, to estimate what the fatal dose was in this particular case, and unless the volume ingested is known I do not see how this would ever be possible with any degree of accuracy.

Summary

The clinical and pathological aspects of acute and chronic poisoning by tetrachlorethane are discussed.

Two previous cases of acute poisoning are reviewed and a further similar case reported.

My thanks are due to Dr. J. R. Grimoldby, resident surgical officer at the Royal Hospital, Sheffield, who supplied the clinical details reported, and to Dr. Mabel L. Hemming, of the chemistry department of Sheffield University, who undertook the analysis of the organs.

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According to G. F. Dick and C. W. Eisele (*J. Amer. med. Ass.*, 1942, **118**, 21) the rate of healing of peptic ulcer under oral treatment with milk and cream, without the use of alkalis, compares favourably with other methods of treatment. They state that it is only the exceptional case in which recovery does not take place without alkali treatment.

EFFORT SYNDROME IN ICELAND

BY

D. E. RODGER, M.D., M.R.C.P.

Major, R.A.M.C.

During the fourteen months from April, 1941, to June, 1942, 83 cases of effort syndrome were observed among the British forces in Iceland. A review of these cases has been made in order to determine whether the conditions of service in Iceland, thought by some to be out of the ordinary, play any significant part in the development of the syndrome.

Observations

Of the 83 cases, 3 were from the Navy, 2 from the Air Force, 1 was a civilian employee (British), and 77 were from the Army. Of these men 63 (76%) were considered unfit for active service in the field and were returned to the United Kingdom as a result of a Medical Board examination (Category "D" or "E"—A.C.I. 1428/40). The remaining 20 (24%) were considered mild cases, and after suitable reassurance were returned to their units for full duties.

Age and Length of Service.—The average age in this series was 29¼ years (18–48), and the cases were distributed as follows: under 20, 1; 20–29, 44; 30–39, 32; 40–48, 6. The distribution corresponds roughly to the age-group representation in the Forces. Eleven had seen service before the present war; 67 had served during the present war only, for periods varying in length from three months to two and three-quarter years.

Seasonal Incidence.—Forty-three cases (52%) were seen during the inclusive period Nov., 1941, to April, 1942, and 34 (41%) during May to Oct., 1941.

Aetiology.—No cases were considered to have been directly caused by war service, but of the 63 cases evacuated five appeared to have been aggravated by war service. The first of these men suffered from hypermetropia, and claimed that "the light bothers my eyes" (see under "Discussion"). Reassurance did not improve his condition, and he eventually showed other features of the syndrome. Another, a reservist aged 38, felt he couldn't "keep up" with the younger men in his unit. A third, a company sergeant-major, went through the Norwegian campaign five weeks after an operation for bilateral inguinal hernia. The fourth case was that of a soldier who had always been employed in sedentary duties. He broke down shortly after coming to Iceland when he started intensive training. The symptoms in the fifth case appeared after hospitalization for "acute rheumatism" in Sept., 1940.

Attributability.—All of the 58 cases considered unconnected with war service that were evacuated showed either a poor family history or a past personal history of "constitutional inferiority," or both. It was not difficult to reveal the familiar historical pattern of an over-protective parent firmly implanting the conception of delicate health in the mind of the child or adolescent. The attributability in this series has been summarized in Table I.

TABLE I.—*Attributability of Effort Syndrome*

Attributability	Number of Cases		
	Boarded	Returned to Duty	Total
Caused by war service	0	0	0
Aggravated by war service ..	5	2	7
Unconnected with war service ..	58	18	76
Total	63	20	83

Symptoms and Signs.—The symptoms exhibited were the familiar group fully described in Dr. Paul Wood's Goulstonian Lectures for 1941. The relation between the onset of symptoms and service in Iceland is shown in Table II. Investigation of the patient included a history, physical examination, and radiological examination of the thorax. It was exceptional to admit these cases to hospital. In common with other observers, an increase in the pulse and blood pressure was noted. The average blood pressure of 70 cases was 141.6/84.2. The highest systolic pressure was 174 (diastolic 74). The highest diastolic pressure was 112 (systolic 164). As expected, the diastolic pressure fell to 90 after two days in hospital. The mean pulse pressure was 57.4 mm. Hg. The exercise-tolerance test was not found to be of diagnostic value.

TABLE II.—*Date of Appearance of Effort Syndrome*

Date	Number of Cases		
	Boarded	Returned to Duty	Total
Before service in Iceland	59	15	74
Subsequent to service in Iceland ..	4	5	9

Differential Diagnosis: Hypertension.—A systolic pressure above 170 mm. Hg or a diastolic pressure persistently above 100 mm. Hg is required for a diagnosis of hypertension. These are admittedly arbitrary figures. But in the absence of other findings a systolic pressure of 170 mm. or less and a diastolic pressure under 100 mm. were considered within the limits of normal.

Discussion

The unusual features of service in Iceland that might be thought productive of the syndrome can be summarized as follows:

1. *Topography.*—Iceland is a mountainous country devoid of trees, and with sparse vegetation. The earth's surface is very uneven, being covered with much broken lava rock, varying in size. This makes walking a more attention-claiming pastime than it is elsewhere.

2. *Climate.*—Because of the country's latitude there is a long period of daylight during the summer months and a short period of daylight during the winter months. It is held by many that the light is "stronger" than elsewhere, but this is considered to be fallacious. Both the ophthalmologist and myself have often been confronted with the complaint, "It's the strong light, sir" (cf. case mentioned above). On the other hand, the shortness of natural light in the winter means a long dark day, which might result in introspection, boredom, and depression. This appears to be adequately compensated in the normal individual by the absence of black-out regulations. The cold in Iceland is not intense, and it is generally held that the country has been misnamed. The snowfall is very moderate, and in most areas the snow rarely remains on the ground throughout the whole winter. On the other hand, training during the Icelandic winter of rain, mud, and darkness requires a robust physique and an equally robust mental outlook.

On the whole, these conditions have not been found to be causative factors in effort syndrome, but it is worth recording that the number of cases of effort syndrome referred increased considerably (*a*) during the period of intensive training, and (*b*) among the drafts of reinforcements from the United Kingdom shortly after their arrival in Iceland. The case incidence was slightly greater during the winter months (November to April), but this was also the period of intensive training and when drafts of reinforcements were arriving.

The great majority of these cases were already psychologically predisposed to develop the syndrome. This they did when they were confronted with the physical and psychical difficulties of "active service in the field." The small number of cases occurring among Naval and Air Force personnel was not accounted for by the numerical proportion of these Services in Iceland: perhaps the explanation lies in a greater selectivity of candidates for them.

The subsequent history of the more severe cases is not known, as they were evacuated.

Summary and Conclusions

Eighty-three cases of effort syndrome have been observed among British troops serving in Iceland; 63 of these were considered temporarily or permanently unfit for military service.

The conditions of military service in Iceland are not considered causative factors in the development of effort syndrome. They are regarded as aggravating factors to a minor extent only.

The number of cases brought to light increased during the intensive training and following the arrival of drafts of reinforcements from the United Kingdom.

Simple explanation and return to duty at the unit have been successful in some of the milder cases of the syndrome.

I wish to thank Col. S. D. Reid, A.M.S., for permission to publish this paper.

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Medical Memoranda

Severe Gunshot Wound of the Abdomen

The following report of a case of severe gunshot wound of the abdomen, occurring on board one of His Majesty's transports in mid-ocean, is of interest.

CASE HISTORY

A gunner aged 26 was accidentally wounded by a rifle bullet in the abdomen at 11.50 a.m. on April 17, 1942. The bullet, before wounding him, had passed through the hand of another soldier. The gunner was seen five minutes after the injury lying on the ship's lowest deck, holding his abdomen. He was very pale and in great pain. Morph. tartrate 1/2 gr. was given immediately. On disengaging his hands and unbuttoning his battle-dress it was found that most of the small intestine, the caecum and appendix, and a large portion of the omentum had prolapsed and were lying over the pubic region and between the thighs. The lower portion of a vest partly covered the viscera, the remainder lying free in his trousers. Six or seven shell dressings were needed to gather up the loose bowel and to hold it in place outside the abdomen. The bandage ends were gently passed around the trunk and fixed with pins. He was then placed carefully on a stretcher, with two life-jackets under the flexed knees and four life-jackets behind the shoulders and head. In this position he was carried up through four decks to the ship's hospital. Twenty-five minutes later he was given 600 c.cm. of fresh blood, and at 12.50 p.m. was placed on the operating table, not having been previously moved off the stretcher.

Operation.—Under a general anaesthetic (open ether) the whole of the prolapsed bowel was covered with sterile gauze pads partially wrung out in 1/20,000 aqueous solution of euflavine. More gauze swabs, similarly treated, were partially introduced over the wound edges into the abdomen by raising the prolapsed bowel at the wound perimeter, as a preliminary to the replacement of the bowel after inspection. The only visceral damage discovered was an abrasion of the ileum, 3½ in. long and 1/4 in. wide, involving the outer coats of the bowel: this was longitudinally inverted with Lembert sutures of fine catgut. All the prolapsed bowel was then replaced within the abdomen and covered with omentum, which had escaped injury. The whole abdominal wound was now in view. It was large and gaping and of the size of a hand, equidistant between the umbilicus and pubis, and was obviously caused by a splayed bullet running from side to side, gouging away in its path all the structures of the abdominal wall. The wound edges were then excised, and by flexing the spine the retracted peritoneal edges were approximated and completely sutured. The right rectus muscle was deficient for about 3½ in.; this was repaired by sliding across the damaged but not deficient left rectus and anchoring it with interrupted sutures, over which the anterior sheath was closed, haemorrhage from the inferior epigastric having been controlled. The internal and external oblique aponeuroses were closed by interrupted sutures. The skin wound was closed without difficulty by interrupted sutures, over which two rolls of flavine-soaked gauze were placed and held in position by six deep tension sutures. The skin wound resembled a large "Y" with a very short vertical limb, the two oblique limbs each being drained by a rubber tube inserted down to the superficial muscle plane. The operation lasted two hours, at the end of which the patient's condition was good; his colour had returned and his pulse was steady at 78 per minute. He was then put into an adjacent single-cot cabin, where he was nursed for the remainder of the voyage.

Progress.—On his return to consciousness he was placed in Fowler's position and 500 c.cm. of saline was given subcutaneously. The following treatment was instituted: Inj. morph. hypoderm. 1/4 gr. four-hourly; pituitrin 10 units six-hourly; sulphapyridine, 3 g. statim, 2.5 g. three hours later, and 1.5 g. at three-hourly intervals till noon of the second day. (Sulphapyridine was continued four-hourly in decreasing daily doses until the end of the fourth day, by which time a total of 30 g. had been given.) His general condition six hours after the operation was good, and he was free from pain and able to take dextrose in water and weak lime-juice; temperature and pulse normal. Urine in adequate quantities was passed during this period. The blood count was normal. This happy state of affairs continued until midnight on the fifth day, when a feeling of distension was complained of. No bowel motion had as yet occurred since the operation, but enemata had been given daily and had prevented distension. By noon of the fourth day, however, signs of paralytic ileus became evident, and faecal vomiting occurred. Continuous rectal saline was then started and 2.5 units of pituitrin were given hourly together with morphine 1/4 gr. four-hourly. The patient's condition worsened considerably, but the temperature never rose above 99.4°. The morphine and pituitrin and continuous rectal saline were persisted with, and on the sixth day the patient's condition dramatically changed for the better with the passage of a large liquid stool. Within two hours he was comfortable and in excellent spirits, and demanded a cup of tea and a cigarette. As the ship's stock of pituitrin was now depleted, physostigmine was given in two-hourly doses of 1/200 gr., together with morphine eight-hourly. On the third day the wound was dressed and the drainage tubes removed, being replaced by lightly packed gauze swabs, which were renewed on the seventh day. Sloughing was considerable at the drainage exits, but otherwise the wound was satisfactory. On the eighth day, on arrival at a home port, the patient was transferred to a shore hospital; his condition was excellent and the bowels normal. Subsequent progress was rapid, though the drainage exits continued to discharge profusely. Although the wound itself healed well, it was considered advisable to explore the discharging sinus. This revealed a gauze superficial-drainage swab (which had replaced the original rubber drainage tube) that had been overlooked in the slough. The removal of the gauze was followed by rapid healing, and the patient was discharged to a convalescent hospital. Although the abdominal scars are extensive, there is no evidence of tendency towards ventral hernia. He has since returned to duty in a coastal battery in medical category C.

I wish to acknowledge with gratitude the services of Sister J. Douglas, T.A.N.S., of Edinburgh, to whose skill and devotion this patient's recovery is mainly due. I would also thank the medical superintendent of the E.M.S. hospital for his helpful notes on the patient's progress ashore.

W. P. GRIFFIN, M.B., B.Ch.,
Squadron Leader, R.A.F.

The Cotton-wool Sandwich

The swallowing of sharp-pointed foreign bodies presents a problem to the practitioner, often at a moment's notice, and provides a source of anxiety for him, his patients, and their relatives. I have recently been struck by the fact that so few doctors realize the value of the cotton-wool sandwich. The following case exemplifies the value of such.

Miss A. B., a dressmaker, was referred to the radiological department at the Whitehaven and West Cumberland Hospital on Sept. 9, 1936, because she had swallowed "a pin." My radiographer (Sister Hankinson, M.S.R.) screened her and took a film demonstrating the presence of 23 pins at all angles within the gastro-intestinal tract. She promptly gave the patient a series of small cotton-wool sandwiches, having impregnated the teased-out cotton-wool with a solution of barium sulphate in order, if possible, to follow the progress of the pins. Later in the day I saw the patient personally, and found one pin in the stomach, two pins in the duodenum, and a considerable number in the small bowel, mainly in the pelvis, intermingled with the barium-impregnated cotton-wool (Fig. 1). The pledgets of cotton-wool are seen mainly in the pelvic ileum. One pin was in the caecum, others in the descending and the iliac colon. The following day one pin was in the caecum and the rest were collected into four groups (Fig. 2)—one group in the splenic flexure of the descending colon, one in the iliac colon, and one at the proximal pelvic colon—all enveloped in the cotton-wool. A fourth small group is seen in the rectum, in which no wool is evident.

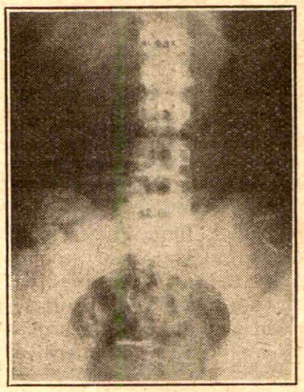
FIG. 1

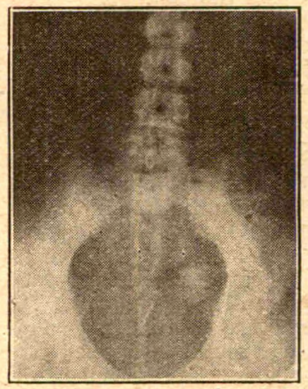
FIG. 2

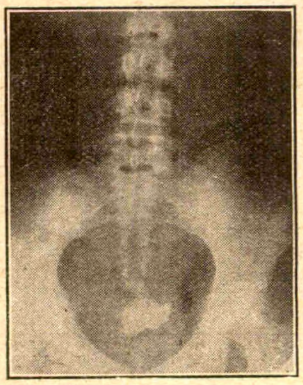
FIG. 3

The progress of the pins was checked up each day by radiological means. Each group was evacuated in turn at daily intervals: the film of Oct. 10 (Fig. 3) shows the last group enveloped in cotton-wool in the rectum. The following day all had been evacuated, without any pain or one drop of blood being shed.

RICHARD FAWCITT, M.D., F.F.R.

Reviews

PREVENTIVE INOCULATION

Preventive Inoculation. By W Powell Phillips, M R C S, L.R.C.P, D.P H, and C. Woodroffe Anderson, M B., Ch B., D.P H With an introduction by J Greenwood Wilson, M D, F.R.C P, D.P.H. "The Practitioner Booklets" (Pp. 74 6s) London Published by the *Practitioner* in conjunction with Eyre and Spottiswoode. 1942.

If the practitioner is to take his proper place in preventive medicine he should be an enlightened apostle of the why, when, and how of prophylactic inoculation against the common infectious diseases of childhood, and, in wartime, such infections as typhoid and tetanus. In other words, he must be familiar with certain facts about the toll in life and health which these diseases exact, the means by which their ravages can be prevented or minimized by immunization, and the technical details for performing the necessary injections safely and effectively. It may be more convenient for the M.O.H. to arrange for the immunization of children to be done at the school or the welfare clinic, but he should, whenever possible, co-opt the family doctor for the work, so that the practitioner may gain the necessary experience and be a powerful ally (instead of a lukewarm onlooker) in carrying the propaganda into the home.

All the relevant information is admirably presented in this booklet from the "Practitioner Series," written by two public workers in close touch with the problems. Introductory chapters on the principles of infection and immunity are followed by practical advice on the preparation of apparatus and reagents, the technique of the injection, and the pitfalls to be avoided. Then come chapters on diphtheria, tetanus, scarlet fever, typhoid, pertussis, measles, and even influenza and the common cold, although the authors are rightly cautious about the prophylaxis of these last common plagues. It is pleasing to note their advocacy of immunization against pertussis; unfortunately the recent work of Bell on the efficacy of two doses of pertussis vaccine at a month's interval instead of 4 to 5 weekly injections came too late for inclusion in the text. Otherwise the book is remarkably up-to-date and can be heartily recommended.

A MEDICAL YEARBOOK

The 1942 Year Book of General Medicine Edited by George F. Dick, M D (Pp 848 19s) Chicago: The Year Book Publishers; London: H. K Lewis and Co.

The publishers of this useful yearbook have adopted the ingenious method of a questionary on the dust-cover, posing 20 questions of topical interest, to which the contents of the book provide the answers. We may assume that they regard these as the most important matters discussed, and will therefore concentrate on some of them. Rabbit thrombin is lauded as the best local haemostatic, effective even in haemophilia. Salyrgan-theophylline by the mouth is claimed as the best diuretic in congestive heart failure. When adrenaline fails to relieve asthma, intravenous aminophylline may do so, and will also restore the lost effectiveness of adrenaline. We are given a survey of the causes and prevention of unfavourable reactions to blood transfusion. A combination of steam and carbon dioxide is recommended as a powerful adjuvant to expectorant drugs, whereas oxygen has the opposite effect. In laryngeal diphtheria associated with measles sulphapyridine is advised, while for whooping-cough sulphathiazole is more suitable when bronchopneumonia supervenes. A safe and easy technique of paravertebral injections of alcohol is described for the relief of cardiac pain. A return of the sedimentation rate to normal is taken as the criterion by which to decide when a rheumatic child is to be allowed out of bed. The question of adequate liver therapy in pernicious anaemia is critically considered. The combination of ergotamine tartrate 0.25 mg., prostigmin methylsulphate 0.25 mg., and pituitrin 1.25 units is recommended as the most effective method of relieving post-operative distension and paralytic ileus, prostigmin being probably the best single drug. These few instances will give some idea of the variety of information to be obtained from a perusal of this interesting annual.

ALLERGY

Synopsis of Allergy. By Harry L. Alexander, A.B., M.D., Professor of Clinical Medicine, Washington University School of Medicine, St. Louis; Editor of the *Journal of Allergy.* (Pp. 246; illustrated. 15s.) London: Henry Kimpton 1942.

Dr. Harry Alexander follows his book *Bronchial Asthma*, 1928, with a *Synopsis of Allergy*, 1941. For the past twelve years he has held the post of editor of the *Journal of Allergy*, so no more appropriate person could survey the subject and describe allergy in terms of present-day thought. Only the non-bacterial types are dealt with. In a general discussion of allergy the diagnostic value of a careful history is emphasized. Protective measures against offending allergens, hyposensitization both against offending allergens and orally, and drug therapy are succinctly explained. The symptoms are then taken individually, and bronchial asthma, hay-fever, and the allergic dermatoses are discussed at some length, the other and lesser allergies very briefly. It is remarkable that the possibility of allergic headaches and migraine being due to inhalant allergy is not mentioned, the entire stress being placed on foods. An admirable appendix describes the preparation and standardization of extracts, lists household materials and foods and the allergens they may possibly contain, and gives recipes for elimination diets (not so practicable in this country under wartime restrictions, seeing that a wheat-free sponge cake requires four eggs!). The book can be recommended as an accurate, straightforward, and concise account of the subject for easy consumption.

ANAESTHESIA, WITH SPECIAL REFERENCE TO DENTISTRY

Essentials of General Anaesthesia By R R Macintosh, M.D, F.R C.S, D.A., and Freda B Bannister, M.D., D A. Third edition. (Pp. 341. 25s.) Oxford: Blackwell Scientific Publications.

The fact that the third edition of this book has already appeared although it was first published as recently as 1940 is sufficient indication of its merits. The general arrangement of chapters remains much the same, but the sections on reducing valves and general analgesia have been improved. It is, however, surprising that no reference is made to trichlorethylene, either as an analgesic or as an anaesthetic, although it is now widely used for both purposes. A chapter has been added on the principle and working of the Oxford ether vaporizer No. 1.

The chief criticism which can be made of the book concerns its title. The reader who, not unreasonably, expects directions for anaesthetizing patients for cranial, thyroid, thoracic, or abdominal operations will be disappointed, whereas dental anaesthesia is fully and excellently described. For this reason it cannot be recommended unreservedly for the use of medical students or general practitioners wishing to become familiar with anaesthetic technique generally. On the other hand, dental students and anaesthetists should profit much from its perusal The first edition had as a subheading "With Special Reference to Dentistry," but even this has now been omitted. If the book were called "Essentials of Dental Anaesthesia" its contents would be described more accurately.

The printing, paper, and illustrations are exceptionally good, and effective use has been made of colour diagrams—an unusual feature in a work of this character.

Notes on Books

The success of many pathological investigations depends largely on the proper collection of the specimen, which is often the duty of a nurse. Instructions to this end, together with brief accounts of the tests applied to all ordinary types of specimen and of their significance, are given in a pamphlet, entitled *Clinical Pathological Investigations*, by Dr. CYRIL POLSON (Leeds: Jowett and Sowry Ltd., 80, Albion Street; 1s., plus postage), which is based on lectures given to the nurses at St. James's Hospital, Leeds. Its study should form a useful part of a nurse's education, as well as acquaint her with methods of securing satisfactory specimens. The instructions follow generally accepted lines throughout except in a section on methods of sterilization; this needs simplification, and in some details correction to bring it into line with usual teaching.

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A UNITED FRONT

Statements by Government spokesmen in the recent Parliamentary debates on the Beveridge report made it clear that the present Government intends to take action on Sir William Beveridge's proposals for a comprehensive health service to be available to everyone in this country. They made it clear that the responsibility for administering such a service is to devolve on local bodies. They also made it clear that there was to be no proscription of private practice, and no violation of the voluntary hospitals. Since the closure of the debate the Minister of Health has called a meeting of representatives of the principal medical organizations, including the British Medical Association, to hear his views on the procedure to be adopted in the consultations that are to take place in the coming months between the Ministry and the medical profession. The Ministry has also held meetings with representatives of the voluntary hospitals and of local authorities.

The Minister of Health has asked the medical profession to form a representative committee to consider with him and his officers the difficult problems that will have to be solved if a comprehensive National Medical Service is to be put into shape. Discussions on the matter have already taken place between the British Medical Association, the three Royal Colleges, and the Society of Medical Officers of Health, and in the general statement on the present position issued by the Secretary of the B.M.A., Dr. G. C. Anderson, and printed elsewhere in this issue, the proposed personnel of such a committee is set forth. At its meeting on March 31 the Representative Body of the B.M.A. is to be asked to endorse the view that the proposed Committee can be taken to represent the medical profession in the discussions that lie ahead. One thing should be made clear at once, and that is that such a committee will not have plenipotentiary powers. It is not a negotiating body, and the medical profession is not being asked to give it a "doctor's mandate" to come to binding agreements or to seal any bargain with the Government behind the backs of the profession at large. Whatever plan the Government may unfold, it is quite clear from the letter from Sir John Maude, secretary to the Minister, included in Dr. Anderson's statement on another page, that the representatives of the medical profession will be in continuous conference with the Ministry. The Minister asks for the "frank expression of the opinions of those best qualified to judge both on issues of a technical and professional kind and, what is no less important, on the probable attitude of the profession towards any proposals that may be put forward." It would seem probable that from the Representative Committee small subcommittees will be formed to deal with the special issues under discussion at any one time.

The most important statement in Sir John Maude's letter refers to the intentions of the Ministry not to submit any proposals to Parliament on behalf of the Government until the profession has had laid before it a general indication of what these proposals are to be. Sir John goes on to say that in this way representatives of the profession will have ample opportunity for discussion and reference back to constituent bodies, and that the Government, in framing any time-table, will not forget that many of the profession are serving over-seas. The Association itself plans to inform each Service member individually of the Government proposals when they are made and to take steps to have the views of Service doctors assessed and presented to the Representative Body. This is a specific undertaking and not a vague expression of good intentions. It is realized that to circularize Service doctors in this way and to collect and collate their views will take time. It is also realized that the circumstances of war will make communication with some doctors impossible. But the attempt will be made, and made with the determination to obtain the maximum result possible in extremely difficult circumstances.

The history of medical organization is for the most part a history of dissension, of petty squabbles, of narrow sectional views. Surgeons bickered with barbers. Physicians despised both, and for five hundred years warred against the apothecaries. When the apothecaries became respectable they tried to crab the chemists and druggists. In the fifteenth century a Conjoint College of Physicians and Surgeons lasted only for two or three years. Now in the twentieth century the visible bond between the two is a conjoint examination and a standing joint committee with their new sister College. We have on the whole tended to perpetuate the errors of the past rather than to emulate the few attempts at unity that were made. But the profession is learning that its common interests are greater than its common differences. The setting up of the Medical Planning Commission by its various constituent bodies was a conspicuous demonstration of this; yet this act of unity was fiercely criticized in these columns at the time. To-day the Colleges have again thrown their weighty influence into the common scales. This week we announce the composition of a body appointed by collaboration between them, the B.M.A., the Society of Medical Officers of Health, and the Medical Women's Federation. In the past the Colleges have often tended to act in isolation, and their decision once more—at a most critical moment in medical history—to stand on common ground with the other organizations will be warmly welcomed by their numerous licentiates and members, as well as by their Fellows.

The Government has declared its intention not to spring surprises in unilateral action. No doubt there will be plenty of disagreement, but this can be voiced. And in the last count the profession itself will be able to express its views and press them home before legislation is passed. To use an old slogan, it must preserve a "united front" in the difficult months that lie ahead. The Representative Committee must have the good wishes of the profession behind it, and will, we are sure, command the support of every doctor of good will.

THE REHABILITATION OF THE FLAVINES

The antiseptic treatment of wounds during the war of 1914-18 was generally considered a failure, and antisepsis has since then been commonly regarded as an outmoded method. That is not to say that it was ever totally abandoned, but persistence in its use has been due to habit and custom rather than to any conviction of its efficacy. Little has been expected of it, and in general little has been achieved by it. That this attitude has been abandoned and the antiseptic method restored in surgical estimation to a position far more secure than it ever held in the past is due in the first place to the discovery that sulphanilamide acts locally as well as systemically. To anyone who studied the work of Fildes and Woods on the action of sulphanilamide on the haemolytic streptococcus it became abundantly plain that this compound is an antiseptic in every sense of the word: the nature of its action on bacteria is in fact the same as that of mercury perchloride. The difference between them is that sulphanilamide has a very low toxicity and can be maintained in adequate concentration and in free form throughout the body fluids, whereas mercury salts are highly poisonous to the body itself and cannot exist free because they combine with proteins. As soon as it was established that solid sulphanilamide is an efficient local preventive of infection, antisepsis regained repute, and minds were reopened to the possibilities of other agents for the same purpose. These others were both old and new, and among the new the astonishing properties of penicillin have attracted most attention, although the scarcity of supplies has so far prevented extensive clinical trial. Penicillin is suitable also for systemic use; another "biological" antiseptic, gramicidin, is recommended only for local application, as is propamidine, to which we have referred recently.[1]

Of the older antiseptics only the flavines have shared in this restoration to favour, a fact which has been no surprise to their few faithful advocates during the sceptical interwar period. The champion of these antiseptics since their earliest days, C. H. Browning, contributes at page 341 a restatement of their properties with an assessment of their position in the light of recent observations. It is noteworthy that the main facts, including the vital experimental evidence that acridine compounds will sterilize dangerously contaminated wounds, have been known for over twenty years. This work was done in part by Browning himself, by several workers in Germany, and by one in Japan, and taken together it forms an impressive bulk of evidence which has been inexplicably disregarded. Although these experiments have taken several forms, and employed various acridine compounds and different bacteria, they have regularly shown that these compounds will avert an otherwise fatal infection if applied to tissues into which virulent bacteria have recently been introduced. This could be said of no other antiseptic until the advent of the sulphonamides; indeed, control animals in some of these experiments were treated with such substances as phenol and mercury perchloride without effect. It has also been well known since their introduction that the flavines are comparatively non-toxic; they can be not only applied to exposed tissues without causing evident damage but injected interstitially, this being the proper treatment of a dangerous punctured wound. Short of causing actual necrosis an antiseptic may admittedly do harm by damaging individual types of cell, and the toxicity of the flavines for leucocytes is the subject not only of a now historic controversy but of conflicting observations even within the past few years. So completely discordant are some of the results reported that, as Browning says, they serve only to condemn some of the methods by which they were obtained. The weight of evidence on this point is that leucocytes will at least survive exposure to flavine concentrations which are bactericidal, even though their phagocytic capacity may be impaired.

It may well be asked why, if the flavines have these outstanding merits, their clinical performance has not been correspondingly successful throughout their twenty-six years' history. There are two answers to this question: wrong choice of compound and misapplication. The existence of three different acridines—apart from proprietary compounds such as rivanol and vuzine—popularly regarded as interchangeable, but in fact having quite different properties, has been an obstacle to successful use, particularly since acriflavine, the most popular, is now known to be the least satisfactory. A. Albert, who has synthesized a number of new acridine compounds, two of which are highly promising, drew attention five years ago to the superiority of proflavine, and this was strikingly illustrated by Russell and Falconer in their tests on the exposed rabbit's brain. The application and injection of solutions of acriflavine and various antiseptics of other kinds caused a severe haemorrhagic necrosis, but a neutral isotonic solution of proflavine caused no more apparent damage than normal saline. Proflavine is therefore the compound of choice, and there is recent experimental evidence in the work both of Hawking and of McIntosh and Selbie that it is an efficient wound prophylactic; indeed, in the prevention of gas gangrene it appears to be superior to the sulphonamides. There is no corresponding evidence from the clinical field, because no organized attempt has been made to obtain it, whether in dealing with war wounds or otherwise. The new clinical evidence refers not to prevention but to the treatment of established infection, a totally different problem and one presenting greater difficulties. It is here that the method of application becomes most important, because it is clearly necessary that the antiseptic should not only penetrate every part of the wound but persist there in adequate concentration for a considerable period of time. Of the two chief methods used in the past neither was calculated to achieve this. The drawback of a wet dressing is that all the antiseptic dyes, including the acridines, have an affinity for fabrics, and tend rather to combine with than to diffuse away from them. The *B.P.C.* acriflavine emulsion—perhaps the commonest form in which any acridine compound has been used for twenty years past—is so constituted that almost none of the acriflavine can escape from it, and it is therefore of no more value than simple liquid paraffin. The solution to this problem, which proves to be simplicity itself, was found in Libya by Mitchell and Buttle, who introduced proflavine into wounds by the same method, though not in the same quantity, as sulphanilamide—namely, as a powder. The solubility of proflavine sulphate is about 1 in 300, and by analogy with what is known of the relation between solubility and persistence in wounds among the sulphonamides, it may be deduced that under given conditions a moderate amount of proflavine will take at least two days to undergo complete solution, and will therefore act in full concentration throughout that time. The results obtained by this treatment, even in cases of intractable suppuration, were often dramatic. These are good reasons for saying that the flavines have come into their own again; proflavine has indeed come into rather more than has ever been claimed in the past. It should certainly be given further trials in comparison with other agents for both prevention and treatment of wound infections.

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[1] *British Medical Journal*, 1943, 1, 324.

INDUSTRIAL HEALTH AND HYGIENE

Two important announcements with regard to the promotion of industrial health were made by Mr. Ernest Bevin, Minister of Labour and National Service, at a conference in London on March 11. The first was the setting up of an Industrial Health Advisory Committee attached to his Department. He explained that the Industrial Health Research Board, which had existed since the last war, would continue; but that was a body engaged on long-term inquiries, whereas the new Committee would concern itself, through its panels, with immediate improvement of industrial environment and diminution of health hazard, and would include engineers, chemists, physicists, and representatives of employers and trade unions, as well as medical men. The other announcement concerned a three-day conference on industrial health, to open in London on April 9.

Mr. Bevin said that industrial health had been rather relegated in the past to a separate compartment. The ordinary general practitioner had not had very much knowledge of the actual conditions of industry and had tended to regard industrial health as a matter for the specialist. But during the war there had been great improvement. The services of a large number of part-time works doctors had been enlisted, and liaison had been obtained between works doctors and outside medical services. The great trouble was the shortage of medical men. But he added that industrial health was not entirely a medical problem. Such a question as the design of factories and offices came in, and it was important for employers to have advice on planning and lay-out. The employer naturally sought to get the utmost out of his machines, but he had also to study the human factor, and it had been found, rather paradoxically, that a slight slowing down of the rate of production actually increased production. When machines were working at their full capacity the nerve strain was very great, and there was so much "standing off" and introduction of new workers on account of the exhaustion of those whom they replaced that better results were obtained by a certain slowing down.

Another important factor was the development of safer materials and methods and more effective safeguards. Mr. Bevin gave as illustration the discovery of a harmless substitute for yellow phosphorus in the manufacture of matches, the introduction of leadless pottery glazes, and the substitution of solvents less toxic than benzene and carbon bisulphide in rubber cements. It would be the duty of the new Committee to keep step with every new discovery in order that the best possible use of it might be made. He believed also that methods of lighting and ventilation were still in their infancy, and that great scientific developments in these respects which were now used for war purposes would in time become available for industry generally. The Committee would also concern itself with nutrition. The Ministry was extremely anxious to maintain the present feeding arrangements after the end of the war, because it had been clearly shown that they were one of the great checks against industrial ill-health.

In passing he paid a tribute to the factory inspectorate, medical and other; they had never received enough publicity. The combination of medical with other inspectors had led to good results. The Committee would develop the machinery of inquiry (as distinct from research) into industrial health questions by increasing facilities for *x*-ray examinations, examinations of blood samples, medical supervision of particular cases of illness, and so on. Soon after he came to office he issued an order relating to medical services in factories. Many employers who opposed him very much at the time now told him that this had proved to be one of the greatest economies ever introduced into the industrial system. He believed that the development of medical services in factories would go on after the war by its own volition, and that among the qualifications for good managership would be reckoned an interest in and knowledge of industrial health and hygiene. What was needed was a greater exercise of the experimental mind in this respect. A good deal of progress was made during the last war, but with the great unemployment period there was a setback. He paid a tribute to the pioneer work of Sir Thomas Legge, the first medical inspector of factories. It was such work as his to which it was now desired to give further impetus.

In reply to a question as to how the recommendations of the Committee would be implemented, Mr. Bevin said that where regulations were necessary these would be operated through the Factory Department of the Ministry, where social change was necessary they would be operated through the Welfare Department; and where scientific development was called for, through the various scientific bodies.

OCCUPATION AND THE MOUTH

An article by Schour and Sarnat[1] on oral manifestations of occupational origin is of topical interest now that so many practitioners have entered the factories to promote health in industry. The oral cavity is especially prone to occupational disease. Foreign substances which are inhaled or ingested during talking, laughing, and eating tend to collect and stagnate in the mouth, especially along the gum margins of the teeth. The rich blood supply, too, although it promotes resistance to infection, brings to the oral cavity substances which may have been absorbed elsewhere. Thus the soft tissues and the bone may be affected by local or systemic irritation, but the exposed enamel and dentine, being both avascular and acellular, are affected only by local factors. The teeth may be injured mechanically, often in a way characteristic for the occupation—for example, by threads, tacks, nails, or similar articles held in the mouth. Dusts such as cement and sand produce generalized abrasion, and acid fumes decalcify the dentine and enamel. Damage to the soft tissues by acid fumes, or gases such as ammonia, chlorine, and bromine, may favour secondary infection and Vincent's ulceration. Chronic and recurrent irritation, as in food-tasters, glass-blowers, and cobblers, may give rise to leukoplakia and carcinoma. A high incidence of tooth decay has been reported among workers in sugar dust, which is deposited on the labial aspect of the gum margins, where it stagnates, with consequent fermentation and formation of acid. The "sugar caries" which results is highly characteristic. The crowns of the teeth may be stained various colours by metallic dusts, but the staining is superficial and is removed by proper cleaning. On the other hand the gingival lines of lead, bismuth, and mercury are due to the deposition of the sulphides of the heavy metals in the dermis. Phosphorus, mercury, and radium affect the alveolar bone. In the early stages the disease may not extend beyond the apices of the teeth, but in the later stages the osteomyelitis may include the greater portion of the jaws and be followed by sequestration. Gingival bleeding, ulceration, and necrosis of the maxilla may also result from exposure to benzene, as a result of the toxic action on the blood-forming organs.

Almost all the oral manifestations of occupational origin are predisposed to and aggravated by neglect of oral hygiene. In fact, the presence of the aetiological agent alone is not enough to cause oral disease; the general and the oral health of the patient are equally important. In other words, oral hygiene is an essential part of industrial hygiene. Nevertheless, nutrition surveys and the observations of medical officers entering industry since the war have shown that the essential basis for oral hygiene in the factory is lacking in this country. The state of the teeth of the worker is lamentable—widespread caries and gingivitis, and up to 50% edentulous before the age of 30. It is almost certainly due in large part to the malnutrition that was so prevalent before the present war.[2] The situation can be remedied only by a better standard of nutrition, better education of the public, and better provision for the prevention and treatment of dental disease during the years of growth. Until it is remedied, the task of the dentist trying to practise conservative dentistry in the factory and to improve oral hygiene in the workers is not an enviable one.

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[1] *J Amer. med Ass.*, 1942, **120**, 1197.

BRAIN VOLUME DURING ANAESTHESIA

Swelling of the brain during an intracranial operation is serious and may be such as to make the operation difficult, if not impossible. White and his co-workers,[3] in some studies on cats from which the brains were removed and examined when various conditions of anaesthesia had been reproduced, have shown which factors lead to brain swelling and how they may be avoided. The anaesthetics used were pentobarbital sodium (nembutal), nitrous oxide, and ether. Anoxia, from obstruction of the respiratory tract, from failure of the respiratory centre, or from an inadequate volume of oxygen in the inspired mixture, always led to swelling of the brain by exudation of fluid from the capillaries. Nembutal and ether did not of themselves cause swelling of the brain, but did so in the presence of anoxia. Anoxia from obstruction of the respiratory tract can be avoided by endotracheal intubation, which is, therefore, important in general anaesthesia for neurosurgery, and is recommended by the authors as a routine for this work. Nitrous oxide should not be used alone for craniotomies because reduction of the inspired oxygen percentage below 10%, or any oxygen saturation of the arterial blood below 80%, led to brain swelling. The slight apparent swelling of the brain under ether from its vasodilator effect on the cerebral vessels was not considered significant, and when it occurs in man is not disturbing to the surgeon. The authors found that engorgement of the cerebral vascular bed was not related to anoxia *per se*, but to an increase in the tension of CO_2 in the arterial blood. Hypercapnia can occur in general anaesthesia, and should be avoided by using endotracheal anaesthesia and by ensuring that CO_2 cannot accumulate because of a faulty anaesthetic machine. Whereas, experimentally, anoxia and hypercapnia have been studied separately, in poor general anaesthesia they generally occur together, and when there is severe respiratory obstruction which prevents adequate intake of oxygen and output of CO_2 there may be such extreme swelling and congestion of the brain that it entirely fills the cranium and herniates through the operative defect.

The importance of adequate oxygenation of patients with head injuries is discussed by these authors and also by Schnedorff and others,[4] who have shown that in experimental concussion in dogs and in cerebral injuries in human beings the oxygen saturation of arterial blood may fall well below the critical level at which exudation of fluid from the capillaries occurs. Most of the patients who die come into this group, but those with oxygen saturation above the critical level recover. A warning of especial importance in wartime is that removal by aeroplane of patients with cranial injuries is dangerous. There are changes in the volume of the cranial contents at about 11,000 feet; atmospheric oxygen is reduced to about 15 vols. %, at which level in the normal individual arterial oxygen tension falls to about 85%.

SURGERY OF COMMUNICATING HYDROCEPHALUS

When progressive hydrocephalus is not due to obstruction to the flow of cerebrospinal fluid, it is logical to limit the secretion of fluid by destroying the choroid plexuses. Scarff[1] has reported upon the results of a series of endoscopic cauterizations of the choroid plexuses, using an improved ventriculoscope, which he first described in 1935. Putnam[2] had previously recorded a method of introducing a lighted instrument through a burr hole into the large ventricles of hydrocephalic children. Good illumination of the choroid plexuses was obtained, and it was found possible to cauterize them under direct observation without an extensive operation. Unfortunately, leakage of fluid caused a fall in pressure, followed in some cases by collapse of the patient. Dandy,[3] who first attempted destruction of the choroid plexuses by open operation in 1918, attributed his fatalities to this collapse, and described the falling in of the thin cerebral hemispheres. Scarff maintains the pressure by means of a reservoir of fluid connected to the ventriculoscope, which can be raised to equal the intraventricular pressure. At first he used Ringer's solution, but he has found a solution of sodium, potassium, calcium, and magnesium chlorides—"artificial cerebrospinal fluid"—to be more easily tolerated. His operative technique is similar to Putnam's and his results are interesting and encouraging. He has performed 48 operations on 20 patients, cauterization of the plexus on each side counting as two operations. Three children died as a result of the operation, and it seems that in each case death was due to sudden fall in intraventricular pressure after the patient had returned to bed. He later prevented a similar catastrophe by promptly restoring the pressure with an intraventricular needle connected to a reservoir of artificial spinal fluid. Although his total operative mortality is 6%, Scarff has had no deaths in the last 4 years. Seven (35%) of the surviving children were not greatly improved, but the other 10 (50%) have maintained a reduced intracranial pressure for periods ranging from 6 months to 6 years. Of these, 4 are mentally quite normal and 3 are only moderately retarded. Moderate hydrocephalus in childhood often becomes stationary, and is not necessarily accompanied by backwardness, but in all Scarff's patients there was progressive and even great enlargement of the head before the operation, while his clinical photographs show very convincingly the results he has achieved. Non-obstructive hydrocephalus is, of course, only one of the many causes of cranial enlargement in early life, and Scarff rightly stresses the importance of careful investigation, including a ventriculogram and a dye test—recovery of dye introduced into the ventricles by lumbar puncture. This must be followed by careful selection of cases, radical cauterization, and a most meticulous post-operative observation, for the good results depend upon timely intervention and sometimes upon a further operation.

Sir Charles McMoran Wilson, President of the Royal College of Physicians of London, who was created a baron in the New Year Honours, has taken the title of Baron Moran of Manton in the County of Wiltshire.

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[2] *The Human Needs of Labour*, by B. S. Rowntree, London, 1937.

[3] *Arch. Surg.*, 1942, **44**, 1.

[4] *Surg. Gynec. Obstet.*, 1940, **70**, 628.

[1] *J. Pediat.*, 1935, **6**, 870.

[2] *Amer. J. Dis. Child.*, 1942, **63**, 297.

[3] *New Engl. J. Med.*, 1934, **210**, 1373.

[4] *Ann. Surg.*, 1918, **68**, 569.

DECREASE IN ADMISSIONS TO MENTAL OBSERVATION WARDS DURING WAR

BY

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Much has been thought and written about the effect of war conditions on the neuroses, and it is generally agreed that there has been little or no increase even among populations who have been subjected to the heaviest enemy action. Less attention has been given to the influence of war conditions on the incidence of the more grave mental disturbances of psychotic nature. The facts regarding this subject are not easily ascertained, but it has seemed to me that it might be worth while to consider some statistical details relating to a particular area, and that these, taken together with similar details from other areas, might have a general implication.

It is impossible to state the actual incidence of mental disturbance in any given community, but it can be said that the great majority of persons whose mental condition or behaviour demands restraint and/or supervision must be admitted to suitable institutional care. In this area, except with those individuals—a small proportion—whose means allow of private care, or in cases in which voluntary admission to county mental hospitals is arranged direct, such persons must in the first place go into a mental observation ward. The variation in the number of admissions and of types of disorder should therefore have some significance in relation to the population as a whole.

Yearly Figures for Liverpool

The mental observation wards, male and female, for the whole of the administrative and "user" area of the City of Liverpool, supplying a population of upwards of a million, are confined to a section of one large municipal general hospital. It was therefore decided to note the yearly total of admissions to these wards for each of the first three years of the war and for the three years preceding it, calculating each year from Sept. 1 to Aug. 31. It would have been interesting to make a diagnostic classification, but to do this accurately is quite out of the question in view of its inherent difficulty and of the often short period of stay in hospital. There are, however, several conditions in which a definite diagnosis is available, and three fairly common reasons for admission for observation are those of attempted suicide, epilepsy, and G.P.I.

Cases in Female Wards

	1936–7	1937–8	1938–9	1939–40	1940–1	1941–2
Admissions	603	631	570	465	395	357
Attempted suicide	64	66	66	39	27	34
Epilepsy	35	40	33	37	21	26
G.P.I.	11	11	13	4	3	7
Discharges	631	623	581	464	402	383
To mental hospitals	183	160	142	108	105	112

Cases in Male Wards

	1936–7	1937–8	1938–9	1939–40	1940–1	1941–2
Admissions	530	547	484	493	374	338
Attempted suicide	65	68	82	61	38	31
Epilepsy	44	35	28	18	15	21
G.P.I.	21	26	22	17	12	14
Discharges	529	551	485	519	404	340
To mental hospitals	110	107	122	138	135	131

The yearly total of admissions for mental observation, both male and female, is given, and the yearly number of those who were transferred to mental hospitals. The difference between the latter figures and the total discharges for each year is accounted for by the number of patients who were discharged to their friends or relatives and to other wards or hospitals (no longer requiring mental supervision), or who died. It will be seen that a steady fall in the number of admissions began from the year preceding the outbreak of war, and that there was a very pronounced drop from 1936-7 to 1941-2. The numbers of cases transferred to mental hospitals show some variation, but this has no immediate significance as regards the incidence of mental disorder, patients being transferred only when vacancies at mental hospitals are available.

Commentary

Is the great reduction in the admissions indicative of a decrease in the incidence of mental disorder? The figures may have been influenced by several factors, such as a lowering of the population of the area, admission of psychopathic individuals into the Services, an increase in the number entering county mental hospitals directly as voluntary or temporary patients, the evacuation of the more unstable types of individual to "safe" areas, and possibly increased admissions into hospitals from safe areas. Though these factors may have played a part, it is to be observed that the number of transfers to mental hospitals on certificate from this hospital has shown no notable change and that there is a fairly constant hard core of the more intractable, more severe, or chronic cases which require longer institutional care. It would appear, then, that the reduction in admissions applies mostly to the less severe, less urgent, and more transient cases; and it would seem reasonable to assume either that such cases remain at home or that they occur less frequently. The former explanation is unlikely, because it seems that in families in wartime there is less willingness or ability to give the care and supervision necessary for mentally handicapped members. Indeed, a relative increase of old people and of mentally defective individuals is noticeable among the admissions, patients coming into hospital who show disabilities of long standing but who previously had been cared for in their own homes. Diagnostic classification of all the admissions might have thrown some light on this question, but as it has been impossible to do this with any reliability the investigations have been confined to the three conditions shown in the tables. The figures for epilepsy and G.P.I. show a downward trend during the war years, but the significance of this can only be a matter for speculation. The marked decrease in suicidal attempts, however, is striking, and may have some relation to the general decrease in admissions.

Conclusion

It seems to me that the above figures point to a decrease during the war in the incidence of mental disturbance, and that this decrease is the result of wartime conditions. Of these conditions the chief factors appear to be the increased opportunities of employment, the strengthening of the community spirit, and a lessening of that consciousness of mental isolation which is so favourable to the development of psychological abnormality.

Acknowledgment is made to Dr. J. P. Steel, medical superintendent of Smithdown Road Hospital, for permission to publish these figures.

THE EMPIRE RHEUMATISM COUNCIL

The sixth annual report of the Empire Rheumatism Council announces that an agreement on joint policy has been reached with the British Orthopaedic Association, one of the items being that orthopaedic hospitals or orthopaedic departments of general hospitals shall include on their medical staffs a physician with a special knowledge of rheumatic diseases, and rheumatism centres shall include an orthopaedic surgeon. To put the policy into effect a standing advisory committee has been constituted, with Lord Horder as its chairman and Mr. G. R. Girdlestone as vice-chairman. The report mentions increased pressure on the very few treatment centres in industrial areas. It is true that some of the spa institutions are not fully utilized, but, valuable as is the part which they can take in rheumatism treatment, obviously they cannot meet the needs of the many thousands of sufferers who require facilities near their homes. Clinics in London—the Red Cross Clinic, the clinic of the Order of St. John, and the clinic at the West London Hospital—are working to capacity or beyond it, and other treatment centres in England and Scotland report that their services are fully utilized. The statistics of the clinics show that about 60% of the patients obtain cure or substantial relief if they receive the right treatment at an early stage, and this without serious disturbance of their industrial and domestic life. The fact remains, however, that the number of centres is so inadequate that for the majority of sufferers no facilities for appropriate treatment are available. By careful husbanding, the total funds at the disposal of the Council have increased to nearly £9,000.

CONSULTATION BETWEEN THE GOVERNMENT AND THE MEDICAL PROFESSION

The following statement has just been issued by the Secretary of the British Medical Association:

This announcement is of importance to every member of the medical profession. It was made clear on behalf of the Government in the recent Parliamentary debate on the Beveridge report that the object of the Government is to organize publicly for the first time a unified and comprehensive health service to cover the whole range of medical service, special and general, institutional and domiciliary, this service to be universally available to every member of the community.

At the Minister of Health's invitation representatives of the main bodies of the medical profession, including the British Medical Association, met him on Tuesday, March 9, to consider his suggestions on the procedure to be adopted for consultation between the Minister and the medical profession in the months ahead. The Minister has asked that there shall be set up a committee, representative of the medical profession as a whole, to consider with him and his officers the many and important problems and difficulties involved. It was agreed that this committee would have no power whatever to commit the medical profession either in principle or in detail. Further, an undertaking has been given that the discussions will take place not on the basis of any preconceived plan of the Minister, but "from the ground." It is contemplated that when the stage is reached that the Government, after consultation with the medical profession, is ready to indicate in general terms the measures the Minister has in mind to submit to Parliament on behalf of the Government, those proposals will be submitted, before any final decision is reached as to what is to be put before Parliament, to the various medical bodies represented in the discussion with the Minister, for their full consideration and the expression of their views.

In the case of the British Medical Association this will mean that at the appropriate time the Government's provisional proposals will be considered by the Council and all Association Committees affected, including Group Committees, by the Divisions, and by the Representative Body. Divisions will be requested to ascertain the views of non-members as well as members of the Association. After decision by the Representative Body, and only then, will the Association be asked to commit itself to decisions. Similar considerations apply to the other co-operating medical bodies.

The Minister's assurance is set out in the following official communication addressed by the Secretary of the Ministry of Health to the Secretary of the British Medical Association:

"Dear Dr. Anderson,

"Following the preliminary meeting which took place on Tuesday last between the Minister and representatives of the medical profession it may be useful if I set out shortly what we conceive to be the scope and purpose of the discussions of the proposed National Health Service which, as has been agreed, will now take place.

"I need not tell you that the establishment of a Health Service on the lines envisaged by the Government would constitute the greatest single step forward in public health in the history of this country, nor that the working out of this scheme will throw up a mass of novel and difficult problems. Moreover, the scheme will of necessity affect deeply the structure of the medical profession. These considerations alone would make it incumbent on the Minister and his advisers to seek all possible help and guidance from the profession; and, so far as the Department is concerned, this is the primary object of the proposed discussions.

"The Minister appreciates, of course, that views expressed on your side must not be taken as committing the profession as a whole, and similarly he does not contemplate announcing in the course of the discussions any final conclusions on the part of the Government. What he desires is a frank expression of the opinions of those best qualified to judge both issues of a technical and professional kind and—what is no less important—as to the probable attitude of the profession towards any proposals that may be put forward.

"We contemplate that at some stage it will no doubt be convenient to the profession, and, indeed, to all concerned, if a statement is published indicating in general terms the kind of measures which the Minister would have in mind to submit to Parliament on behalf of the Government. This will afford your group ample opportunity for further deliberation and reference back to the constituent bodies; and in framing any time-table we shall not lose sight of the fact that so many of the profession are serving over-seas

"As you will understand, the same considerations will apply to the discussions now about to begin with representatives of the local government organizations and of the voluntary hospitals.

"I am authorized to say that the Secretary of State for Scotland has seen this letter and agrees that its terms represent the basis on which any discussions which may take place with the profession on problems that have special reference to Scotland will proceed.

"I may add that you are at liberty to bring this letter to the notice of the profession by publication in the medical press or otherwise as you think fit.

"Yours sincerely,

(*Signed*) E. J. MAUDE"

Consultations have been proceeding between the Association, the three Royal Colleges, and the Society of Medical Officers of Health as to the composition of the representative committee to take part, though not as plenipotentiaries, in the discussions with the Minister and his officers on the position in England and Wales. It is anticipated that the general discussions on the main fabric of the proposed scheme will cover Scotland, and for this purpose special representatives of Scotland are added. It has been agreed that a body of the following composition can be regarded, for the purposes of these discussions, as adequately and properly representing the medical profession The Representative Body of the Association at its meeting on March 31 will be asked to endorse this view.

Representative Committee

Chairman of Council of B.M.A. (Mr. H. S. SOUTTAR).
Chairman of Representative Body of B.M.A. (Dr. PETER MACDONALD).
2 representatives of Royal College of Physicians: Lord MORAN, President; Dr. H. E. A. BOLDERO.
2 representatives of Royal College of Surgeons: Sir ALFRED WEBB-JOHNSON, President; Sir GIRLING BALL.
2 representatives of Royal College of Obstetricians and Gynaecologists: Sir WILLIAM FLETCHER SHAW, President; Mr. W. GILLIATT.
2 representatives of Society of Medical Officers of Health: Dr G. F. BUCHAN; Dr. H. M. C. MACAULAY.
2 representatives of Medical Women's Federation: Dr. DORIS ODLUM; Dr. MARY ESSLEMONT*.
1 representative of Provincial Teaching Staffs Association: Prof. T. H. OLIVER.
Chairman of Conference of Local Medical and Panel Committees (Dr. J. A. BROWN*).
Prof. R. M. F. PICKEN, Chairman of Public Health Committee, B.M.A.; Professor of Preventive Medicine, Welsh National School of Medicine.
Mr. R. L. NEWELL, Chairman of Hospitals Committee, B.M.A.; Hon. Assistant Surgeon, Manchester Royal Infirmary.
Prof. HARRY PLATT, member, Special Practice Committee, B.M.A.; Professor of Orthopaedic Surgery, University of Manchester.
Prof. HENRY COHEN, Professor of Medicine, University of Liverpool.
Dr. H. GUY DAIN,* Member of Council and former Chairman of Representative Body, B.M.A.
Dr. E. A. GREGG,* Chairman of Insurance Acts Committee, B.M.A.
Dr. S. WAND,* Chairman of General Practice Committee, B.M.A
Dr. A. S. WIGFIELD,* Hon. Secretary, East Herts Division; Physician, Royston Cottage Hospital.
Dr. S. A. WINSTANLEY,* Member of Insurance Acts Committee, B.M.A.; Hon. Medical Officer, Urmston Cottage Hospital.
Dr. F. GRAY,* Member of Council and of Insurance Acts Committee, B.M.A.
Dr. P. V. ANDERSON,* Member of Insurance Acts Committee, B.M.A.; Hon. Secretary, Bishop Auckland Division.
Dr. O. C. CARTER,* Member of Council, B.M.A.; Hon. Secretary, Bournemouth Division; Hon. Anaesthetist, Royal Victoria Hospital, Bournemouth.
Dr. D. J. B. WILSON,* Member of Insurance Acts Committee, B.M.A.; Chairman, Buckinghamshire Division.
Dr. J. A. L. VAUGHAN JONES,* Member of Council, B.M.A.; Hon. Secretary, Leeds Division.
Dr. A. TALBOT ROGERS,* Member of Insurance Acts Committee, B.M.A.; Hon. Medical Officer, Bromley and District Hospital
Dr. W. V. HOWELLS,* Hon. Anaesthetist, Swansea Hospital.
To be appointed: One Member of Staff of Provincial Non-teaching Hospital.

Scottish Representatives

Royal College of Physicians, Edinburgh: Prof. C. MCNEIL, President.
Royal College of Surgeons, Edinburgh: Mr. H. WADE, former President.
Royal Faculty of Physicians and Surgeons, Glasgow: Dr. J. H MACDONALD, President.
Dr. J. B. MILLER,* Deputy Chairman of Representative Body, B.M.A.
Dr. A. F. WILKIE MILLAR,* Chairman of Scottish Committee, B.M.A.
Dr. J. F. LAMBIE,* Chairman of Scottish Insurance Acts Subcommittee, B.M.A.

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* General practitioner.

The B.M.A. fully recognizes that so far as is possible every step should be taken to give members of the profession on Service an opportunity of expressing their views on any plan put forward by the Government. When proposals are put forward by the Government for examination by the medical profession, machinery will be set in motion for communicating individually with Service men and women whose views cannot be ascertained through the normal machinery, for the assessment of those views, and for their presentation to the Representative Body.

Now, as perhaps never before, there is a need for unity within the medical profession. The present phase is one of consultation without commitment, and the various bodies within the profession, notably the B.M.A. and the Royal Colleges, have agreed to co-operate in one representative committee. It is inevitable that any scheme of reorganization deeply affecting the structure of the medical profession should be the subject of discussion, difference, and controversy. What is necessary now is that the medical profession should have confidence in those who will represent them in preliminary discussion, awaiting the time when, through its own organizations, it can examine concrete proposals and express its considered views.

Correspondence

The Need for a National Accident Policy

SIR,—The Factory and Welfare Advisory Board of the Ministry of Labour and National Service have recently published a pamphlet (PL113/1942, December, 1942) entitled "Fracture Treatment and Rehabilitation—Emergency Hospital Scheme." The Board state that they "are anxious that industrial workers who, *because of accidents of any kind*, may be in need of special treatment should be in a position to take advantage of all the facilities that may be available for the provision of this treatment." And then they state that "for this purpose . . . employers, trades unions, personnel management, and other interested persons should be aware of the facilities that have been provided under the Emergency Hospital Scheme by the Ministry of Health and the Department of Health for Scotland for fracture treatment and rehabilitation of industrial workers." The pamphlet goes on to show how this scheme has developed from one originally "intended mainly to cope with air-raid needs and to help the Services" to one which includes "a large-scale orthopaedic and fracture treatment service, with facilities for up-to-date rehabilitation" for "war industry in the widest sense, including munition work, ship building and repairing, building and civil engineering, mining, agriculture, fishing, public utility undertaking, shipping and transport." This "service" applies whether the fracture occurs during employment or not.

So far so good, but when men and women are injured in factories only a small proportion of those cases which lose three days or more—i.e., reportable accidents—are fractures. Evidence for this statement comes from the Annual Report of H.M. Chief Inspector of Factories (1936), where it is stated that 8,530 fractures occurred, excluding fractures of the skull, out of a total number of 176,390 injuries—i.e., a fracture incidence of 4.8% in a factory population then of over 5,000,000. Even if the rate for 1942 is greater it is reasonable to suppose that it is still below 10%.

In a covering letter introducing his policy for fracture treatment which he sent to the director of the British Employers' Confederation on Dec. 28, 1942, Mr. Ernest Bevin states that the purpose of this arrangement—namely, the fracture treatment service, including rehabilitation—was "to get those employed in industries vital to the war effort back to their posts at the earliest possible moment and as fit and well as modern medicine could make them." We must agree that fractures require specialized treatment by specially trained surgeons, and in industry we are more than grateful that this view is at last generally accepted by British surgeons, thanks to the pioneer work of the B.M.A. Fracture Committee. But from the evidence it is reasonable to suggest that Mr. Bevin's Advisory Board and Mr. Bevin himself have not faced the problem fully. Why only provide special facilities for fractures, which constitute at most one-tenth of the cases? Is the reason possibly the fact that Mr. Bevin is inadequately advised? I feel certain, from personal knowledge of the vigorous action that he has taken in other matters to do with the health of the working man, that if the position was laid fully before him he would act still more forcefully and introduce a scheme to include all workers who are incapacitated because of accident, no matter what the form.

So once again British surgery has a challenge, this time directly from the workers themselves, through those of us who are in daily contact with them in the factory. They demand that the treatment and rehabilitation of the soft-tissue injury, the infected hand, or the lacerated wound will be on a par with that available for the fracture. For these injuries, both in their effect on production and on future earning power, are in every way as incapacitating as the fracture; and because numerically they outnumber fractures many times, the problem they present is proportionately greater. Who, then, is to take up this challenge? Will the British Orthopaedic Association come into the field and give us a lead? It seems to me that orthopaedic surgeons, and in particular those who come into personal contact with injured members of the fighting Forces, must surely be the body not only best organized but as a group most fully qualified to provide the answer.—I am, etc.,

Birmingham DONALD STEWART.

Blood pH and Haemolysis

SIR,—Lieut.-Col. Felix Smith and Capt. R. Winston Evans (March 6, p. 279) appear to make two claims: (1) that increasing the *p*H of hypotonic saline increases the resistance *in vitro* of erythrocytes from normal and malarial subjects to haemolysis in that solution; and (2) that increasing the *p*H of the blood *in vitro* increases the resistance of the erythrocytes of blackwater fever patients to haemolysis in the blood stream. That they regard these two observations as related is shown by their statement: "The application of the results of the experimental work on fragility mentioned above is obvious. Alkalis must be given in such amounts as actually to increase the *p*H of the blood plasma." With a similar argument one could say that because oxygen will relieve an airman at 15,000 ft. of his light-headedness and irresponsibility, therefore it will cure the drunken sailor at sea level of his alcoholic intoxication.

It is true that in some, but not all, haemolytic states there is an increased osmotic fragility of the erythrocytes. This is, however, much more likely to be a result rather than a cause of the disease process. Even in familial acholuric jaundice, where the change is marked, the condition persists after splenectomy when the haemolysis is checked. And in blackwater fever the fragility is only very slightly increased.

It would be more reasonable for the authors to claim that alkalinization of the urine in blackwater fever cases is not sufficient and that a state of alkalosis must be produced to prevent haemolysis, though to do so would need more evidence than they have brought forward (their observation is apparently based on the findings in three out of their sixteen cases). To relate this, however, directly to the prevention of haemolysis *in vitro* under highly artificial conditions is unwarrantable. Furthermore, while none of the dangers of alkalosis has been mentioned, treatment by early blood transfusion is deprecated, in part because of the alleged but not substantiated high reaction rate. This is attributed to incompatibility of the donors' blood, so that a cross-matching test at ice-box temperature is recommended. "It often happens that out of a dozen donors, all of the same group as the patient, only one or two—and sometimes none at all—are really compatible when subjected to this stringent test." The authors cannot be aware of the fact that 75 to 98% (according to various authors) of normal bloods contain auto-agglutinins active at this temperature. Thus under the conditions laid down the vast majority of donors would be incompatible even with a normal recipient. It would be more logical to advise cross-matching at 37° C.; auto-agglutinins active at room temperature but not at body temperature are not infrequently found in haemolytic states. Pseudo-agglutination also is often extreme.

One's experience of cases of blackwater fever in this country is necessarily limited. In two recent cases, however, repeated blood transfusions with concentrated red cell suspensions were without reaction and gave most satisfactory results. Similar good results have been obtained elsewhere. This may largely be due to the extreme care taken by the War Emergency Blood Transfusion Services in the preparation of anticoagulant solutions and administration apparatus. Certainly one would require evidence that (*a*) pyrogens were absent from the authors' transfusion fluids and apparatus, and (*b*) reactions were unduly common and severe in cases of blackwater fever, but not in control cases, before denying such patients the generally accepted benefits of blood transfusion.—I am, etc.,

Sutton, Surrey. JOHN F. LOUTIT.

Calorie Control

SIR,—The article by Dr. A. C. Crooke and Miss Ella Scott (Jan. 16, p. 64) and the comments thereon are most instructive. I am sure Dr. Crooke is right, and I believe that Dr. C. M. Fletcher's observation (Feb. 13, p. 201) that diabetics (he might have said all Englishmen) are conservative in their dietary habits is part of the explanation. The limits within which reasonable meals can be altered are small. For the purpose of this controversy a diabetic, taking a daily morning dose of Z.P.I. 28 units and S.I. 12 units, has made a great effort to vary the proportion of carbohydrate in a breakfast of 500 calories. The results are tabulated below:

Day	C.	P.	F.	Calories	B. Sugar in mg.%		Result	Remarks
					8 a.m.	12 noon		
1	55	22	23	515	300	225	Drop 75 mg.%	Ordinary breakfast
2	75	20	13	497	343	131	Drop 212 mg.%	High C.
3	37	33	26	514	112	162	Rise 50 mg.%	Low C.
4	80	20	13	517	93	93	No change	High C.
5	34	22	32	512	93	93	No change	Low C.
6	83	18	10	494	68	Insulin reaction	Drop	Severe insulin attack 11.30 a.m.–1 p.m.
7	37	22	30	506	306	281	Drop 25 mg.%	Low. C.

The meals fall into three groups according to the amount of carbohydrate. First, the usual type of breakfast with 55 g. C.; secondly, three with 75 g. C. and over; and, thirdly, three with 37 g. C. and under. The protein was fairly constant (18 to 33 g.) and the fat varied from 10 to 30 g. The food value varied only by about 20 calories.

As judged by the fall in blood sugar the insulin had a greater effect when the proportion of carbohydrate was high; indeed a severe insulin reaction occurred 3½ hours after the highest carbohydrate breakfast. The reason is, perhaps the rapid digestion and absorption of carbohydrate which in the presence of insulin is withdrawn from the blood and stored.

So far as they go these results confirm Dr. Crooke's contention that carbohydrate, protein, and fat can be interchanged. This principle is not new. Ten years ago Rabinowitch (*Diabetes Mellitus*, Toronto, 1933) used a high-carbohydrate, low-calorie, and, especially, low-fat diet (e.g., 238 C., 80 P., 90 F.), and claimed that less rather than more insulin was needed than with the high-protein and fat diets usual at that time (e.g., 80 C., 100 P., 150–200 F.). Both he and Dr. Crooke recognize a constant calorie value as the steadying factor, and Dr. Crooke has gone a step further in varying the ingredients which make up the total calories. He has done a good service to all diabetics in removing almost the last difference between them and normal people.—I am, etc.,

Hove G. M WAUCHOPE.

Caesarean Section in Dystocia

SIR,—I am substantially in agreement with the views expressed by Mr. L. G. Higgins (Feb. 20, p. 212). The points I wish to raise are merely minor criticisms and do not affect my sympathy with his main proposition that Caesarean section is less dangerous for the mother and child than difficult vaginal delivery.

The series of cases which he gives in support of his thesis at the top of page 213—868 with 3 deaths—includes 318 reported by individual operators without mortality. The trouble is that individual operators tend to report series only when the mortality is notably low. What is required to get an accurate idea of the mortality of the operation is an inquiry on the lines of that made by Holland and Kerr in 1921, covering all the large maternity units in Great Britain. This would eliminate the element of luck and demonstrate the results of the operation in average skilled hands.

It is not quite clear whether Mr. Higgins's paragraph on elective operations applies to the lower segment operation only; he does not actually say so.

Later on, when considering the maternal mortality of forceps delivery, he picks on two unnamed hospitals whose figures he gives, and deduces that the mortality is about 1%. We are not told anything about the state of these mothers. Is it not fair to suggest, as he himself does higher up about Caesarean section, that in some of these forceps cases the mother may have been "suffering from some grave complication, by which the outlook is already prejudiced." While I am convinced that his main proposition is right, it does not seem to me reasonable to compare a largely selected series of Caesarean sections with an unselected series of forceps deliveries from two hospitals.

Any extensive survey of the results of Caesarean section in Great Britain should certainly include figures on rupture of the lower segment scar. It is frequently stated that the risk is very small, and this is probably true, but it would be much more satisfactory to have a large body of statistics on the subject. Surgeons do not always publish their cases of ruptured scar, and the experience of a single hospital, even a very large unit, is not great. The lower segment operation, as Mr. Higgins points out, has revolutionized the outlook for potentially infected cases, and I hope we have now left far behind us the days when every Caesarean section was regarded as a blot on the hospital statistics. Our aim should be to get the best possible results for mother and baby in each case, whatever method is used. This paper goes far to show the advantages of Caesarean section in cases other than the older indications of severe contraction of the pelvis and pelvic tumours.—I am, etc.,

Leeds. ANDREW M. CLAYE.

Scientific Freedom and Social Medicine

SIR,—I thought the suggestions made by Dr. Geoffrey Bourne (Feb. 20, p. 227) were excellent so far as they went. They do, however, fall a little short of the changes really necessary. I have no doubt that Dr. Bourne had in his mind concerning the voluntary hospital a continuance of the present medical representation on the governing board, but he does not propose any extension of the arrangement to the public health hospital. Personally I would go further. In my view the present method of running hospitals by lay committees with a somewhat sparse sprinkling of medical members is not the best conceivable. I would like to see the board or committee responsible for the immediate running of each hospital, voluntary or public health, very radically changed to allow the staffs a much greater power in the control. I do not, of course, suggest any change in the ultimate control of public health hospitals by the duly and democratically elected local authority.

My standard board for both sections of the hospital world would consist of three groups of members. First, representatives of local citizens—i.e., members elected by the subscribers in voluntary hospitals and nominated by the local authority in the others. This group could, of course, be increased within limits by the co-option of people interested in and useful to the hospital. Secondly, representatives of the medical staff to a number at least equal to group 1. Thirdly, representatives of various outside bodies. These might include representatives nominated (*a*) by the local general practitioners, (*b*) by the Ministry of Health through some local organization, (*c*) on voluntary hospitals by the local public health authority, and on public health hospitals by the neighbouring teaching or important voluntary hospital, (*d*) by possibly the B.M.A. This third group would be chiefly liaison in function, but would doubtless provide a volume of valuable knowledge and experience. It would also serve to keep the balance between the first two groups.

I am afraid that, unless the public is made aware of the views of the profession by a vigorous campaign, there is very little hope of any reform in the present unsatisfactory methods of running many of our hospitals. In this country the quickest and best method of obtaining results in such a matter is by those most interested getting together and working to the same end—in other words, by forming a committee or society. I am sure that a man in Dr. Bourne's position would have no difficulty in calling such a committee into being if he desires to do so.—I am, etc.,

London, S.W.20. A. J. HOBSON.

SIR,—Dr. Geoffrey Bourne (Feb. 20, p. 227) has done well to reiterate the importance of scientific freedom, Sir James Walton (March 6, p. 298) to point out how much of this freedom is a keynote of the Medical Planning Commission's draft interim report. Freedom, however, like so much else in the world to-day, is total. Security, for instance, is national and social. Each aspect in some respects enhances, in some restricts, the other. The components of freedom are scientific, spiritual, social, economic, and so on, each reacting as above on the rest. Many to-day, rightly or wrongly, put economic before spiritual or scientific freedom. There is one way, perhaps, by which economic freedom might be used to support scientific freedom so far as doctors are concerned.

The profession might be organized in various services—e.g., a national service of general practitioners; a regional service of voluntary hospital doctors (and perhaps other hospital doctors); a local authority service of public health doctors; a Royal Naval, a Royal Army, a Royal Air Force, perhaps a Mercantile Marine Medical Service, and so on. The doctor in each could be given a basic salary according to his years of postgraduate work, plus emoluments. The basic salary could be the same in all services, irrespective of rank, if any, for a doctor of the same postgraduate experience, no matter in which service or services that experience had been gained. The emoluments would, of course, vary. Thus in the fighting Services there could be emoluments in respect of rank. General practitioners could be paid a fee for emoluments according to the number of persons or scores or hundreds of persons on their list. (Administratively, according to some authorities, a unitary capitation system applicable to the whole population is impossible.) Hospital doctors could have their basic salaries augmented according to whether paying or insured persons could be seen or attended inside or outside the hospital. Similarly, stated emoluments could be paid to local authority doctors. All emoluments, or the principle underlying the payment of emoluments, should be frankly disclosed, however.

A system of equivalent basic salaries such as this might emphasize equality and scientific freedom among doctors; it would also make for mobility. Thus the young practitioner would not require to decide unduly early the service to which he proposed to devote his life-work. He could take his seniority (qualification for increased basic salary) with him wherever he went, and in wartime practitioners could be transferred to the fighting Services with less hardship than at present.—I am, etc.,

Glasgow J. INGLIS CAMERON.

The B.M.A. and the Beveridge Report

SIR,—Many of your correspondents on the free choice of doctor under the Beveridge scheme seem to take the attitude that "100% medical service" is a standard commodity that should be obtainable at the same price at every surgery. In practice, so much of medical therapeutics depends on that intangible quality "confidence" and so little on the actual drugs or technique employed that it seems to me essential for the welfare of the patient that within certain limits they should be allowed to pay their money and take their choice!

The field of medicine is so vast that no one practitioner can ever be equally good at everything. There will always be the man who has a "way with children," or special experience of skins, E.N.T., eyes, gynaecology, etc., and it should be possible for any patient to avail himself of these local subspecialties and for the practitioner to accept remuneration in exchange.—I am, etc.,

New Malden, Surrey HELEN LUKIS.

SIR,—There is one factor that your correspondents who favour the deletion of proviso (*b*) of the B.M.A. resolution have overlooked and that is, the point of view of the patient. The majority of those who can afford private fees would resent being placed on a "panel." Sir John Anderson recognized this fact in presenting the Government's view. He said, as reported in your columns: "The Government has no intention of forcing the new services on those who preferred to make private arrangements for medical attendance or hospital treatment."

There is a certain class to whom the benefits of the panel system might quite rightly be extended—i.e., the dependants of those within the present income limit. Under the present panel system all the benefits of the Beveridge report are available already. We send our patients to consultants at the hospital when necessary. By the hospital contributory scheme, which Sir William himself says is the ideal method, the patients benefit from all the hospital's resources. The tuberculosis clinic and the child welfare centre are open to all. Above this income limit, patients are prepared to pay for treatment and usually prefer to

The panel system, admirable as it is in many ways, rightly or wrongly leaves with the patient a suspicion of superficial treatment and with the doctor a sense of insufficient remuneration for services rendered. That feeling will not be eradicated by including the whole population in a similar system, however extensive a propaganda extolling its benefits might be undertaken. If wealthy patients by purchasing a paltry weekly stamp can command the unlimited services of a doctor, discontent and resentment cannot but arise. They themselves would not wish to be in the same medical category as their household staff.—I am, etc.,

Histon, Cambs A. E. MOORE.

SIR,—Some of us, surely, will hardly agree that Dr. H. W. Bland (March 6, p. 299) has put a question which can blow "sky-high" item (*b*) of the forthcoming motion before the Representative Meeting. Provided the medical profession offers to "every man, woman, and child the whole resources of modern medicine," such private patients could expect no advantage from their doctor. They might like, however, to preserve the priceless capacity of independence in much the same way as any individual may hitherto (in peace) secure his source of power and light privately and not through a public utility service. Moreover, in such case, these potential private patients will confer on the medical profession a degree of independence which many doctors, I feel, value highly.

This is, in my view, a potent argument in favour of item (*b*); but coupled with this it should be categorically stated that the whole "resources of modern medicine" will not be available to anyone unless the remuneration of the services of consultant and general practitioners is properly assessed, and item (*b*) should, therefore, not be taken into account by the negotiators in a fractional sense in the terms of service.

Allied to this aspect of the case is Dr. Geoffrey Bourne's plea for "scientific freedom," more especially with reference to hospitals. The late Mr. Wilfred Trotter spoke of the pursuit of the "dying ideal that an occupation for adults should allow of intellectual freedom." We hope such freedom will be amply allowed to the medical profession, outside as well as inside hospitals, in any scheme which is formulated.—I am, etc.,

St Albans D. S. MORGAN JONES

SIR,—In view of the fact that the most important conferences are shortly to be held at B.M.A. House to decide the attitude of the profession towards the medical side of the Beveridge report, I suggest that it would be well if both delegates and those whom they represent should endeavour first to find the answers to the two following questions.

First, why is it necessary at all to link up the reorganization of the medical profession with a "security from want" campaign? For many years now provision has been made for skilled medical attention for all classes of the community by panel practice, public medical services, school medical services and clinics, maternity and child welfare clinics, hospital and pathological services, and so on. Where, then, does a new scheme of freedom from want of medical service find scope for improvement? Secondly, why is it so necessary to hurry the medical side of the scheme when the remainder of the report is to wait until after the war is over? It is evident that the Minister of Health is in some haste, for he has already summoned certain members of the profession before him to hear his views.

I suggest that there is the same answer to both questions—namely, it is entirely a political matter, perhaps even a party political matter. This war, unlike most wars, is between two rival ideologies: the one, that of the Axis Powers, stands for State organization of the whole nation, or perhaps of every nation; the other, that of the democracies, stands for individualism in effort, in ambition, in freedom, and in reward, upon which the democratic idea is founded. The fact that

Russia is an ally does not affect the issue, because Russia is fighting for her own survival and did not join the democracies until her own safety was attacked. The struggle of the two ideologies, of which this war is a high-spot, has been going on for forty years, and will not be over even when the democracies have won, for it now appears that the planners of State organization, both in Parliament and among our own ranks, are preparing, as they put it, "to win the peace" for their own ideology, which is not that of democracy.

The first tactical move has already been made in this attack on one of the strongholds of individualism—the medical profession—and it is well camouflaged by hanging the proposal on to a general scheme of social insurance for all. But the ultimate purpose is revealed, partly by the haste to put it through during a party truce and during the absence on war service of many who will be vitally affected, while the rest of the report is to be postponed until after the war; and partly by the demand that by this scheme to include everyone, rich and poor alike, it is not really designed to advance "freedom from want" so much as to absorb the entire means of livelihood and the capital invested in their practices of the whole profession, and thus bring this proud and independent body of men under the complete control of the Minister of Health.

I trust, Sir, that the delegates, refusing to be influenced by the doctrine of defeatism so freely preached in some quarters, and realizing that the eyes of the country as well as the profession are upon them, will consider this point of view before taking the enormous responsibility of making such a surrender to the planners of State organization.—I am, etc.,

Diss, Norfolk. J. CUTHBERT PEARCE.

Dietetics of Pregnancy

SIR,—Dr. Doyne Bell's excursion into the field of statistics (March 6, p. 301) and his attempt to show that the "results of the work sponsored by the P.L.H. had no significance" have been dealt with by the statistical members of the committee responsible for the investigation (Feb. 13, p. 204; March 6, p. 301). We must leave your readers to determine how far Dr. Doyne Bell is entitled to enjoy his comforting conclusion that "there is no point at issue between us."

As chairman of the People's League of Health Committee on Maternal Nutrition I would again reaffirm the importance we attach to the significant reduction in prematurity achieved by the administration of nutritive supplements in a research involving about 5,000 pregnant women. These results are reinforced by the work of Toverud in Norway and the investigations carried out in Toronto, and by the well-established observations of the animal breeder.—I am, etc.,

London, W.12. JAMES YOUNG.

SIR,—I have been following the correspondence on this subject initiated by Mr. R. B. Fisher (Jan. 30, p. 144), but there appear to be still one or two points with regard to the Canadian experiment which have been overlooked.

In assessing the value of an experiment from the reported results it seems important to discover as far as possible what the experimenters did in fact do, and to judge the adequacy of the experiment on these grounds rather than on any minor numerical inconsistencies in the report itself. Had Mr. Fisher adopted this approach he would immediately have resolved what he describes as "a puzzling and unsettling phenomenon" —namely, that some of the percentages when multiplied by the stated numbers in the groups do not give whole numbers. It can easily be deduced that for the poor and supplemented groups the numbers on which the percentages giving the obstetrician's ratings were based (in the pre-natal period and during labour) were not 120 and 90 but 116 and 87. Other percentages in the tables present more difficulties, but there seems no reason to doubt that the report as a whole gives a reasonably correct statement of what was observed.

The real difficulty, which none of your correspondents seems to have commented on, is the difference in numbers between the poor group (116) and the supplemented group (87). It is stated that "in those with a poor diet and a low income alternate patients were left on their poor diet," the remainder being given supplements. If the poor and supplemented groups were really selected in this manner occasional rejections for extraneous causes could not give rise to a difference of this magnitude.

A statement by Dr. Doyne Bell in the report referred to by Mr. Fisher may explain the difference. He says: "The general scheme of this work was to study the performances in childbearing of two groups of mothers, one on a 'poor diet' and the other on a 'good diet.' It was soon appreciated that these two groups were not comparable, so the 'poor diet' group was divided into two, one of which had the diet supplemented to the standard of the original 'good diet' group." I have been unable to find any confirmation of this in the published accounts of the experiment, but if true it would lead to a greater number in the poor-diet group. If this is the case these preliminary patients should have been eliminated from the tables giving comparisons between the poor and supplemented groups, since they may not be strictly comparable with the later patients, and the obstetrician's ratings may also have changed as the experiment progressed.

Incidentally, it may be mentioned that Dr. Bell's conclusion (based on the previous histories of the multiparae) that the two groups, poor and supplemented, "differ so widely that neither constitutes a control series of the other" is entirely without foundation. If the percentages he quotes are translated into actual numbers, statistical tests show that differences of this magnitude may be expected to arise by chance.

The large number of miscarriages occurring in the poor-diet group may also be an indication of defective procedure. As Prof. John Marrack has pointed out (Feb. 27, p. 268), miscarriage probably covers all births up to the 28th week of pregnancy; but even so it is rather surprising that the supplementary feeding, which was only begun in the 5th or 6th month, produced such a considerable difference. From the report it is clear that the patients were under observation for a week in order to decide whether they were to be classified as falling in the poor-diet or good-diet group. Another week probably elapsed before supplementary feeding commenced. It is possible that if a miscarriage to a poor-diet patient occurred in this period she would be included in the poor-diet group. This would give a valid comparison with the good-diet group, but an obviously invalid one with the supplemented-diet group. Even assuming that all the seven miscarriages in the poor group occurred in this way, and that they received poor or bad ratings by the obstetrician, their elimination would still leave very significant differences between the poor and supplemented groups. The experiment has obviously been carried out with considerable care, and it does appear on the face of it, in spite of the efforts that have been made to cast doubt on the results, that a considerable effect of diet improvement has been shown.

Further speculation, however, is obviously unprofitable. It would surely be more reasonable if the original authors were approached directly in order that the difficulties and objections that have been raised can be resolved. I cannot believe that they would be unwilling to furnish more detailed results.—I am, etc.,

Rothamsted Experimental Station. F. YATES.

Treatment of Fulminating Meningococcal Septicaemia

SIR,—Although Dr. S. Varadi (Nov. 28, p. 649) and every physician must regard fulminating meningococcal septicaemia with dismay, it is not to be supposed that such a condition is beyond the healing influence of sulphapyridine, even when complicated by bacterial emboli. "The proof of the highest efficiency of chemotherapy" is demonstrated in the following case history.

An able seaman aged 20 reported in the sick-bay of our ship at 15.30 on April 28 because of a sore throat and headache of four hours' duration. He had left his post, finding the concussion of the 4.7-in. guns unduly disturbing. Before his history was completely told the patient vomited clear fluid and collapsed. A few minutes later, complaining bitterly of his headache, and vomiting effortlessly, he sank into an ingravescent coma. Within twenty minutes of his first appearance he seemed at the point of death, flaccid though restless, cold, clammy, and grey, and heedless of the most urgent stimuli; pulse palpable only in the neck, rate 125; temperature 97° F. and falling; respirations 25. He lacked specific physical signs except slight nuchal rigidity, but the natural history suggested either fulminating meningococcal infection, subarachnoid haemorrhage, or poisoning.

A lumbar puncture at 16.00 tapped ground-glass grey fluid at low pressure, containing about 80 cells per 1/6th field, and Gram staining revealed Gram-negative diplococci in many of the pus cells. At

16.05 a purpuric rash appeared and spread upwards from his legs. At 16.30, when he seemed moribund, one gramme of sulphapyridine sodium was injected intravenously. Two hours later he had improved constitutionally and the injection was repeated. By 19.30, when the purpura was diffuse and generalized, his state of shock was abating and he began to recover mental awareness. Meantime, general measures to aid him were taken, and had a supply of adrenal cortical extract been at hand he would have been given it, for he was certainly displaying the Waterhouse-Friderichsen syndrome.

It became necessary to transfer him from the warship, and chemotherapy was continued orally in one of H.M. hospital ships, where his recovery became complete. Fortunately this case was solitary, but it is reassuring to know that Banks's encephalitic form of fulminating meningococcal septicaemia is not an irreversible process, even in a battleship, if it is diagnosed immediately and treated promptly with sulphapyridine. We are indebted to the squadron medical officer, Surg. Cmdr. Gaussen, for permission to forward this note.

—We are, etc.,

J. N. MORRISON.
P. W. HOUGHTON.

The Pitressin Diagnosis of Idiopathic Epilepsy

SIR,—As Dr. W. Blyth (Jan. 23, p. 100) points out in his interesting article about pitressin diagnosis of idiopathic epilepsy, the method depends on the fact that retention of water in the body will precipitate a seizure in predisposed persons. This agrees with investigations about the metabolism of water and salt in cachectic, feverish, and epileptic patients which I carried out many years ago. In a good many cases of epilepsy I was able to predict the fit owing to the increasing water retention during the previous days. In all cases I observed a definite parallelism between the retention of water and NaCl, while other metabolites—e.g., phosphates or urea—were not retained.

I thus inferred that not only water retention but also chloride retention might be essential factors to precipitate epileptic seizures. In order to test this hypothesis 10 to 20 g. NaCl were daily added to the diet of epileptics (without increasing the water ingestion), as a consequence of which fits occurred far more frequently than hitherto. At the same time it was observed that by increasing the NaCl supply water retention took place, and vice versa that water retention, produced by increasing water supply, was always accompanied by NaCl retention. Simultaneous analyses of the serum and other body fluids showed that their chloride content remained constant and so did their electric conductivity. This definite relation between water and salt retention may, among other things, be responsible for the preservation of the osmotic balance in the body, a fact which would not quite agree with Dr. Blyth's deduction that water retention, through lowering the osmotic pressure of the blood serum, should be the only factor precipitating the actual seizure.

May I add that in the progress of the above-mentioned metabolic research in epileptics I could prove that chlorides are substituted by bromides during the usual bromide treatment, and vice versa that chlorides are able to liberate bromides from the human body; on the latter fact an effective therapy of bromism was based, which is still in use. Similar considerations led me to the treatment of epilepsy with salt-free diet (later on known as the Richet-Toulouse method), which combined with small doses of anti-epileptic drugs, such as bromide, luminal, or prominal, produces remarkable results.—I am, etc.,

Cambridge

R. LAUDENHEIMER.

Starvation in Europe

SIR,—The letter of Prof. James Young (Feb. 27, p. 270), coming after the letters on the subject of starvation in Europe published in the *Journal* and the *Lancet*, and also following the appeal of the British Paediatric Association, shows that the British medical profession, conscious of its traditions, wishes to take an active part in this serious humanitarian as well as political problem.

So far as Greece is concerned, the position, unfortunately, is quite exceptional in severity. As the Greek Red Cross pointed out in various communications, it is not a question of undernutrition, fostering the development of tuberculosis and of other deficiency diseases, but of a widespread famine, comparable to the worst famines in history, which has already killed nearly 400,000 people out of sheer starvation. We have, unfortunately, ceased to trouble ourselves at the Greek Red Cross with the simple spread of tuberculosis and of deficiency diseases. The tragic pictures given in the papers by neutral correspondents who have been to Greece, particularly during the first days of 1942—the description of children dying in the streets of Athens from lack of food, being collected by lorries every morning, piled up like sardines, and thrown into a common grave—are only too true; and even now, although some relief has been sent, the conditions of mortality have not improved, because famine does not stop immediately when some food is sent. One of the Swedish captains of the mercy ships sent to Greece remarked after his last voyage, two months ago: "The only thing I can say is that we have on our short visit this time not seen people dying on the streets from lack of food, as was the case on our first journeys—but that is all."

The main part of Greece—that is, south of Olympus—produces practically no food because it is a country essentially of high mountains with only two small plains in Thessaly and Peloponnesus. Formerly, this country had to rely on food imported by sea because there are practically no overland communications. In peacetime food could be sent also from Macedonia and Thrace, which produce more food than the main part of Greece, and this was also sent by sea except for a small quantity overland. As the sea route has been closed since the occupation of Greece, the country was simply starved to death. Fortunately, thanks to the active initiative of the British Government and the British public, and to the efficient co-operation of the International Red Cross and the Swedish Red Cross, relief has been organized since April of last year. It seems to have stopped the deaths from pure starvation, but it has not stopped the terrible morbidity and mortality that accompany famine, and epidemics like malaria, falling upon this intensely undernourished population, threaten the extinction of the race. We have had a definite warning, particularly regarding malaria, from the International Red Cross.

All this means that much more has to be done. Great efforts should be directed towards the humanitarian work of the relief of Greek famine, and it is a happy omen to note the interest of the British medical profession in this problem.—I am, etc.,

London, W.1.

A. P. CAWADIAS.

A European Association of Clinical Pathologists

SIR,—It is proposed to form a European Association of Clinical Pathologists among the medically qualified men and women of the various nations of Europe now engaged in this country in any branch of medical laboratory work.

Clinical pathology, although itself a special branch, permeates and establishes contacts with all departments of medicine. Experience has shown those of us who are members that the meetings of the already existing Association of Clinical Pathologists in this country afford peculiarly fruitful occasions for the gathering together of practitioners in the different branches of medicine on a ground of common understanding and interest, and thus encouraging the growth of a spirit of fraternity and co-operation. Of the value of the presence of such a spirit among the representatives of the various European nations now sojourning in this country there can be no doubt. It is our hope that on their return to their homelands the members of the European Association may in due course initiate branches in their own countries, which will retain close touch with each other and with the Association of Clinical Pathologists in this country.

We believe that such a movement, quite apart from its obvious advantage to medical science, would serve to encourage a feeling of accord and comradeship between the European medical communities, and thus make a contribution, small perhaps but by no means negligible, to international amity. We have every reason to believe that the Association of Clinical Pathologists, although it has not yet officially discussed the project, would do all in its power to assist, and that it would welcome the members of the proposed European Association to its meetings and to an active part in its proceedings.

A meeting for the purpose of discussing the matter and, if deemed advisable, of inaugurating the European Association will, by courtesy of the Dean of the Medical School, be held at University College Hospital, London, on Saturday, April 3, at 2 p.m. All medical practitioners from the Continent of Europe and from Great Britain alike engaged in any form of medical laboratory work will be very welcome. Those who feel interested are invited to communicate with Dr. F. Pick, Department of Clinical Pathology, the General Hospital, Walsall. Those who propose to attend are requested to notify Dr. Pick to that effect.—We are, etc.,

E. J. BIGWOOD, M.D.Brussels.
A. DELIKATOVA, M.D.Bratislava.
B. L. DELLA VIDA, M.D Rome.
F DURAN-JORDA, M.D.Barcelona.
S. C. DYKE, D.M.Oxon.
S. FRANSMAN, M.D.Amsterdam.
J. O. GAVRONSKY (Moscow), M.R.C.S., L.R.C.P.
M. MANDELBAUM, M.D.Munich.
F. PICK, M.D.Prague.
G. POPJAK, M.D.Szeged.
F. SILBERSTEIN, M.D.Vienna.
G. UNGAR, M.D.Paris.

Foot-and-Mouth Disease in Man

SIR,—I was interested to read of the two cases of foot-and-mouth disease in man reported by Dr. Henryk Dlugosz (Feb. 13, p. 189). I had a case in a youth, aged 18, which started with small circumscribed areas of erythema in the mouth, on the gums, cheek, and hard and soft palates. These then formed into greyish-white vesicles with a thin serous fluid, finally bursting into shallow ulcers. He developed a temperature of 100° F. on the third day, and this persisted for four days. Similar lesions developed on the hands and feet, but only caused slight irritation. The dysphagia became less about the twelfth day and the hands and feet improved as well, but there was staining for about six weeks.

One interesting point was that he had had two previous attacks within three years, but they had only been very mild, thus showing that he had no lasting immunity. This youth was a clerk and so was not exposed to contact with cattle, but he had been told to drink plenty of milk when he was a child, thus leading one to believe that this was a likely source of the infection.—I am, etc.,

Preston. G. S. PARKER.

Ward Sisters' Salaries

SIR,—At a recent meeting of the Middlesex County Medical Society the recommendations of the Rushcliffe Committee on Nurses' Salaries were discussed. This society has a membership of approximately 200 doctors, most of whom are clinicians in the whole-time employment of the Middlesex County Council, and include the medical staffs of seven large general hospitals and two sanatoria, with a total bed accommodation of 8,472.

There was a unanimous feeling of dissatisfaction with the recommendations for the remuneration of ward sisters and its effect on their status. They consider an efficient ward sister to be a most important person in the satisfactory treatment of patients, in the training of the student nurses, and as an effective aid to the scientific advancement of medicine. These facts will be readily agreed by all who have an intimate knowledge of hospital practice, and it was regarded as deplorable that no ward sister was a member of the Rushcliffe Committee. The deliberations of the committee were felt to be influenced by the undue representation of the administrative hospital staff. It seemed obvious to the society that the upper limit of the ward sisters' salaries had been regulated so that in no instance should it exceed that of administrative sisters in small hospitals. This was felt to be quite unjustifiable.

It was suggested that the minimum salary scale of a ward sister should be that proposed by the committee of the Royal College of Nursing in 1941—i.e., £150 × £10 to £250 per annum, exclusive of emoluments. These emoluments should not be less than those of the administrative sisters, and they should be such as to encourage all trained staff to live outside the hospital. At present non-resident emoluments are based upon the cost of mass catering and accommodation in an institution. It should be quite obvious that no reasonable non-resident accommodation can be obtained at a comparable figure.

The society therefore wishes to place on record its dissatisfaction with the Rushcliffe Committee's recommendations, especially in regard to ward sisters. They feel it may deter the right type of girl from entering the nursing profession and prevent the good ward sister from looking upon ward work as a position of honour in the profession. They feel it will stabilize for years to come her position of inferiority and prevent that co-operation which is so necessary between the clinical and administrative sisters.—I am, etc.,

H. JOULES,
London, N.W.10. Chairman, Middlesex County Medical Society.

Obituary

The death of Dr. F. J. C. BLACKMORE towards the end of last year, at the age of 63, calls for a tribute to one who has left his mark on the antituberculosis service of the country. More than 20 years of his working life he spent as tuberculosis officer for Woolwich, a post from which he retired in April, 1940, on account of ill-health. He was secretary of the Woolwich Division from 1922 to 1925, and in 1923 and 1924 he represented his constituency at the Annual Representative Meeting. His dispensary work was distinguished by the special interest he took in the social welfare of his patients, who held him in very high regard. He was one of the first to develop occupational therapy for dispensary patients unfit for work, and he travelled widely to keep himself in touch with tuberculosis work in other countries. Dr. Blackmore was keenly interested in the wider problems of administration, and thereby became well known to his fellow workers throughout the country. He was a leading member of the Tuberculosis Society, of which he was honorary secretary in 1926 and 1927, and he was an original member of the Joint Tuberculosis Council, to which he rendered great service in studying and reporting on administrative questions. His best work, however, was done for the Tuberculosis Group of the Society of Medical Officers of Health, in which he held office as president. In discussion his outstanding characteristic was, in spite of an innate humility, his fearless honesty in seeking the truth and trying to express it. Those on whom his criticisms fell, at times like bludgeon blows, recognized his sincerity and the absence of personal feeling, and remained his friends. He leaves behind a widow and three sons, to whom the sympathy of a wide circle of fellow workers will be extended.

The city of Glasgow has lost by death a good many medical men recently, and one of the latest to die has been Dr. PETER S. BUCHANAN. Dr. Buchanan was a most keen and enthusiastic member of the B.M.A. for the past 42 years, and took a leading part in most of its agencies and was representative at the annual meetings during the years 1934 to 1939 inclusive; he was at the Aberdeen Meeting just before the outbreak of the present war. He was chairman of the Glasgow Eastern Division of the B.M.A. from 1927 to 1928. He developed an eye trouble which ultimately left him stone blind about two years ago, and he had to give up general practice. Latterly he had a bad fall in his home on account of his blindness, and fractured his pelvis, from the complications of which he died on Feb. 16 at the age of 72.

The district of Dennistoun and Townhead must feel his loss very much, as he had always a bright cheery smile and salutation when he entered a patient's house, and this made the opening interview a refreshing tonic in itself. Dr. Buchanan's father was a doctor for many years in the same district, and he must have learned many of his father's methods in the art of curing the sick. Their lasting rewards were the pleasure and enjoyment derived from the love of their profession, and the satisfaction of feeling the work was well and honestly done.—J. C.

JAMES MAIR STIRLING, whose untimely death on Feb. 7 has come as a shock to his many friends, was a native of Ayrshire. He was educated at the Technical College, Glasgow, and at Glasgow University, but the last war broke his studies and he joined the Border Regiment from the O.T.C. in 1914. Adjutant of his battalion for nearly two years, he later transferred to a Divisional Staff, and for his work in both grades he was mentioned in dispatches. Not the least notable years of an eventful life were the post-war early twenties. Prominent in any company, he was an outstanding member of the University of Glasgow, where he graduated B.Sc. in 1921 and M.B., Ch.B. in 1923. He was president of the Students' Representative Council and Secretary of the Union, and he played a large part in the Students' Welfare Scheme. After some years in the Western Infirmary and the city fever service he started in practice in the Levenshulme district of Manchester. Here he soon built up a good practice and made many friends, especially among his own profession. An intense individualist, scornful of pettiness and intolerant of sham, Stirling contended fiercely for the truth as he saw it. For him there were "no tricks in plain and simple faith"; but he knew how and when to be obstinate. He was loyal to his friends, magnanimous to an opponent, and when he espoused a cause, no matter how forlorn, he spent himself freely for it—perhaps too freely. At the time of his death he was a prominent and active member of the B.M.A., the Local Medical War Committee, and the Panel Committee, on all of which his common sense, logical viewpoint, and broad humanity had a powerful influence which will be sorely missed. His profession is poorer for his passing, but richer for his example.

The death occurred on Feb. 12 at St. Albans of Dr. G. B. BUCHANAN. George Burnside Buchanan was born into a medical family, his father being the first professor of clinical surgery at the University of Glasgow and at the Western Infirmary, Glasgow. He received his early education at Fettes College, Edinburgh, and then went to Cambridge, where he graduated B.A. in the Natural Sciences Tripos of 1890. Returning to Glasgow he took the M.B., C.M. in 1893. Dr. Buchanan travelled a good deal after he qualified, studying at the Universities of Marburg and Vienna, both of which centres were then attracting many postgraduate workers. He finished his foreign studies with a year in Paris, and returned to Glasgow, where from 1895 to 1899 he was assistant in his father's wards, and also helped the late Dr. J. C. Renton on occasion. He went with the British Army to South Africa in 1899 and was a civil surgeon throughout the Boer War, receiving the South African medal with two clasps. In 1901 he took the F.R.F.P.S. of Glasgow, and for the next ten years practised as a surgeon in that city. Endowed with a genial nature, Buchanan made many friends. He was secretary of the North-Western Division of the B.M.A. in Glasgow in 1908 and 1909, a division which included a very large number of the consulting medical and surgical staff attached to the University and to the leading hospitals. He served in the last war with the Scottish Horse, holding the rank of major, R.A.M.C.(T.). In 1911 he joined the staff of the Ministry of Pensions in London, and was Deputy Commissioner of Medical Services when he retired.

We regret to announce the death at the age of 66 of Dr. W. L. MURPHY, a well-known figure in the medical, commercial, and political life of Dublin. Son of the late William Martin Murphy, who founded the Independent group of newspapers in Dublin, he was himself chairman of Independent Newspapers, Limited. William Lombard Murphy was educated at Cambridge, Vienna, and Dublin. He qualified L.R.C.P.I. &L.M., L.R.C.S.I.&L.M. in 1904, taking the F.R.C.S.I. in 1906, the M.B., B.Ch. in 1907, and the M.D. in 1914. He studied throat and nose surgery in London in 1906, and in the following year went to Vienna as demonstrator at Prof. Chiaris's throat and nose clinic. Subsequently he practised in Dublin. During the war of 1914-18 he served in the R.A.M.C.(T.) with the rank of captain, and was mentioned in dispatches. He was lent to the French authorities in Salonika for the purpose of treating wounded Serbian soldiers, and was later appointed liaison officer between the British, French, and Serbian Medical Services. The King of Serbia awarded him a gold medal for distinguished services. He was also made Chevalier of the Legion of Honour, and received the French Croix de Guerre. For services in Macedonia he was honoured with the Greek Chevalier Order of the Redeemer. Dr. Murphy was president of the Dublin Chamber of Commerce in 1924, and was a delegate to represent the employers of the Irish Free State at the International Labour Conferences of 1928, 1930, and 1931

Dr. C. S. NIMMO, who died at Jedburgh on Feb. 20 at the early age of 47, had practised there since 1922. Educated at George Watson's College and Edinburgh University, Charles Stuart Nimmo qualified M.B., Ch.B. in 1921 After holding house appointments at the Royal Infirmary, Edinburgh, he went to Jedburgh, where he soon established a large practice extending well over the Border country. His education was interrupted by the last war, for he enlisted in the Royal Scots in 1914 and was commissioned in the Seaforth Highlanders in the same year. He had played as a Rugby half-back for Scotland, gaining his cap in the match against England in 1920. He had been a member of the B.M.A. all his professional life, and was a representative at the Representative Meeting held in London last September. Dr. Nimmo was well known in many homes in Roxburghshire, rich and poor alike, and it is said of him that he not only brought healing but was known to carry food to people in the outlying districts who had been stranded by a snowstorm.

The death took place at Middlesbrough on Feb. 22 of Dr. J. BROWNLEE. Born in Edinburgh in 1878, James Brownlee was educated at Daniel Stewarts College and Edinburgh University, where he graduated M.B., Ch.B. in 1901, proceeding to the M.D. in 1904. After serving as house-physician to Prof. Wyllie in Edinburgh Royal Infirmary and to Dr. Buist at Dundee, he went into partnership practice in Middlesbrough, which continued for 35 years. For many years he was honorary physician to the North Riding Infirmary, and on his retirement was elected consulting physician. He served in the last war with the rank of captain, R.A.M.C., mostly in Mesopotamia. Brownlee worked for his profession in many ways. A life-long member of the B.M.A. and one of its severest critics, he had been president of the North of England Branch and was on the Branch Council for a number of years. He had been secretary, chairman, and on four occasions representative, of the Cleveland Division. A keen insurance practitioner, he was a member of the Middlesbrough Panel Committee from its formation, and had been its chairman. He had also been chairman of the local Public Medical Service. Brownlee was an active man, and fond of outdoor exercise and games, particularly golf, tennis, and badminton. By hard work he had built up and maintained a large practice, and he will be greatly missed by his many patients, for whom he never spared himself and to whom he always gave of his best, and by many personal and professional friends. He is survived by his widow, daughter, and son.

Dr. C. J. PINCHING, who died on Feb. 23 after a long illness in his 68th year, was a native of Gravesend and the third generation of a family which has practised in that town for the last 92 years. Charles James Pinching received his medical education at Guy's Hospital and at Oxford, taking the M.R.C.S., L.R.C.P. in 1902 and his M.B., Ch.B. in 1905. He joined the staff of the Gravesend and North Kent Hospital in 1906 and was senior surgeon there for 21 years. Of his operative skill there was no question, and had he wished he would undoubtedly have acquired merit in spheres wider than that of his local hospital, but his interest was there and to it he gave a lifetime of single-minded devotion. He also had a large private practice, and his opinion as a consultant was much sought and valued in North Kent. In the last war he was in charge of the local military hospital, and for his services there was awarded the O.B.E. He remained at work almost to the last, and until he finally gave up never missed his usual morning round at the Gravesend Hospital. His colleagues, patients, and personal friends mourn the absence of a loyal and devoted comrade.

We regret to announce the death on Feb. 28, after a long illness, of Dr. ALFRED LANG BODLEY at the age of 52. He was educated at Dean Close School, Cheltenham, and Clare College, Cambridge, where he took his B.A., and completed his medical studies at University College Hospital, qualifying M.R.C.S., L.R.C.P. in 1915. During the last war he served with the R.A.M.C., and was awarded the M.C. for gallantry. After returning to civil life he was house-surgeon at the District General and Hallam Hospitals, West Bromwich, before starting in general practice in Helston. In 1925 he returned to West Bromwich and settled down in practice there. He was surgeon to the West Bromwich and District General Hospital, an appointment he held until he was taken ill last year. Dr. Bodley was of a shy and retiring nature and exceptionally modest. He was devoted to his work in both general and hospital practice and was a sound clinician and a skilful surgeon. The loss of his valuable services will be keenly felt in West Bromwich and surrounding district.

By the untimely death on Feb. 14 of JOHN HUGH SCHOFIELD the medical profession has lost a most promising member, for although he had been qualified only a few months he had already shown himself to be whole-heartedly in love with his work, and his patients' welfare was always his first consideration. Born at Leeds in 1919, he was educated at Manchester Grammar School and later at King Edward VII School, Sheffield, where he obtained the higher school certificate at an early age. He received his medical education at Sheffield University, taking a prominent part in the various student activities there and serving for some time on the Union Committee. He qualified M.B., Ch.B. in 1942, and shortly afterwards was appointed assistant casualty officer and then house-physician at the Royal Hospital, Sheffield, where he quickly showed himself to be a most reliable and conscientious resident, and was deservedly popular with both patients and staff. As he was temporarily unfit for medical service with the Forces, he was appointed resident medical officer at the Royal Hospital Annexe, Fulwood, an appointment which he held at the time of his death

We regret to announce the death on Feb. 18 at Castlederg, Co. Tyrone, of Dr. KENNETH ROY THORNTON in his thirtieth year. He was the second son of the Rev. and Mrs. R. H. Thornton of Glasgow and was educated at the University of Glasgow, where he graduated M.A. in 1934 and M.B., Ch.B. in 1938. After holding house posts at the Western Infirmary and the Ear, Nose, and Throat Hospital, Glasgow, he entered the R.A.M.C. as temp. lieut. in Dec., 1939, and was promoted capt. a year later, but had to resign his commission, on account of ill-health, in June, 1941. He leaves a widow. He was a member of the B.M.A.

By the death last August, at the age of 63, of Mr. WALTER WELCHMAN the Medical Association of South Africa (British Medical Association) lost one of its most active members in the Union. He joined the Association in 1910, was honorary treasurer of the Witwatersrand Branch from 1917 to 1922, acted as representative at the Annual Representative Meeting held at Cardiff in 1928, and was president of the Southern Transvaal Branch in 1930–1. Mr. Welchman was born in Cape Colony and, after graduating B.A. at the University of Capetown, entered Guy's Hospital for his professional education and graduated M.B., B.S. of the University of London in 1905, taking the M.R.C.S., L.R.C.P. in the same year and the F.R.C.S. three years later. Returning to South Africa he settled in Johannesburg, where he built up a large surgical practice, and became surgeon (later consulting surgeon) to the Johannesburg Hospital and lecturer in clinical surgery in the University of the Witwatersrand. He contributed a number of articles to the *South African Medical Journal* and to the *Transvaal Medical Journal*, mainly on the surgery of cancer. He leaves a widow and family.

News has been received of the death at sea of Mr. ISAK NAHUM BLUSGER, F.R.C.S., who came to this country from South Africa and studied medicine at St. Bartholomew's. After qualifying in 1934 Blusger held several house appointments, including those of senior house-surgeon at his own hospital, house-surgeon at the Royal National Orthopaedic Hospital, and resident surgical officer at the Connaught Hospital, Walthamstow. In 1938 he took his Fellowship, and before he sailed from this country at the end of last year to join the Army in South Africa he was resident surgeon under the E.M.S.

News has been received of the death in Boston on Dec. 29 of Dr. E. G. BRACKETT, editor of the *Journal of Bone and Joint Surgery*, who was universally respected and regarded with affection by all his friends. We are indebted to a colleague for the following appreciation:

"I first met Dr. Brackett in the early days of my practice in Boston. He was then a medical student, handicapped by hip disease. This was actually a fortunate misfortune, for he was treated by Dr. Bradford and afterwards became his associate in practice. Bradford, the outstanding representative of self-contained orthopaedic surgery, was of a character and quality to attract followers, and founded what became known as the Boston School. He was dependent on the Children's Hospital for clinical material for teaching, and to supplement the deficiency Goldthwait established a department for adult orthopaedics at the Massachusetts General Hospital. This service was afterwards taken over by Brackett and conducted with great efficiency until his retirement at the age limit. This developing stage of orthopaedic surgery involved acrimonious controversy, in which Brackett took no part. He soon achieved a reputation for fairness and integrity, which made him acceptable to all factions, and in 1905 he was elected president of the American Orthopaedic Association.

"Dr. Brackett had great executive ability, which he first demonstrated when he took charge of a hospital ship sent from Boston to Cuba during the Spanish War. In the last war he was appointed a personal assistant to the Surgeon-General, as Director of Orthopaedic Surgery with the rank of Colonel, a post which he administered with great efficiency. Perhaps Dr. Brackett's most valuable and distinctive service in the establishment of the present standing of orthopaedic surgery was his editorship of the *Journal of Bone and Joint Surgery*, the organ of the American and British Orthopaedic Associations and of the American Academy of Orthopaedic Surgery, which is without a rival in its representative and comprehensive quality. Dr. Brackett was fortunate in retaining his activities to the end, and died in harness in his eighty-third year."

The following well-known medical men have died abroad: Dr. WILLIAM DICK CUTTER of Chicago, an authority on medical education, aged 63; Dr. CHARLES DAVISON, formerly professor of surgery at the Chicago Medical College, aged 84; Dr EUGENE STERLING KILGORE, since 1930 professor of clinical medicine at the University of California Medical School, aged 63; Dr. RUDOLF ABEL, emeritus professor of hygiene at Jena University, author of a hand-book of practical hygiene and co-editor of the *Zentralblatt für Bakteriologie* and *Gesundheits-Ingenieur*, aged 74; Dr. CAREY CULBERTSON, for many years professor of obstetrics and gynaecology at Ruskin Medical College, Chicago, aged 71; Dr. GERARDO LAGUARDIA, dean of the Faculty of Medicine, Asunción, Paraguay; Dr MARCHAND, Commander of the Legion of Honour, professor of the Paris Faculty of Medicine and member of the Académie de Médecine; and Dr. ALFRED SIMPSON TAYLOR, professor of clinical surgery in the department of neurology of Cornell University Medical College, aged 73.

The Services

Capt. E. Maclaine, R.A.M.C., has been appointed O.B.E. (Military Division) and Warrant Officer Class I (Assistant Surgeon (British Cadre) (1st Class)) C. M. E. Eyles, Indian Medical Department, M.B.E. (Military Division).

Prob. Temp. Surg. Lieut. N. S. Daw, R.N.V.R., has been mentioned in dispatches for good services in tending survivors after H.M.S. *Penylan* was lost.

CASUALTIES IN THE MEDICAL SERVICES

War Subs. Capt. VIAS MICHAEL SKOUFARIDES, R.A.M.C., is included as "died" in an Army Council Casualty List published on March 6. He entered the R.A.M.C. as lieut. in Aug., 1940, and was promoted capt. a year later.

Prisoners of War.—Major W. H. Dowell, R.A.M.C., Capt. M. T. O'Sullivan, R.A.M.C., Capt. T. S. Protheroe, R.A.M.C.

Wounded.—Temp. Major D. B. Jagger, R.A.M.C., Capt. G. M. Jolly, R.A.M.C., Capt. J. H. Keesey, R.A.M.C., Capt. G. O'Donnell, R.A.M.C., Temp. Major P. Spence, R.A.M.C.

DEATHS IN THE SERVICES

Col. SAMUEL ARTHUR ARCHER, C.M.G., A.M.S. (ret.), died at Twickenham on Jan. 9. He was the son of Col. S. Archer, A.M.S., and was educated at the Merchant Taylors' School, Crosby, and at the Victoria University, Liverpool, where he gained a scholarship in pathology. He took the M.R.C.S., L.R.C.P. in 1894 and entered the Army Medical Service, as it then was, in 1896. He saw active service in the Egyptian Campaign in 1898, receiving the Queen's and the Khedive's medals. During the last war he served in Belgium, France, and Italy, and was mentioned in dispatches in 1915. In 1917 he was promoted to full col. and became A.D.M.S. of the 7th Division, which he accompanied to Italy. He was again mentioned in dispatches and awarded the C.M.G. in 1919 and the Croce di Guerra. After his retirement in 1921 he resided at Godalming, Surrey. He was a member of the B.M.A. for 26 years.

Lieut.-Col. ERNEST ALAN ROBERT NEWMAN, C.I.E., I.M.S. (ret.), died at North Luffenham, Rutland, on March 2, after a short illness, aged 76. He was educated at Haileybury, Caius College, Cambridge, and St. Bartholomew's Hospital. He took his B.A. in the Natural Sciences Tripos at Cambridge in 1887, the M.R.C.S., L.R.C.P. in 1890, the M.B., B.Chir. in 1891. While on leave in 1899 he proceeded to his M.D. He gained a high place in the entrance examination for the I.M.S. in 1893, and was on active service on the North-West Frontier Province in the Malakand, Bajaur, Tirah, and Mohmand operations in 1897–8, gaining the Frontier medal with two clasps. Soon after, he joined the Bengal Civil Medical Department, and worked his way up through civil surgeoncies in several stations to the important post of civil surgeon and superintendent of the Medical School at Dacca in Eastern Bengal. Here an early training in architecture enabled him to draw up valuable and economical plans for the reconstruction of the hospital and medical school buildings, work which gained him the C.I.E. He was a sound, all-round practitioner, especially interested in ophthalmic surgery, and was the author of papers on the treatment of cataract as well as of a *Manual on Aseptic Surgery* for use in medical schools in India. After his retirement under the age limit before he reached the administrative grade (the common fate of I.M.S. officers who take higher qualifications before entering the Service), he was appointed ophthalmic surgeon to the Stamford Infirmary and consulting ophthalmic surgeon, Rutland County Council. He married Lilian Duggan, daughter of Lieut.-Col. J. Young, who survives him. He had been a member of the B.M.A. for 28 years.

Lieut.-Col. JAMES HENRY HUGO, D.S.O., I.M.S. (ret.), died at Guildford on Feb. 28. He was born on July 16, 1870, and was educated at Foyle College, Londonderry, and at St. Bartholomew's Hospital, qualifying M.R.C.S., L.R.C.P. in 1895. He also took the M.B., B.S. of the University of London in 1896 and the D.P.H. of the English Royal Colleges in 1907. He held appointments at St. Bartholomew's Hospital, Nottingham General Hospital, and Dulwich Infirmary before entering the I.M.S. in 1896. He soon saw active service with the 31st Punjab Infantry on the North-West Frontier of India in 1897, and greatly distinguished himself in the siege of Malakand and with an expedition into Upper Swat in 1897–8, winning the D.S.O. and the Frontier medal with two clasps. It is generally understood that he was recommended for the Victoria Cross for a particularly gallant action at this time. He next entered the Political Department and held a number of appointments as residency surgeon in Indian States, culminating in the prize post of residency surgeon, Kashmir, in 1914. During the war of 1914–21, including the after-troubles in India, he returned to military employment in charge of a large hospital in the Punjab and was selected for the Légion d'Honneur, Croix de Chevalier, some of which had been sent out for distribution in India. In 1925 he retired under the age limit, but his service in the Political Department was rewarded by his selection for the important administrative post of Director of Medical Services, Jammu and Kashmir, in the same year. After his final retirement from India he resided at Guildford. He had been a member of the B.M.A. for 47 years. His elder brother, Lieut.-Col. E. V. Hugo, C.M.G., I.M.S. (ret.), survives him.

Universities and Colleges

ROYAL COLLEGE OF SURGEONS OF ENGLAND

A meeting of the Council of the College was held on March 11, with Sir Alfred Webb-Johnson, President, in the chair.

A Diploma of Fellowship was granted to Frederick Noel Glover.

Diplomas of Membership were granted to D. G. Crawshaw, R. Greenwood, Kathleen M. Lawrence, and Helen G. T. Maycock.

Diplomas in Ophthalmic Medicine and Surgery and in Medical Radiology were granted, jointly with the Royal College of Physicians of London, to the following successful candidates:

DIPLOMA IN OPHTHALMIC MEDICINE AND SURGERY.—Hilda Barker, H. Bentley, J W. Bishop, C A Brown, R. A. D. Crawford, R C Jack, D J Pierse, A Senn, A. Smith, W T Swanton, R. M Thornton

DIPLOMA IN MEDICAL RADIOLOGY.—G M Ardran, J S Mitchell, D C Porter, W Shanks, Phyllis Wade

Elections to Council

The election of five members of the Council of the Royal College of Surgeons of England will take place on July 1. By March 15, the last day on which nominations could be received, the names of the following 12 candidates had been forwarded to the secretary: Prof. Seymour Barling, Sir Lancelot Barrington-Ward, Major-General P. H. Mitchiner, Mr. A Tudor Edwards, Mr. L. R Broster, Mr John B. Hunter, Prof. J. Paterson Ross, Mr. A Dickson Wright, Prof. P. J. Moir, Air Commodore Stanford Cade, Mr. R. Watson-Jones, Mr. R. Milnes Walker, and Surg Capt. Lambert Rogers.

The five vacancies were caused by the retirement in rotation of Sir Cuthbert Wallace and Prof. Seymour Barling, the death of Emeritus Prof. L. R. Braithwaite, and the resignation of Mr. W. Sampson Handley and Sir Hugh Lett.

Present constitution of the Council: *President*, Sir Alfred Webb-Johnson; *Vice-Presidents*, Surg. Rear-Admiral G Gordon-Taylor and Mr. H. S. Souttar; *Members*, Sir Cuthbert Wallace, Mr W. Sampson Handley, Prof. A. H. Burgess, Mr. Victor Bonney, Prof. G. Grey Turner, Sir Hugh Lett, Sir Robert Kelly, Sir James Walton, Sir W. Girling Ball, Prof. Seymour Barling, Brigadier C. Max Page, Mr. W. H. Ogilvie, Surg. Rear-Admiral C. P. G. Wakeley, Mr. L. E. C. Norbury, Prof. R J. Willan, Mr. C. A. Joll, Mr. V. Zachary Cope, Prof. Harry Platt, Prof. E. F. Finch, Brigadier Hugh Cairns, and the late Emeritus Prof. L. R. Braithwaite.

Medical Notes in Parliament

Non-pulmonary Tuberculosis and Pasteurization

Mr. RICKARDS on March 3 asked the Parliamentary Secretary to the Ministry of Food, "in view of the increase in the death rate in London of 67%, alleged to be due to non-pulmonary tuberculosis, in 1941 as compared with 1938," to refuse to make pasteurization compulsory in London, as this death rate was higher than the average rate in the country, where the proportion of raw milk drunk was higher. Mr. MABANE said this question appeared to rest on the assumption that non-pulmonary tuberculosis was due wholly or mainly to tuberculous infection of the bovine type and that its incidence was therefore an index of the amount of bovine infection. There was no evidence for this assumption. It was estimated before the war that only 30% of the cases of non-pulmonary tuberculosis at all ages were due to bovine infection. It was to be expected that since the outbreak of war the incidence of non-pulmonary tuberculosis should have increased more in towns, where the risks of human infection were greater and were accentuated by war conditions, than in the country. The statements referred to by Mr. Rickards did not bear directly on the question of pasteurization.

Future of Osteopaths, Herbalists, etc.—Dr. PETERS asked whether, having regard to para. 427 of the Beveridge report, medical herbalists, osteopaths, naturopaths, homoeopaths, and others engaged in healing the sick would be officially recognized and their patients permitted to receive treatment from them under the future medical service scheme. Mr. BROWN replied on Feb 24 that arrangements necessary for ensuring a comprehensive health service in the sense envisaged by Assumption B of Sir William Beveridge's report were under consideration. He was not yet in a position to make any further statement on the matter.

Medical Examination of Directed Workers.—Mr. ERNEST BEVIN said on Feb. 16 that where workers alleged they were unfit for jobs in which the employment exchange proposed to place them, they were referred to an independent medical referee, unless they could produce satisfactory evidence from their own doctors. He had made arrangements that women called up to industry under the National Service Acts should be seen by a doctor if the exchange had any doubt about their fitness. He proposed to apply these arrangements to other workers receiving National Service Officer directions or being transferred away from home.

Financial Help for Tuberculous Persons.—Mr. BROWN said on Feb. 18 that detailed arrangements for the financial scheme for persons leaving work on account of tuberculosis, announced by him in the House in October, were in an advanced state. He hoped it would be possible to bring the allowances into operation early in the coming financial year. They would cover all persons who suffered loss of income by giving up work to undertake treatment for tuberculosis, including nurses

Silicosis Medical Board.—Mr. HERBERT MORRISON, replying on March 9 to Sir Wm. Jenkins, said the Medical Board for Silicosis and Asbestosis comprised eight full-time medical officers working in four panels under a chief medical officer. The board was appointed by the Home Secretary and was directly responsible to him. Appointments were for a definite term but were capable of renewal. The members were not established civil servants and had no pension rights. There had been no change in the personnel of the board since it was established in 1931.

Tuberculosis in Lancashire.—The monthly average of pulmonary tuberculosis cases awaiting admission to institutions in the administrative county of Lancashire was 57 in 1941 and 89 in 1942. The average waiting period for ordinary cases is estimated to have been about 14 days in 1941 and about 21 days in 1942. Steps are being taken to relieve the demand for beds for tuberculous cases in various parts of the country by recourse to suitable beds in E.M S. hospitals

Notes in Brief

The removal from farm premises to a market of cattle affected with tuberculosis in a clinical form is prohibited by the Tuberculosis Order. As regards other cattle Mr. R. S. Hudson says it would be impracticable to require the passing of a tuberculin test as a general condition of entry to markets.

The proportion of men called up for the Army but rejected on medical examination is 20%.

Medical News

The Industrial Health Advisory Committee just set up has Mr. Bevin as its chairman and Mr. G. Tomlinson, M.P., chairman of the Rehabilitation Committee, as its vice-chairman. The medical members are: Lord Moran (P.R.C.P), Prof. J. A. Ryle, Prof. A. W. Ellis, Sir Wilson Jameson, Dr. A. J. Amor (Deputy C M.O., Ministry of Supply), Dr. E. R. A. Merewether (Senior Medical Inspector of Factories), Dr. Charles Hill (Deputy Secretary, B.M.A.), Dr. M. W. Paterson (Secretary, Association of Certifying Factory Surgeons), Dr M W. Goldblatt (Chairman, Association of Industrial Medical Officers). The other members are: Sir Wilfrid Garratt (H.M Chief Inspector of Factories), Dr. J. Fox (Government Chemist), Sir T. W. Phillips (Secretary, Ministry of Labour and National Service), Mr. E. G. Fudge (Ministry of Fuel), Mr. William Scholes and General A. C. Baylay (representatives of employers), Miss A. Loughlin and Mr. J. L. Smyth (representatives of T U.C.), Mr. D. L. Smith (Department of Scientific and Industrial Research)

A general meeting of the Medical Society for the Study of Venereal Diseases will be held at 11, Chandos Street, W., on Saturday, March 27, at 2 p.m., when there will be a discussion on "Jaundice in Syphilitics," to be opened by Major J Marshall, R A.M.C., followed by Dr. J. McMichael (for J. H. Dible and J. McMichael) and Major T. E. Anderson, R.A.M.C.

A meeting of the Medico-Legal Society will be held at 26, Portland Place, W., on Thursday, March 25, at 5 p m., when a paper will be read by Dr. C. Keith Simpson on "Rex *v.* Dobkin (the Baptist Church Cellar Case)."

Following his preliminary meeting on March 9 with members of the medical profession, which is reported elsewhere in this issue (p. 359), the Minister of Health saw representatives of the County Councils Association, the Association of Municipal Corporations, and the London County Council on March 10, and of voluntary hospitals on March 11. The medical members at the latter meeting were: Nuffield Trust, Sir Farquhar Buzzard; King Edward's Hospital Fund for London, Lord Dawson and Sir Hugh Lett; British Hospitals Association, Lord Horder and Dr. G. C. Anderson.

Major Anthony Turner Andreasen, I.M.S., Prof. John Henry Gaddum, Sc.D., M.R.C.S., Dr. Robert Kirk, Mr. Duncan Metcalfe Morison, F.R.C.S Ed., and Mr. William James Stuart, F.R.C.S.Ed., were elected Fellows of the Royal Society of Edinburgh on March 1.

Sir Godfrey Huggins, F.R.C.S., Prime Minister of Southern Rhodesia, has taken over the portfolio of Minister of Defence in the Southern Rhodesian Cabinet.

The council of the Harveian Society of London has awarded the Buckston Browne Prize to Dr. E. Johl of Johannesburg, South Africa, for his essay on "The Evaluation of Methods of Physical Training and the Best Scheme for General Application."

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* during the week the only large fluctuations in the returns for infectious diseases were large rises in the incidence of measles and of whooping-cough—1,867 and 205 respectively.

In the trends of scarlet fever, diphtheria, and whooping-cough the only variations of note occurred in Lancashire. Here scarlet fever fell by 32 and diphtheria by 29, while a rise of 43 was reported for whooping-cough.

The notifications of measles during the week were over 2,000 more than the maximum weekly total during the last epidemic, in 1940–1. The largest increases during the week were those of Warwickshire 321, Yorks East Riding 164, Yorks North Riding 182, London 179, Middlesex 168, Durham 152, Gloucestershire 152, Essex 123, Wiltshire 128. In Yorks West Riding measles has been on the downgrade during the past month, notifications in the week under review falling by as much as 347.

In *Scotland* notifications of diphtheria, measles, pneumonia, and whooping-cough were up by 37, 85, 37, and 28 respectively. The trend for the whole country was considerably influenced by the experience of Glasgow, where the increases were: diphtheria 22, measles 70, and whooping-cough 36.

In *Eire* the incidence of diphtheria rose by 30%, from 96 to 126 cases; 55 of these cases were recorded in the city of Dublin, where an epidemic has been in progress since the beginning of the year. In January and February the deaths from diphtheria in this city were 23.

In *Northern Ireland* 72 cases of measles—a rise of 20—was reported from the outbreak in Belfast.

Quarterly Returns for Scotland

The quarterly return for the fourth quarter of 1942 for Scotland showed that the birth rate continued at a relatively high level, and that the death rate was below the average. The birth rate was 17.5 per 1,000, or 1.1 above the average of the December quarters of 1937–41. The infant mortality was 66 per 1,000 registered live births—12 below the five-years' average—and was the lowest rate recorded for the fourth quarter of any year. The number of stillbirths was equivalent to a rate of 38 per 1,000 total births. Maternal mortality was 3.6 per 1,000 live births, or 1.3 below the five-years' average. The general death rate was 12.2 per 1,000, or 0.8 below the five-years' average. The death rate from all forms of tuberculosis was 71 per 100,000, and that from respiratory tuberculosis was 55. These rates are 1 and 2 below those for the fourth quarter of 1941, but were 4 and 3 respectively above the average of the fourth quarters of 1937–41. The death rate from the principal epidemic diseases was only 17 per 100,000, the lowest rate ever recorded for a fourth quarter.

Included with the quarterly return is a preliminary statement for the whole year. Live births numbered 90,694, giving a rate of 18.1 per 1,000, or 0.5 above the average. Deaths from all causes numbered 64,962, equivalent to a rate of 13.0 per 1,000, or 0.7 below the average. The excess of births over deaths—25,732—was the largest since 1931. The number of deaths from the principal infectious diseases was exceptionally low: only 1,060 deaths were certified as due to one or other of these conditions. The lowest number previously recorded was 1,825 in 1938. The death rate from all forms of tuberculosis was 80 per 100,000, and 61 from respiratory forms. The rates for 1941 and 1940 were 83 and 80 for all forms, and 62 and 61 for tuberculosis of the respiratory system.

The Week Ending March 6

The returns for infectious diseases in England and Wales during the week included the following: scarlet fever 1,928, whooping-cough 1,876, diphtheria 827, measles 19,200, acute pneumonia 1,450, cerebrospinal fever 91, dysentery 68, paratyphoid 7, typhoid 2. Deaths from influenza registered in the great towns numbered 79.

No. 8

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended Feb. 27.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included) (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths; and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	103	3	26	6	4	164	18	35	2	9
Deaths		1	2				5	1		
Diphtheria	813	44	225	126	40	859	25	213	53	14
Deaths	24	1	3	4	2	22	1	2	1	1
Dysentery	96	11	24	3	—	131	14	57	—	
Deaths		—	—	—	—		3	—	—	
Encephalitis lethargica, acute	—	—	1	1	—	4	1	—	1	—
Deaths		—					—			
Erysipelas			76	3	6			47	6	3
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				10						
Deaths	45	7	6	16	4	28	1	6	12	—
Measles	20,882	1,361	448	8	74	2,335	178	196	85	8
Deaths	22	1	2	—	—	7	1	—	—	1
Ophthalmia neonatorum	79	3	20	1	1	72	4	20		—
Deaths										
Paratyphoid fever	6	—	—	1	—	2	—	2	—	
Deaths	—	—	—	—	—	—	—	2	—	
Pneumonia, influenzal*	1,373	57	26	16	7	1,148	59	17	3	3
Deaths (from influenza)	87	17	10	—	2	74	9	10	1	2
Pneumonia, primary ..			452	25				292	19	
Deaths		—		17	19		50		13	12
Polio-encephalitis, acute	2	1				1	—			
Deaths		—					—			
Poliomyelitis, acute ..	3	—	1	2	—	8	—	—	—	1
Deaths		—	—				—	—		
Puerperal fever	—	2	13	4		—	—	15	2	—
Deaths		1					—			
Puerperal pyrexia	180	15	14		2	175	19	23		1
Deaths										
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,934	133	288	46	65	1,124	38	170	68	28
Deaths	2	—	1	—	—	—	—	1	—	—
Small-pox	—	—	—		—	—	—	—		—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever†	3	—	5	4	1	6	2	—	5	2
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths			—	—	—			—	—	—
Whooping-cough	1,786	136	171	29	9	1,315	129	43	20	6
Deaths	11	2	3	3	1	12	3	—	—	—
Deaths (0–1 year)	422	51	73	63	25	394	36	65	32	23
Infant-mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	5,004	755	707	293	145	5,836	888	752	257	171
Annual death rate (per 1,000 persons living)			15·9	19·3	‡			16 9	17 2	‡
Live births	6,483	744	887	365	296	5,495	548	845	236	254
Annual rate per 1,000 persons living ..			18 1	24·0	‡			17·5	15·8	‡
Stillbirths	232	26	32			232	27	32		
Rate per 1,000 total births (including stillborn) ..			35					36		

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* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes paratyphoid A and B for Northern Ireland.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

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ANY QUESTIONS?

Calcium in Pregnancy

Q.—*Is the use of calcium in pregnancy still recommended? Many obstetricians seem to think that it may prolong pregnancy and harden the foetal skull.*

A.—During the last two trimesters of pregnancy there is an increased need for calcium. This can and should be obtained from food. Milk and cheese are the best sources of calcium, green vegetables less so. It is essential that pregnant women take their full ration of these in some form or other. The ideal amount of milk would be a quart a day, since this would meet all requirements for calcium and phosphorus. There is some evidence from America that too much calcium and vitamin D may lead to early calcification in the foetal bones. I do not know of any evidence that pregnancy is prolonged through hardening of the foetal skull because of this.

Treatment of Chilblains

Q.—*What is the best treatment for chilblains?*

A.—Erythema pernio is the outward sign of the inability of the skin, including its small blood vessels, to adapt itself to low temperatures. The endocrine glands, through the vegetative nervous system, control the skin vessels, which play an important part in the regulation of the heat of the body. It cannot be said that there is any "best treatment" of chilblains. It is more important to treat the patient who has the chilblains. In some cases there may be endocrine imbalance, and administration of dry thyroid extract in doses of 1/2 to 1 gr. twice daily may do the trick. Where chilblains and amenorrhoea coexist in a girl, both conditions may respond to an oestrogenic hormone. A high protein diet will increase the metabolic rate and production of body heat, but wartime restrictions make it difficult to obtain such a diet. If the endocrine imbalance is secondary to emotional disturbance, then the latter may be assuaged by sedatives. It appears that in some cases septic or tuberculous foci are of aetiological significance. Many cases have cleared up after administration of vitamin D and calcium. Some cases, too, have responded to vitamin P. General measures, such as massage, exercise, physiotherapy, and ultra-violet light therapy, will improve metabolism and the peripheral circulation, but it is obvious that the practitioner would not be likely to advise these unless the chilblains were severely handicapping the patient and were unresponsive to the other measures. As to local treatment, the extremities should be kept warm, and if the lesions itch the following paint can be applied: phenol liq. ♏ x, tr. iod. mit. ♏ lx, and aq. camph. to 1 oz.; ung. iod. denigres. may be applied to the broken chilblains.

Allergy to Liver Extract

Q.—*A patient suffering from pernicious anaemia has been given injections of three of the most reliable preparations of liver extract with the same result—namely, severe allergic reaction with shock and urticaria. The only preparation which did not produce a reaction of the kind is now unobtainable. I am told that there are now no oral liver preparations made. Can anyone advise me how to continue to treat the case in the circumstances and whether it is possible to desensitize with fractional doses of a parenteral liver extract?*

A.—Desiccated stomach is in fairly free supply and is specifically intended for patients who are unable or unwilling to take liver by injection. Concentrated preparations of stomach are usually more acceptable than plain desiccated stomach. They are palatable, and the maintenance dose is of the order of 5 grammes a day. Successful desensitization has been reported in liver allergy. A standard intramuscular liver extract is used and an injection is given daily, the doses on successive days being 3 m., 5 m., 7 m., 10 m., 13 m., 17 m., 20 m., 25 m., 35 m. When the final dosage has been reached the interval between injections may be increased until the patient is receiving 2 c.cm. a fortnight. A preliminary skin test should be made with the liver extract, and if there is a very strong cutaneous reaction the extract should be diluted tenfold or more with saline and the course of treatment lengthened accordingly.

Swollen Legs: Cause Unknown

Q.—*A girl of 20 consulted me on account of extreme swelling of the legs from ankle to thigh. The swelling appeared to be a thickening of the subcutaneous tissues. There was no oedema and no discoverable vascular abnormality. The swelling had been present since the commencement of her menstruation and was said to be worse at her menses. It had also been made worse by excessive standing at her work during recent months. There was no swelling of her arms and no other abnormality was detected. Is there any help to be given in diagnosis and treatment?*

A.—This condition is not very uncommon and unfortunately does not respond very satisfactorily to treatment. It seems to be a local expression of dyspituitarism, and, as in the present instance, is often associated with the menstrual cycle. Combined treatment by pituitary and thyroid helps to relieve in some cases.

INCOME TAX

Income from Property in Dublin

D. explains that until recently his wife's income from property in Dublin was assessed on the "annual valuation" for purposes of British income tax; it has now been assessed on the basis of the "profit" derived from the property. Is this correct?

*** Yes. The tax is chargeable upon "the full amount of the profits or gains . . ." of the year preceding the year of assessment. Tax would be charged on the "annual valuation" if it was unlet but retained for the use of the owner—e.g., as an alternative residence.

LETTERS, NOTES, ETC.

Sedimentation Rate

Dr. L. A. WINDSOR-MCLEAN (St. George District Hospital, Kogarah, N.S.W.) writes: It has occurred to me after reading Dr. Della Vida's article on the sedimentation rate and the sedimentin index (Sept. 5, 1942, p. 278) that a perhaps easier, more accurate and geometrically correct method of measuring the sedimentation rate during the "period of constant fall" would be to lay down the straight-line curve which most nearly fits the experimental curve, and then, instead of measuring and calculating the factor $\frac{\text{“fall”}}{\text{run}}$ as suggested, rather with a protractor measure the angle which this straight-line curve makes with the abscissa. By looking up a book of mathematical tables the natural tangent of this angle will, as is obvious from elementary trigonometrical considerations, give straight out the figure $\frac{\text{“fall”}}{\text{run.}}$. The measurement of the tangent of the angle which it makes with the abscissa is the usual method adopted in co-ordinate geometry to measure the slope of a curve. The method has been adopted at this hospital and found convenient.

Perforated Gastric Ulcer at 19

Dr. DAVID KYLE (Brecon) writes: A soldier was recently admitted to the Breconshire War Memorial Hospital on his nineteenth birthday with a provisional diagnosis of "peritonitis" He had had vague abdominal pain for five days, culminating in an acute attack of vomiting accompanied by generalized abdominal pain two hours before his admission to hospital. Before that he had not reported sick. The previous history was uneventful; he was of the athletic type and had been Victor Ludorum at his school. Laparotomy revealed a perforated acute ulcer, with no surrounding induration, on the anterior aspect of the lesser curvature of the stomach, about three inches from the pylorus. It was easily accessible and easily repaired. The unusual feature is the youth of the patient, which made the diagnosis seem almost fantastic until the perforation was actually seen No statistics are available to me, but a perforated peptic ulcer at so early an age must be rare It would be interesting to know what the records show.

External Application of Opium

Dr J. MCLAREN (East Kilbride) writes: "The addition of opium to preparations applied externally is stated to be useless" (Martindale's *Extra Pharmacopoeia*, 21st ed, 1, 699). I must say that that is not my experience, and I would welcome views from colleagues on the subject. Both subjectively and objectively I have found a few drops of laudanum relieve a severe earache. Lot. plumbi c̄ opio I have also found effective in herpes zoster, urticaria, pruritus, and haemorrhoids.

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A STANDARDIZED PLAN OF TREATMENT FOR GASTRO-ENTERITIS IN INFANTS

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Following an outbreak of infantile diarrhoea and vomiting at a base hospital shortly after the onset of war, with the very high mortality rate of 80%, certain strict prophylactic measures were taken and a schedule of treatment formulated; these have resulted in a fall of the death rate to 23% and no recurrence of the disease in epidemic form. We therefore consider it worth while to record our routine procedure as a suitable standard of treatment for use in hospital and to report certain interesting signs of prognostic value and measures taken for prevention of this disease developing in hospital.

Treatment

Chart I shows the schedule of treatment practised in our infantile gastro-enteritis wards.

CHART I.—*Treatment of Gastro-enteritis*

The following is an outline of the treatment to be given in every case of diarrhoea and vomiting. Details must be adjusted to suit individual cases.

The Moment to Start.—As soon as there is any suspicion that the disorder is more than a dietetic upset. The following points may help in this distinction:

(a) *The Stools.*—Frequent, watery, offensive, or much mucus.
(b) *The Vomits.*—Exclude overfeeding, posseting, wind, etc.
(c) *A rise of temperature.*
(d) *Baby looks ill.*

1. *Give Castor Oil.*—Under 1 year, 1 drachm; over 1 year, 2 drachms.

2. *Stop all Milk*, and give 2- to 3-hourly by mouth half-strength Hartmann's Ringer-lactate solution. Add a little saccharin if necessary.

3. *The Daily Total Fluid Intake* should aim at 2½ oz. per lb. body weight, plus extra for dehydration not exceeding 10 oz. Slight dehydration may be restored by subcutaneous saline given early.

4. *If Dehydration Marked*, put on *Intravenous Drip* of half-strength Hartmann's solution containing 5% glucose for 24 hours, with only sips of water by mouth:

5 lb. ..	15 c.cm. (1/2 oz.)	per hour	= 360 c.cm.	in 24 hours
7 lb. ..	20 c.cm. (2/3 ,,)	,, ,,	= 480 c cm.	,, ,,
10 lb. ..	30 c.cm. (1 ,,)	,, ,,	= 720 c cm.	,, ,,
15 lb. or over	45 c.cm. (1½ ,,)	,, ,,	= 1,080 c.cm.	,, ,,

After 24 hours, feeds should be introduced according to the "pyloric schedule" (Note 6, second method). The drip must be slowed, provided dehydration is corrected, but must deliver enough to make up the day's total to the required amount. As the feeds increase so the drip is reduced. It should be the aim of treatment to make the baby independent of the drip by the end of the third day.

5. *Choice of Milk Feed.*—(1) Breast milk, if obtainable. (2) Half-cream dried milk, with or without lactic acid (e.g., half-cream lacidac, Cow & Gate). (3) Boiled milk with or without lactic acid (babies over 6 months dislike lactic acid milk). (4) Unsweetened condensed milk.

6. *Method of Introducing Milk Feed:*

First Method (when on Hartmann's solution by mouth).—After 24 hours continue the feeds, replacing part of the Hartmann's solution by the milk chosen as follows:

1 part	milk* to	8 parts Hartmann's	for 12 hours
2 parts	,, ,,	8 ,,	,, ,, ,,
4 ,,	,, ,,	6 ,,	,, ,, ,,
5 ,,	,, ,,	5 ,,	,, ,, ,,

and so on until correct strength for age is reached. Sugar should be gradually introduced when a half-strength milk mixture is reached. (N.B.—Mix the Hartmann's solution and milk immediately before the feed.)

Second Method.—A "pyloric" schedule of feeding, to be used when changing from intravenous drip to bottle feeds. Choose one of the milk feeds as in Note 5 and dilute as described in Note 6. Give:

1 drachm	hourly,	3 feeds	12 hours (total 3¾ oz.)
2 drachms	,,	3 ,,	
3 ,,	,,	3 ,,	
4 ,,	,,	3 ,,	
6 drachms	1½-hourly,	4 ,,	12 hours (total 6 oz.)
1 oz.	2 ,,	3 ,,	
1½ oz.	2-hourly,	6 ,,	24 hours (total 21 oz.)
2 ,,	2 ,,	6 ,,	
2½ ,,	3 ,,	6 ,,	
3 ,,	3 ,,	6 ,,	

It may be necessary to go more slowly than this and even to alternate milk feeds with Hartmann's solution. With large babies the quantities may be doubled. Babies should have absolute rest, *if possible*, from midnight to 6 a.m.

7. *A Stomach Wash-out* given early in the treatment and occasionally repeated, but not more than once a day, is often effective in checking the vomiting.

A Rectal Wash-out given early in the treatment is effective when stools are particularly offensive with much mucus.

8. *Drugs.*—For collapse: nikethamide (coramine) 0·5 c.cm. intramuscularly every 2 hours up to six injections.

9. *Fresh Air.*—An overheated room lacking ventilation increases a baby's disposition to vomiting and diarrhoea. Warmth by hot-water bottles may be necessary, but open-air ventilation can be used with advantage.

10. *Special Note.*—There is a tendency to overtreat these babies. They collapse very easily. All medical and nursing procedures should be reduced to a minimum.

The Selection of a Suitable Fluid.—Most authors agree to a period of starvation before a milk feed is introduced, but opinions differ as to the most suitable fluid to give during this period by mouth or parenterally. The first function of such a fluid must be to re-establish or improve the excretion of the kidney, as this is the chief mechanism controlling the salt and water metabolism of the infant. Secondly, the substances contained in the fluid should approximate as closely as possible to those of plasma, and be in sufficient quantity to replace that lost by stool and vomit, acting as a good buffer counteracting the tendency to acidosis or alkalosis in these infants. Hartmann (1928) and Hartmann and Elman (1929) composed a fluid with these properties known as Hartmann's Ringer-lactate solution.

Liquor Ringer-Lactatis (Hartmann's Solution)
(Supplement to *B.P.C.* 1934, Part III, Formulary 1941)

	Metric	Imperial
Lactic acid	2·4 ml. ..	23 m.
Solution of sodium hydroxide ..	A sufficient quantity to neutralize the lactic acid	
Sodium chloride	6·0 g. ..	52½ gr.
Potassium chloride	0·4 g. ..	3½ gr.
Calcium chloride	0·2 g. ..	1¾ gr.
Distilled water to	1,000·0 ml. ...	20 fl. oz.

At a recent discussion at the Royal Society of Medicine Young (1942) showed that an infant is unable to concentrate solids in the urine to the same extent as an adult. Therefore in dehydration these products accumulate in the body. Although Hartmann's solution is slightly hypotonic, to ensure a good excretory function of the kidney we recommend diluting the fluid by half and adding glucose up to 5% for intravenous or subcutaneous use, but for oral administration we prefer to omit the glucose in view of the danger of intestinal fermentation accentuating the diarrhoea.

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* When dried or condensed milk is used this should be reconstituted to whole milk before adding the requisite "part" to the Hartmann's solution.

The blood chemistry following the use of various types of fluids has been extensively analysed, and great importance attached to the plasma chloride level, by many workers, with inconclusive results. Hoag and Marples (1931) recommend alternating normal saline and 10% glucose for intravenous use, but Cooper (1937) suggests the addition of calcium gluconate to saline to accelerate the movement of the fluid from circulation to tissue spaces. We, however, consider estimations of plasma chlorides under saline therapy of doubtful therapeutic value, as in several fatal cases the chloride percentage had regained a normal level.

Quantity of Fluid Required.—The total quantity of fluid given daily was kept constant at 2½ oz. per pound of body weight except in cases of dehydration, in which extra fluid up to 10 oz. a day was added according to the degree of dehydration. It is unwise to exceed this quantity owing to the danger of producing oedema.

The choice of milk for the feeds does not seem so important as the method of its introduction, which must be very gradual in all cases, however mild, especially in those with a tendency to vomit. In the latter the introduction may have to be even more gradual than we state in the schedule. Children over 6 months of age with persistent diarrhoea were treated with apple and tea diet (Sheldon and Hall, 1939) with some success. but the danger of this treatment is its tendency to produce vomiting, which in our experience is a more serious symptom.

Chart II is our daily record chart. It facilitates calculations of feeds and shows at a glance the weekly progress of the case. Records for a single day have been filled in.

CHART II.—*Weekly D. and V. Treatment Chat*

Name : J—— D—— *Age* 3 months *Weight* · 10 lb.

Date	29/8/42						
Fluids lost: Stools .. Vomits .. Urine ..	 7 2 small N.A D.						
Fluids given: Intravenous .. Subcutaneous By mouth ..	 15 oz. — 17½ oz						
Day's total ..	32½ oz.						
Approx. fluid required ..	27½ oz. +5 oz.						
Estimate of dehydration ..	Moderate						
General condition .	Poor; restless						
Focal sepsis ..	0						
Operation ..	0						
Type of feed ..	Lactic acid milk +Hartmann's 1 in 4, 2½ oz. 3-hourly—7 feeds						
Drugs .. .	0						
Character of stool ..	Green, watery						
Other notes ..	Troublesome cough						

Intravenous Therapy.—Intravenous fluid was introduced through a Bateman needle (Allen & Hanburys) after cutting down on a vein. The internal saphenous or veins in the cubital fossa or on the back of the hand were the ones most commonly chosen. If the vacoliter to be used was not calibrated, this was done before starting the operation, by marking in 10-c.cm. units a length of adhesive strapping which if carefully adjusted can be transferred from one bottle to the next when they are changed. The rate of the drip varied according to the size of the dripper and the quantity of fluid required. Approximately 8 to 16 drops a minute will deliver 50 c.cm. in an hour. An accurate hourly record of the quantity of fluid given was kept on a chart (Chart III). It is unnecessary to heat the fluid but important to keep the baby warm with hot-water bottles.

Blood Transfusion (10 to 15 c.cm. per pound of body weight) was useful in cases with severe anaemia or gross sepsis, or in the second or third week when the progress of the child was unsatisfactory. Aldridge (1941) prefers plasma to blood for transfusions owing to the increased viscosity of the blood in these infants, but we consider blood of more therapeutic value provided dehydration is corrected first.

CHART III.—*D. and V. Daily Fluid Chart*

Name · J—— D—— *Weight*. 10 lb. *Date* · 29/8/42

Time	Reading on Scale (c.cm.)	Amount in Hour (c.cm.)	Rate of Drip (Drops/Min.)	Total for To-day (Approx. in Oz.)	Remarks	Fluid by Mouth	Vomits	Stools	Urine
a.m. 0	120								
1	138	18	7	½					N.A.D.
2	152	14	5	1¼	Restless			1 green, watery	
3	172	20	8	1¾					
4	189	17	7	2¼					
5	205	16	6	3					N A.D.
6	223	18	7	3½	Lactic acid milk + Hartmann's sol. 1 in 4 →	2½ oz	1 small	1 loose, yellow	
p.m. 12	540	18	7	15	Lactic acid milk +Hartmann's sol 2 in 3 →	2½ oz		1 loose, yellow	N A.D.
Totals				15		17½ oz	2	7	

Total fluid for the day, 32 oz.

Relapses were of two types. (1) The infant who responded at first to treatment and then started to vomit again and had an increased number of watery stools. In the first relapse of this kind the full schedule of treatment was started again, omitting the castor oil, but in subsequent relapses the milk mixture was persisted with as far as possible by mouth and the remainder of the fluid requirement was given parenterally. (2) The second type occurred in infants who reached the convalescent stage with normal stools and then relapsed. This was fairly common, but the child appeared to gain a certain immunity to the disease, as there were no fatalities in second or third attacks. The full schedule of treatment was given for each relapse of this nature, usually starting with castor oil.

Drugs.—Several varieties of the sulphonamide group of drugs were given by mouth or intravenously for parenteral infections with unsatisfactory results. The importance of a good fluid excretion by the kidney during the administration of these drugs is well recognized, but in infantile gastro-enteritis, in spite of an adequate intake, this excretion is reduced to subnormal by excess elimination from the bowels, less often by vomiting and from insensible perspiration of the lungs in a febrile child. Fifty-two babies were given a course of eucortone and six infants were tried on nicotinic acid, but no significant change was noted, so these drugs were discontinued.

Results

From Nov., 1940, to April, 1942, 100 infants under 2 years of age were treated for gastro-enteritis at the Hospital for Sick Children, Great Ormond Street, and its base hospital at Hemel Hempstead. Twenty-three of these died—a mortality of 23%. Realizing that the mortality depends to a large extent on the type and severity of the disease, we attempted to assess these by instituting a system of "marks" for certain symptoms and signs—the higher the number of marks scored the greater the severity of the disease and the more serious the prognosis. Chart IV shows our marking system.

It was soon found that this system had too many fallacies to be of statistical value. For example, personal variations cannot be excluded, and therefore certain estimates are only approximate; also, some features of the illness, such as diarrhoea and vomiting, may never fully develop. This particularly applies to the worst type of infantile gastro-enteritis showing practically no dehydration, vomiting, or diarrhoea, but merely the toxic facies—a type in which the child may be dead in 24 hours. However, certain interesting facts of prognostic value evolved from our system; these seem worth recording.

CHART IV.—*An Index of Severity*

Features of the Illness	Scoring 2 Marks	Scoring 1 Mark	Scoring 0	Marks Scored
1. Weight of infant before onset of D. and V.	—	14% or more underweight	Less than 14% underweight or overweight	
2. Age	Under 6 months	6 months to 1 year	Over 1 year	
3. Where disease developed	—	In hospital	At home	
4. Duration of symptoms before treatment started	—	Over 3 days	0 to 2 days	
5 Appearance of infant (collapsed, toxic, shocked, ashen)	Severe	Moderate	Mild	
6. Dehydration ..	"	"	"	
7. Parenteral infection	Present at onset of disease	Arising after onset	None	
8. Maximum number of stools in 7 consecutive days	More than 40	30 to 40	Less than 30	
9. Maximum number of vomits in 7 consecutive days. (More than 14 scores 4 marks.)	8 to 14	—	0 to 7	
10. Altered blood in vomit ("coffee-grounds")	Present	—	Absent	
			Total ..	

Weight.—Cooper (1937) recognized the importance of the weight of the infant at the onset of the disease. In his series of 300 cases the mortality rose from 36.5% to 65.0% in those 30% or more underweight. Maitland-Jones (1933), however, considers the figure of 14% or more underweight for age as representing an atrophic infant, and this figure we chose as our criterion. Thirty children fell into this category and 12 died—a mortality of 40%.

Age.—In agreement with other authors we found the disease most lethal in the first six months of life.

Age of Child	No. of Cases	No. of Deaths	% Mortality
Birth to 6 months ..	65	17	26·2
6 months to 2 years	35	6	17·1

Where Disease Developed.—Of great significance was the high death rate in infants developing the disease in hospital as compared with those contracting it at home.

Disease Developed	No. of Cases	No. of Deaths	% Mortality
In hospital	46	15	32·6
At home	54	8	14·8

Length of Illness before Treatment Started.—The importance of starting treatment early has already been stressed. Our figures show that if treatment was begun within two days of onset of symptoms the mortality fell from 25.9% to 20%.

Treatment Started	No. of Cases		No. of Deaths		% Mortality	
0–2 days	40		8		20	
3–5	30	54	8	14	26·7	25·9
Over 5 days	24		6		25·0	

Dehydration.—In agreement with Campbell and Cunningham (1941) we found that the mortality was closely associated with the degree of dehydration, rising as the latter increased in severity.

Degree of Dehydration	No. of Cases	No. of Deaths	% Mortality
None	22	0	0
Slight	27	1	3·7
Moderate ..	17	3	17·6
Severe	34	19	55·9

Parenteral Infection, if present at the onset of the gastro-enteritis, carried with it a higher mortality, whereas infection developing after the onset was not of such serious prognostic significance.

Infection at Onset	No. of Cases	No. of Deaths	% Mortality
None detected ..	61	12	19·7
Present ..	38	11	28·9

Vomiting was an important symptom. More than 14 vomits in one week carried with it a high rate of mortality. "Coffee-ground" vomit containing altered blood was seen in 12 cases, only 2 of which recovered.

Maximum No. of Vomits in 7 Consecutive Days.	No. of Cases	No. of Deaths	% Mortality
0 to 7	59	4	6·8
7 to 14	16	4	25·0
Over 14	24	15	62·5

Diarrhoea.—We took a less pessimistic view of the frequent watery stool, finding it easy to control provided there was no vomiting. However, our figures suggest that if frequent stools persist longer than a week the prognosis is not so good.

Maximum No. of Stools in 7 Consecutive Days	No. of Cases	No. of Deaths	% Mortality
0 to 30	37	6	19·4
30 to 40	37	9	32·1
Over 40	21	8	61·5

Discussion

The treatment of infantile diarrhoea and vomiting is too often unsatisfactory and haphazard. The mortality from this disease varies from 14 to 88%—seeming to depend to a large extent on the severity of the disease, which, as already shown, is difficult to assess scientifically. The toxicity rises in epidemics, when the mortality may reach 100%. Rice and his co-workers (1937) report 16 outbreaks in 11 lying-in institutions in America from 1934 to 1936: 505 cases were affected, with a fatality of 46%. The accompanying table shows results from the literature.

Table showing Cases and Mortality Rates in the Literature

Author	Institution	No. of Cases	% Mortality
Campbell and Cunningham (1941)	Park Hospital	574	27·7
Cooper (1937)	Royal Hospital for Sick Children, Glasgow	300	47·2
Recorded by Cohen *et al.* (1933) ..	Brooklyn, New York	175	35·0
Rice *et al.* (1937) ..	Eleven lying-in institutions in America	505	46·0
Smellie (1939)	Birmingham	500	48·0

The treatment varied so considerably from author to author that no correlation could be detected between any special method and the recovery rate. In view of this and the unsatisfactory mortality rate, particularly in those developing the disease in hospital, it is our opinion that prevention calls for far greater study, especially in hospitals and nurseries for infants.

Prevention

As a result of our first epidemic at the base hospital in 1940, when 12 out of 15 infants died, the following preventive measures were taken:

1. Better spacing of beds, interspersing baby-cots with those of older children. The number of children in a ward was reduced to half the number of adults the ward was designated to hold.

2. Masks and gowns were worn by all attending any baby under 2 years old.

3. An isolation ward for babies developing gastro-enteritis was obtained, and medical officers were encouraged to send the infants there on the slightest suspicion of the disease.

4. Ventilation was improved in order to keep a cool moving air in the wards, and nurses were encouraged to keep the infants warm with hot-water bottles rather than raise the temperature of the ward.

These measures were effective in reducing the incidence rate and preventing another epidemic; but they are far from ideal, and further recommendations are suggested.

5. Whenever possible, treat an infant in its own home unless the condition it suffers from demands admission to hospital. In hospitals the risk of infection is enormous unless the cubicle system, and nurses trained in prevention of infection, are available.

6. When admission is essential, babies under 2 years of age should be nursed in cubicles.

7. If a baby contracts gastro-enteritis it should be kept in its cubicle, and on discharge the latter should receive proper cleansing and preferably remain empty for a day or two.

8. After the war, nurseries for infants under 2 years of age should be discouraged. This would particularly apply to nurseries in maternity homes. To overcome this problem the ideal maternity home could be divided up into separate cubicles for mother and child. This seems a justifiable step to take when such figures as those quoted by Rice and his co-workers (1937) are considered.

9. If an outbreak develops in an institution, further admission for infants under 2 years old should temporarily cease, as many infants as possible be sent home, and the remainder be widely separated among older children or adults. Where one room alone has been used for the children this should be closed, thoroughly cleaned, and aired.

Summary

A plan of treatment for infantile diarrhoea and vomiting which has worked with encouraging results is put forward as a basis for use by those in charge of sick infants. One hundred infants were treated by this method, with a mortality of 23%. Certain interesting figures of prognostic value are recorded, including the high death rate of 32.6% in infants developing the disease in hospital compared with those developing it at home. In view of this and the recorded high mortality in institutional epidemics, measures for the prevention of the disease in hospital and nurseries are given.

Adequate treatment demands team-work and probably presents as highly skilled a form of nursing as any in diseases of children.

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MILITARY MEDICINE IN THE MIDDLE EAST

AN EXPERIENCE OF 13,542 CASES

BY

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This paper is based on the work of the medical division of a large hospital situated in a base area in the Egyptian desert, and covers a period of eighteen months (March, 1941, to Sept., 1942); the cases were unselected admissions from local camps and from convoys from the forward areas. It seemed to me that a brief survey of the medical problems out here might be of interest in England. This climate, while on the whole healthy, is unsuitable for those prone to certain diseases, which should be better known to those selecting troops for service here. We work with limited clerical and much-depleted medical staffs. The turnover of patients is very large, and elaborate statistical analyses are impracticable. From official and private records a good idea of the larger disease groups can be got, but the rare diseases have had to take their proper place against the utilitarian background of war and will only be touched upon here.

The relation between medical and surgical admissions has ebbed and flowed with the tide of battle, but there have been roughly three medical to two surgical admissions. The types of case dealt with will be considered in large groups, and conclusions will be given rather than the arguments supporting them. Some of the conclusions will be at variance with accepted tropical teaching, but the controversial opinions expressed upon dysentery will be discussed in a fuller paper when time permits.

The approximate incidence of the cases, expressed in percentages, is given in Table I.

TABLE I.—*Percentage Distribution of Disease; 13,542 Cases*

Tropical diseases	45%
Acute and chronic respiratory diseases	17%
Skin diseases (including scabies)	15%
Functional and organic nervous diseases	7%
Infectious diseases	5%
Chronic digestive disorders	4%
Chronic rheumatism—articular and non-articular	3%
Diseases of kidneys and bladder	1%
Circulatory diseases	0.7%

Tropical Diseases

The figures relating to the various tropical diseases are given in Table II.

TABLE II.—*6,144 Cases of Tropical Disease*

Dysentery group	4,178 (2 deaths)
Short-term fevers	1,153
Malaria	735 (1 death)
Avitaminoses	34
Relapsing fever	19
Bilharziasis	18
Kala-azar	5
Leprosy	1
Effects of heat	1 (1 death)

The Dysentery Group

Diarrhoea is the most important disease of the Middle East, and nearly one-third of medical admissions were due to it. Although it is probable that, apart from a few cases of food poisoning, the cause is the dysentery bacillus, cases are divided into two groups according to whether blood and mucus are visible in the stools or not. If they are, the condition is called "dysentery"; if absent, "acute catarrhal enteritis" or "Gippy tummy." The distinction is useful, as it makes a rapid assessment of severity easy, and is to be objected to only when different causes are postulated. The duration of stay in hospital of 600 cases of dysentery was 19.5 days, and of 600 cases of acute enteritis 11.5 days.

Laboratories are overburdened by the routine attempt to isolate the dysentery bacillus; success varies, and depends upon collaboration between the laboratory and the ward, which is seldom perfect. A strong plea could be made for limiting laboratory examinations to a search for *Entamoeba histolytica*; dysentery can be adequately managed with minimal laboratory help, as severe cases must be treated on clinical indications just as urgently as must diphtheria.

TABLE III.—*Dysentery Group; 4,178 Cases*

Amoebic dysentery, including hepatic amoebiasis	36, or 1%
Acute catarrhal enteritis	2,313, or 55%
Bacillary dysentery	1,829, or 44% (2 deaths)

(Of positive isolations, Flexner 70%, Shiga 19%, Sonne 6%, Schmitz 5%)

Treatment.—The contribution which this war will make to dysentery will be an appraisal of the value of specific chemotherapy and probably the abandonment of the use of castor oil and salts. On my responsibility—it was then almost a crime—saline treatment was stopped in this hospital in the summer of 1941; I do not think the treatment is of value, and on theoretical grounds it has much to condemn and little to commend it. Our usual treatment is rest in bed, ample fluids, a bland diet, and morphine to relieve colic in a few cases; dysentery has not, on the whole, been severe, so that in only about 10% of cases is any further treatment necessary. In patients whose diarrhoea persists more than seven days and who show active inflammation on sigmoidoscopy, and in all severe cases, one of the sulphonamide group has been given. Sulphaguanidine has been available since April, 1941, and both sulphanilamide and sulphapyridine have been used more recently. The conclusions we have reached are that sulphanilamide in tablets is of limited value; sulphapyridine and sulphaguanidine seem to be of equal value, and as specific in dysentery as the former is in pneumonia. As sulphaguanidine does not upset the patient it is the drug of choice in both acute and chronic dysentery; in the few cases of non-specific ulcerative colitis treated there has been no improvement. While the use of Shiga serum in very severe cases is compulsory, I have treated a few with double doses of sulphaguanidine, and recovery has taken place in attacks which were likely to have proved fatal.

Results.—There have been two deaths—one from exhaustion when adequate supplies of sulphaguanidine were not available, and the other that of a patient who already had a pericolic abscess when he reached us from the Western Desert. One patient was invalided home after a very severe dysentery, as he developed ulcerative colitis; a second patient was invalided home to South Africa owing to impairment in his health—he had been a prisoner of war; three patients were temporarily re-graded for base duties for three months. The remaining patients made a complete recovery. I regard this as a creditable record in such a disease, and I think it must be attributed to the use of sulphaguanidine in all the severe and prolonged cases: chronicity with permanent ulceration was not allowed to occur. Every case with diarrhoea lasting for more than 10 days was sigmoidoscoped.

Short-term Fevers

Approximately 2,000 patients (15% of the series) were admitted with "P.U.O."—pyrexia often heralded by a rigor, headache, and perhaps vomiting, but without signs or symptoms pointing to inflammation of throat, lungs, bowels, or other organs. Naturally a routine procedure has been adopted for these cases: repeated physical examination, especially for splenic enlargement; twice-daily blood films for three days; an accurate temperature record. With such numbers blood counts are impossible except where there are special indications. From this group of 2,000 cases either the progress or the laboratory findings excluded malaria, meningitis, the enteric group, relapsing fever, and a certain number of cases of dysentery with a febrile onset without diarrhoea at first. An alarmingly large residue of 1,153 cases is left. Of these, 805 have been called "sandfly fever," a diagnosis which in most of them is probably correct, but as we have not had an epidemic it is not easy to be certain of sporadic cases. I feel that textbooks have claimed too much for the clinical picture of sandfly fever, for I have seen typical cases prove to be malaria, relapsing fever, and once poliomyelitis; in the absence of an epidemic it is wise to make the diagnosis with reservations. The other 348 cases of short-term fever remain an unexplained problem and offer a fruitful field for research; they have not borne any resemblance to true influenza.

The short-term fevers are the cause of much morbidity but no mortality, and require the services of a good laboratory; they must not be treated as malaria, as to do so trebles their stay in hospital and would be a serious waste of man-power. They are sources of anxiety only when they last more than four or five days, as more serious diseases have then to be considered.

Malaria

TABLE IV.—*Malaria; 735 Cases*

Benign tertian	597, or 81%
Malignant tertian	44, or 6%
Quartan	9, or 1%
Ovale	1
Clinical	84, or 11% (1 death)

Malaria has been mild, and very few cases of the pernicious type have been seen. It has not been a difficult disease once it was realized that almost any febrile condition could be malarial, and its response to treatment has been so dramatic that in a few days no further anxiety was felt. I am aware that in other theatres of war the problem is different. The treatment has been to give quinine in solution in doses of 10 gr. thrice daily until the patient is afebrile, then mepacrine hydrochloride (atebrin) 0.1 g. thrice daily for five days, and after two days' rest a sterilizing and anti-relapse course of pamaquin (plasmoquine), 0.01 g. thrice daily for three days. With a constantly changing population it is not possible to give rates of relapse after this standard course, but they would seem to be low. I was impressed with the number of relapses occurring among those who had not received the pamaquin course.

There has been one death; it resulted from acute haemolytic anaemia with haemoglobinuria during the pamaquin course—haemolysis was checked, but the patient died from pneumonia. Too much stress need not be laid on this case of blackwater fever, as we had a similar case during the treatment of pneumonia with sulphapyridine, and a second case without a discoverable cause: both recovered.

The guiding principle in malaria has been to withhold quinine until the diagnosis has been established by the laboratory, unless (1) the patient is very ill and delay may prove fatal, or (2) the clinical picture together with an enlarged spleen makes malaria probable although repeated blood films have been negative. Eleven per cent. of the cases fell into this group of "clinical" malaria.

Avitaminoses

It is a tribute to the supply services that so few cases of deficiency disease have occurred: of the 34 cases admitted 31 were due to severe pellagra in non-British troops—there were no deaths. Nicotinic acid was given to the worst ones, and prompt modification of the diets in their camp put a stop to the outbreak.

Three cases of beriberi were admitted from the Western Desert; one was of the fulminating type with oedema and peripheral neuritis: this man died before we could treat him. The other two cases were mixed beriberi—one severe with great cardiac enlargement on x-ray examination, and the other mild; one of these patients had been for many months on desert patrols, and the other had been in the besieged Tobruk garrison. Response to injections of B_1 was rapid.

Relapsing Fever

It was not until we had been out here for some months that it became recognized that a tick-borne type of relapsing fever occurred in the Western Desert and was transmitted to troops living in caves and in holes in the ground. The disease is presumably similar to that found in Palestine and Iraq, but differs from louse-borne and African tick-borne relapsing fever. We have diagnosed 19 cases, but undoubtedly some were missed. The spirochaetes are very scanty in the blood, and large numbers of films, in several bouts, may have to be examined before they are found. The paroxysms of fever are brief, seldom lasting more than 24 hours, and resemble those of malaria; one patient at different times had both diseases, and was unable to distinguish between them. The resemblance to sandfly fever is close, as headache is severe in both diseases: many mistakes have probably been made, as patients with sandfly fever are usually discharged before the twelfth day, the usual date of the next paroxysm of relapsing fever.

This type of relapsing fever is characterized by brief bouts of fever with severe headache, giddiness, and usually splenic enlargement; the interval between attacks is 10 to 14 days. In a fair proportion of cases after a few paroxysms there are signs of involvement of the nervous system—lymphocytic meningitis or cranial nerve palsies, or a combination of both. The course of the disease seems to be unaffected by intravenous arsenical preparations, and there is a proved case in which 17 relapses occurred in spite of treatment. Stovarsol by mouth is at present being tried, and appears to be efficacious. The practical points about this type of fever are its frequent confusion with malaria and with sandfly fever and the difficulties of laboratory diagnosis in the absence of a supply of experimental animals; if prolonged observation is practicable the syndrome is characteristic enough to warrant a clinical diagnosis, especially if the nervous system becomes involved.

Bilharziasis

Although 18 cases of bilharziasis have been admitted, the only British soldier infected had caught it in South Africa: troops are aware of the dangers of fresh water in Egypt. The remaining 17 patients were Mauritians who had been infected in their own country. All the cases were due to *S. haematobium*. The only symptom was haematuria, and treatment with injections of tartar emetic was effective.

Kala-azar

In certain areas of Africa there is endemic kala-azar which is resistant to antimony and which gives rise to a curious clinical picture; one such area in the Sudan provided many cases, and five were admitted to us. The first case was quite baffling: the patient had a continued fever, splenomegaly, and leucopenia, and was regarded as a case of enteric-group fever until the persistence of the temperature began to raise very grave doubts—all laboratory tests had been negative. Brigadier Sidney Smith, the Consultant in Tropical Medicine, saw the patient and recognized his case as similar to the ones he had seen from the Sudan. Three other cases were later admitted from the same district, all presenting the same picture; it is unlikely that there will be more, as the area is no longer of military importance. In addition to the above-mentioned features the daily temperature charts showed a double rise in 24 hours, which is typical of kala-azar. The leucopenia and neutropenia were noted in all cases; but, apart from a positive formol-gel test in two cases, laboratory investigations were negative. We were unable to find Leishman-Donovan bodies in the spleen, marrow, or lymph glands, nor could we culture them from the blood. A fifth case similar to the other four occurred in a negro from the Cameroons, another recognized endemic focus.

We did not have an opportunity of treating our cases, as they were all transferred to one hospital in Cairo, where they were treated with neostibene, a new synthetic drug; the results were, I understand, excellent.

Effects of Heat

In this inland desert district the summer temperature is very high, usually over 105° and occasionally rising to almost 120° in the shade, but the humidity is low. No case of heat stroke (hyperpyrexia) has been admitted, nor has the condition developed in any patient under medical treatment in the wards. On the surgical side there have been a few cases of post-operative hyperpyrexia, probably due to heat stroke. Numerous cases have been sent into hospital as heat stroke, but every one proved to be an infection—malaria, sandfly fever, or septicaemia. I have constantly urged that, while the usual measures for reducing temperature should be at once adopted, a search for the infection must be made, and an intravenous injection of quinine be given if there is even the flimsiest suggestion of malaria. In other districts in the Middle East heat stroke has, I understand, occurred.

One case of heat exhaustion has been admitted to hospital. This occurred in a man who had had heat exhaustion in the Red Sea, from which he had only partially recovered on disembarkation; his arrival in this area unhappily corresponded with the record heat wave in May, 1941, when the shade temperature was just under 120°. His symptoms were marked weakness and complete anorexia; he was wasted and dehydrated, the systolic blood pressure was 62 mm. Hg, the temperature was subnormal, and the blood showed marked haemoconcentration. He was vigorously treated with saline solutions by all routes, adrenaline, and cortin; but he failed to respond, and died of suppression of urine on the fifth day of his stay. The necropsy showed no macroscopic changes in any organ, and the pituitary and suprarenal glands were normal.

Respiratory Diseases

TABLE V.—*2,402 Cases of Respiratory Disease*

Acute:	
Tonsillitis and pharyngitis	1,171
Laryngitis, tracheitis, bronchitis	620
Primary pneumonia	169 (4 deaths)
Coryza	65
Chronic:	
Bronchitis, asthma, emphysema, bronchiectasis	337
Pulmonary tuberculosis	40 (2 deaths)

Respiratory diseases were responsible for 17% of the medical admissions. There is nothing remarkable about the acute group except the high incidence of tonsillitis. Every case of pneumonia was treated with sulphapyridine, and the mortality was very low. While there were many atypical cases, I did not think the disease was different from what it is in England. The number of chronic chest cases was not very high, but the group is most important, as 126 had to be either invalided to the United Kingdom or re-graded for limited service in the Middle East. Too much stress cannot be laid on the fact that chronic chest conditions are greatly aggravated by the climate in Egypt and Libya, and men prone to such troubles should not be sent out here.

Skin Diseases

Of the 2,142 cases admitted to the skin wards 639 had scabies, which seems to be less common than in England; the routine treatment was with Marcussen's ointment. Most of the skin diseases were the common ones seen in England; prickly heat has been uncommon.

Desert sores have been a big problem in the Middle East, and many cases have been admitted to the skin wards. While I am not competent to disentangle this dermatological puzzle, the clinical aspects are simple: the sores are indolent ones, usually multiple, on exposed parts, chiefly forearms and legs, and often due to infected abrasions or insect-bites. The factor common to all types is their slowness to heal outside of hospital, their rapid healing in hospital, and their satisfactory response to a variety of remedies *in hospital*. Any sore or wound may be infected with the diphtheria bacillus by droplet infection, and, rarely, this happens in desert sores. The single very indolent sore has been suspect, so we swab them as a routine measure. We have had at least two cases of extensive peripheral neuritis and one case of fatal heart failure in these diphtheritic desert sores.

Infectious Diseases

TABLE VI.—*703 Cases of Infectious Diseases*

Acute infective hepatitis	341 (1 death)
Diphtheria (faucial)	130 (4 deaths)
Mumps	118
Acute rheumatism	30
Enteric group	24 (6 deaths)
Measles (all forms)	17
Meningitis, benign lymphocytic	16
Poliomyelitis and encephalitis	8 (1 death)
Erysipelas	8
Meningitis, cerebrospinal	6
Scarlet fever	4
Meningitis, streptococcal	1 (1 death)

This table needs little explanation; the high incidence of acute infective hepatitis (epidemic jaundice), the very few cases of enteric fever, and the negligible occurrence of cerebrospinal fever and scarlet fever are obvious. It is probable that some of the patients with benign lymphocytic meningitis were unrecognized cases of relapsing fever. Mumps was almost limited to Seychellois and East African troops.

Acute Infective Hepatitis.—Although this has been the commonest infectious disease its aetiology is obscure and will remain so until a susceptible experimental animal is found. The disease is similar to the English variety, and no new treatment has been found; few cases are admitted in the pre-icteric febrile phase, when it is impossible to distinguish it from a short-term fever. The fatal case was admitted after a few days of jaundice; the patient did not seem particularly ill; but suddenly he became cholaemic and died within the first 24 hours.

Diphtheria.—Among so many cases of diphtheria in adults it is not surprising that the throat signs have often been atypical and resembled acute coccal infections or even quinzy—suspicious throats are oftener swabbed than at home. It is not possible to give figures showing the incidence of paralyses, but they have been of a severity that was quite outside my previous experience: recovery has been slow, but in all cases it was complete, and even two cases of diaphragmatic paralysis recovered. The mortality of 3% from diphtheria is not high.

Enteric Group.—The 24 cases include typhoid, paratyphoid, and clinical typhoid fever, without laboratory confirmation. The low incidence is the result of the satisfactory state of the troops with respect to inoculation, but I have been impressed with the severity of the cases due to *B. typhosus*: inoculation did not seem to have modified the course of the disease once it was contracted. The mortality rate of 25% would be much higher if only cases of typhoid fever were considered. The disease remains uninfluenced by any treatment but good nursing, and the sulphonamide group is ineffectual.

Other Causes of Illness

There is a small unanalysed group of cases—surgical conditions overflowing to the medical division, miscellaneous diseases, and rarities—which will not be dealt with. Table VII contains an analysis of conditions which would bulk large in an English hospital but which accounted for only 16% of the admissions here; the figures are available for only the last 7,190 admissions, but there has been no significant change in their admission rate over the whole period.

TABLE VII.—*Other Causes of Illness among 7,190 Admissions*

Nervous diseases		487
Organic	16	
Psychosis	15	
Psychoneurosis	456	
Chronic digestive diseases		291
Peptic ulcer	56	
X-ray-negative dyspepsia	213	
Other diseases	22	
Circulatory diseases		54
Effort syndrome	30	
V D H and other diseases	24	
Chronic articular and non-articular rheumatism		240
Urinary diseases		73
Acute nephritis	13	
Renal colic, oxaluria, etc	60	

Causes of Death

Thirty-two deaths have occurred, but seven were in untreatable diseases: cerebral tumour (2), cancer of stomach (1), cancer of hepatic ducts (1), acute monocytic leukaemia (1), acute myeloid leukaemia (1), tuberculous meningitis (1). Table VIII shows the causes of death in the other cases, and, where applicable, the percentage mortality of the disease.

TABLE VIII.—*Causes of 25 Deaths*

Diphtheria (faucial)	4 (3%)
Diphtheria (cutaneous)	1
Acute primary pneumonia	4 (2.4%)
Malaria—blackwater fever	1 (0.13%)
Pulmonary tuberculosis	2
Bacillary dysentery	2 (0.10%)
Enteric group	6 (25%)
Acute infective hepatitis	1 (0.3%)
Streptococcal meningitis	1
Heat exhaustion	1
Encephalitis	1
Staphylococcal septicaemia	1

Conclusion

I have tried to condense eighteen months' work into a few thousand words, and have had, perforce, to appeal to figures and tables—always dull things; it is hoped that the main problems of Middle East medicine have been made clear.

We have not been working under conditions to which we were accustomed in peacetime. This hospital is built on desert which was uninhabitable three years ago; every possible amenity has been provided and we have ample safe water, a good hot-water system to the wards, electric lighting from a mains supply, and every reasonable drug and instrument. Three-quarters of the patients have been treated in tents and only the minority in the few hutted wards, conditions which would be impossible in England but are by no means ill adapted to this climate. I feel that the results of treatment could hardly have been bettered under our peacetime civilian conditions.

To practise in a country where tropical disease is rife is to get a glimpse into the future which is opening out before the advances of chemotherapy. While much of tropical specific therapy is old, much is new, and it has been a unique experience to treat bacillary dysentery with the newer sulphonamides. If from the cases treated here the ones amenable to specific chemotherapy are excluded—malaria, amoebiasis, bilharziasis, kala-azar, the avitaminoses, pneumonia, cerebrospinal meningitis, tonsillitis, and bacillary dysentery—there are only small groups of cases still remaining refractory. There is no specific treatment for enteric fever, or such virus diseases as acute infective hepatitis, coryza, and encephalitis or poliomyelitis. Sandfly fever is not important from the point of view of treatment, as it is so brief. Finally, I would again draw attention to the adverse effect of this climate on chronic chest diseases.

SPECIFIC IDENTIFICATION OF THE CHIEF PATHOGENIC CLOSTRIDIA OF GAS GANGRENE

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The isolation in a pure state and the identification of the chief anaerobes of gas gangrene—namely, *Cl. welchii*, *Cl. septicum*, and *Cl. oedematiens*—are everywhere recognized as being beset with peculiar difficulties, owing partly to the need of these bacteria for oxygen-free conditions of cultivation, and partly to their tendency to grow in cryptic association with other anaerobes in spite of prolonged efforts to obtain pure cultures. The method described below is likely to aid in their identification, since it depends upon the highly specific, lethal, and antigenic toxin which is characteristic of each of them. This method consists in growing the bacterial inoculum on the surface of agar to which an appropriate amount of one of the specific antitoxins has been added. During the growth of the colony toxin is produced, diffuses outwards from the colony, and interacts with the homologous antitoxin to form a delicate but unmistakable precipitate resembling a halo round the colony.*

The method is identical with that which was found by one of us (Petrie, 1932) to serve as a differential test for rough and smooth strains of meningococcus, pneumococcus, and *B. dysenteriae* (Shiga) and to establish a clear distinction between group 1 strains (type 1 and type 3) and group 2 strains of meningococcus (cf. Branham, 1940). When, for example, a smooth strain of group 1 meningococcus is grown on an agar plate containing 5% of the homologous immune serum a precipitate is formed round the colonies which is composed of the polysaccharide complex (the somatic antigen) in union with the protein of the specific antibody, whereas in the anaerobic group under discussion the precipitate consists, in the final analysis, of a purely protein aggregate—namely, the toxin molecule in combination with a variable number of the specific molecules of the homologous antitoxin. Molecular aggregates of each kind, irrespective of the chemical nature of the reacting substances, become linked together to appear as a macroscopic precipitate in agar, as described below; in a fluid medium the product of the reaction takes the form of floccules. Soon after the publication of the earlier paper the author made a limited number of observations on the effect of seeding the Park-Williams No. 8 strain of *C. diphtheriae* on agar plates containing diphtheria antitoxin, when ring-like precipitates were noted round the colonies.

Technical Details of the Method

The method is essentially a simple one, and any difficulties that may be encountered are likely to be due to the strict necessity for providing a high degree of anaerobiosis in order to obtain adequate surface growths on agar plates; this proviso applies particularly to *Cl. oedematiens.*

The medium used is 2.5% agar containing the ingredients that are added for the routine production in this Institute of high-grade toxins of the three anaerobes. The basal medium is a horse-meat infusion broth (1 lb. to 1 litre of tap-water heated to 95° C. with 0.5% acetic acid, neutralized and filtered) together with 3.5% Evans peptone and 0.5% sodium chloride; *p*H adjusted to 7.8, 2.5% agar added, and the medium tubed in 17-c.cm. amounts and steamed or autoclaved. Before pouring the melted agar the following ingredients are added to it in sterile solution when the temperature has fallen to about 45° C.

For *Cl. welchii*: 2 c.cm. of a mixture containing 5 g. glucose in 100 c.cm. of a sulphated horse-muscle extract (Macfarlane and Knight, 1941), bringing the final concentration of the extract in the medium to 10% and of the glucose to 0.5%. For *Cl. oedematiens*: 2 c.cm. of the sulphated horse-muscle extract, but *without glucose.*† For *Cl. septicum*: 2 c.cm. of a mixture containing 5 g. glucose in 100 c.cm. heated normal horse serum (56° C. one hour) so that the final concentration of serum in the medium is 10% and of the glucose 0.5%.

Lastly, there is added at the same time 1 c.cm. of a dilution in broth of the appropriate antitoxin, which, when added to 17 c.cm. of agar and 2 c.cm. of extract or serum mixture, represents approximately 8 I.U. per c.cm. of the final medium. The special ingredients can be mixed to provide a sterile solution, and it is doubtless an advantage to add to each mixture an amount of *l*-ascorbic acid, which favours anaerobic growth by virtue of its being a reducing substance, to give a concentration of 0.025% in the final medium.‡

After the plates are poured they should be dried in an incubator at 37° C. for at least 5 hours in order to prevent motile organisms from filming over the surface. The plates may be spread in the usual way, or a heavy inoculation with a platinum loopful of a pure or reasonably pure culture may be implanted on the agar at any chosen site. The plates are examined after 24 or 48 hours' incubation at 37° C. anaerobically. If the resulting colonies are well grown but show no precipitate the plates should be placed at room temperature aerobically and observed daily, because the haloes, especially those of *Cl. oedematiens*, may be slow in appearing.

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* The Nagler reaction resulting from the diffusion of toxin from colonies of *Cl. welchii* on human serum agar plates is used to identify this bacterium (Hayward, 1941).

† There is reason to believe that for both *Cl. welchii* and *Cl. oedematiens* equally good results can be obtained by omitting the sulphated horse-muscle extract from the medium; the agar to be tubed should then be increased from 17 c.cm. to 19 c.cm.

‡ The special ingredients and antitoxin solutions should be kept preferably in a refrigerator, or otherwise in the coolest place available, and great care should be taken to preserve their sterility. Assistance will gladly be given in the technical application of the method if inquiries are addressed to the Lister Institute, Elstree, Herts.

Characteristic Features of the Precipitates

There is usually no difficulty in recognizing the halo against a black background with ordinary good daylight, but a simple magnifying-glass or even a binocular dissecting microscope of low magnification is helpful on occasion. At an early stage, when the zone of precipitate is narrow and of slight density, or when it is desired to light up the structural details of the halo to the best advantage, a simple improvised illuminator can be used. This consists of a black plyboard, 1 × 1½ ft., with a back-rest and a central opening about one inch in diameter, which may be fitted with an iris diaphragm; an electric light provided with a white reflecting shade is placed behind the opening in a position which allows only the reflected light to illuminate the desired portion of the plate. The best view is obtained by ensuring that the external surface of the agar plate is clean and by removing the cover.

When the precipitate has been laid down as an apparently uniform deposit and is left aerobically at room temperature, concentric (Liesegang) rings often appear. These are so characteristic that the specific nature of the precipitate is established beyond doubt (Figs. 1, 2, and 3). They form much more quickly and more readily than the similar rings already described and illustrated in the haloes that are formed when an antibacterial serum against smooth strains of pneumococcus or group 1 meningococcus is incorporated in the agar (Petrie, 1932). A striking feature of the rings in the anaerobic haloes is the fact that, though the margin of the colony may be wavy or irregular, the circular zones give the impression of having been drawn with compasses. Two or three colonies on a spread plate may be seen to be enclosed within a double ring, or a bar of growth may show a double contour in the precipitate extending from its margin.

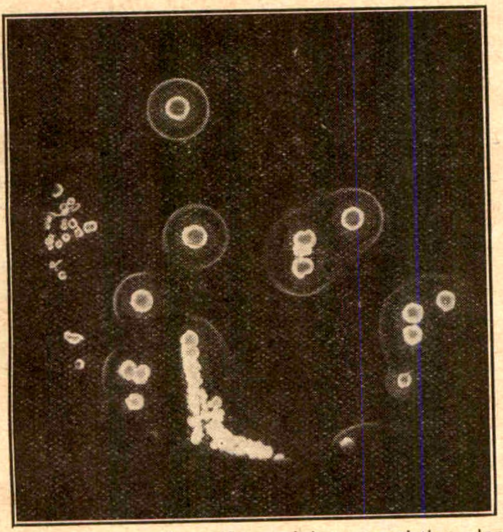

Fig. 1.—Shows rings of specific precipitate round the colonies of *Cl. welchii* on an agar plate containing *Cl. welchii* antitoxin.

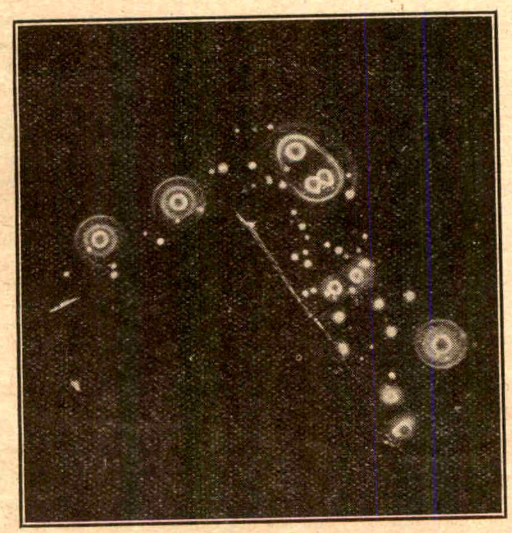

Fig. 2.—Shows rings of specific precipitate round the colonies of *Cl. septicum* on an agar plate containing *Cl. septicum* antitoxin.

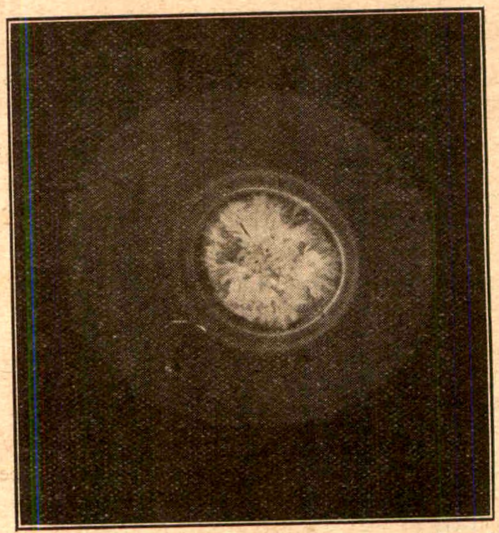

Fig. 3.—Shows rings of specific precipitate round a colony of *Cl. oedematiens* implanted on an agar plate containing *Cl. oedematiens* antitoxin.

The breadth and also the density of the rings in a particular halo often vary. Thus one of the best specimens so far obtained was observed after three weeks at room temperature round a colony (8 × 8 mm.) of *Cl. oedematiens* on agar which contained 75 I.U. of *Cl. oedematiens* antitoxin per c.cm. of the medium. Here there were four rings of precipitate separated by four clear zones. The innermost zone of precipitate was close to the colony but separated from it by a narrow clear space: this zone was narrow (0.5 mm. across) and of such a density as to appear white; then followed a clear zone of 0.5 mm.; then a zone of precipitate of 1 mm., showing a central groove as if about to split and of moderate density; then a clear zone of 1 mm.; next, a zone of precipitate of 1 mm. and of slight density; next, a clear zone of 2 mm.; and, lastly, a zone of precipitate of 1.5 mm. and with the least density of all. The measurements are approximate. A similar picture was given by a colony of *Cl. tetani* (type 1) when grown on a medium containing tetanus antitoxin.

The concentration of the antitoxin, expressed as I.U. per c.cm. of the medium, influences the extent and the density of the precipitate at an early stage of its development. Thus both an excess and also a suboptimal concentration of antitoxin may inhibit the reaction, in accordance with the fact that an excess of either of the reacting substances in the ordinary flocculation test brings about solution of the floccules. This no doubt explains why a narrow clear zone immediately adjoining the colony margin invariably intervenes between the colony and the precipitate, since the concentration of the toxin per unit-volume of medium is presumably highest in this region.

The most likely explanation, in our view, for the appearance of concentric zones is that the forces which combine to build up the framework of molecular aggregates as a uniform deposit to the naked eye are not in equilibrium, and that at a later stage stresses or strains in the structure result in condensation of the precipitate in the form of annular zones separated by clear zones. The remarkable symmetry of the concentric zones is evidence that the molecular aggregates which constitute the toxin-antitoxin precipitate within the semi-rigid matrix of the agar gel are disposed in an ordered arrangement and that the forces controlling them are in equilibrium. When the precipitate shows little tendency, even after a prolonged interval, to form multiple annular zones—as, for example, the diphtheria toxin-antitoxin halo—the density seems to increase from the margin of the colony to the outer margin of the halo, which appears as a dense ring and which may be surrounded by an extremely tenuous precipitate of considerable breadth, detectable when photographed but not apparent to the naked eye. This variety in its final form also gives the impression of representing a stage of stable equilibrium. The technique may prove to be useful for the study of periodic structures in general and of the physico-chemical basis of the toxin-antitoxin reaction.

Optimal Conditions for Production of Specific Haloes

The need for using a medium which is favourable for toxin production has been indicated by finding that ordinary agar and peptic digest agar are less suitable than the media recommended here. A natural (unconcentrated) antitoxic serum appears to give better results than a salt-concentrated antitoxin or a purified antitoxin as obtained by the pepsin process. The concentration of the antitoxin in the medium, as already stated, is an important factor. In our experience an amount equivalent to 4 to 8 I.U. per c.cm. of the medium gives good results for each of the three strains of anaerobe tested by us, but a smaller amount may prove to be better adapted to less toxigenic strains met with in field work.

When the plates are removed from the anaerobic jar after 24 or 48 hours they may show no sign of a precipitate, but if kept at room temperature aerobically a halo will appear and Liesegang rings may develop. This observation merely proves that toxin had diffused from the colony before its interaction with antitoxin had become manifest as a precipitate. The presence of formalin vapour does not inhibit the development of the reaction.

General Observations on the Method

The ease with which the reaction is obtained is fortunately in the order of the relative frequency and importance, as causal agents of gas gangrene, of the three anaerobes—namely, *Cl. welchii*, *Cl. septicum*, and *Cl. oedematiens*—and may depend upon the rate and vigour of the surface growth of each species on agar plates. The precipitate formed by *Cl. welchii* can be seen after 24 hours' anaerobic incubation. Until experience of the method has been gained it is advisable to keep the plates, after adequate growth has been obtained anaerobically, for a week or 10 days at room temperature aerobically in order to trace the sequence of changes in the haloes.

The method has probably a considerable advantage over those used hitherto, since the association of other bacteria in the colony will not exert a deleterious influence upon the formation of the specific precipitate so long as the toxin of the clostridium remains unaffected by metabolites liberated by the contaminants. As is well known, much of the confusion in defining and specifying the characters of the pathogenic anaerobes by determining their biochemical activities was caused in the past by the presence of unsuspected bacterial symbionts in cultures that were apparently pure. Obviously the method will fail when non-toxigenic colonies or strains appear on the plates, but from a practical point of view in relation to gas gangrene this result is not of serious moment, and is indeed an advantage.

Alternative Applications of the Method

The reaction has also been obtained in a column of agar in a test-tube inoculated on the surface with a culture of *Cl. welchii*; the homologous antitoxin had been added to the agar. The precipitate showed three zones, one above the other, to a depth of 4 mm. below the surface. There can be no doubt that a Seitz filtrate of a broth toxin prepared from the anaerobes in question will give a specific precipitate when superposed on a column of agar containing the corresponding antitoxin. When the toxin molecules have diffused into the agar, precipitation will take place either uniformly or in zones (Brown, 1940).

When the requisite apparatus for obtaining surface growths on agar plates in strictly anaerobic conditions is not available, a modified technique of this kind is worth a trial for detecting toxins in mixed cultures, and we suggest the following procedure.

Employ suitable selective methods to encourage the growth of each of the anaerobes sought for in the primary material, such as wound exudate. Subculture into a separate meat-broth tube or small flask of the Robertson type, but modified, as explained above, to favour toxin production of the corresponding anaerobe. Grow for 48 hours, filter through a Seitz disk, pipette the filtrate of each culture in a suitable amount on the top of a column of 2.5% saline agar containing 8 I.U. of the corresponding antitoxin per c.cm. of the medium, keep the preparation for one day or more at room temperature, and note whether a precipitate appears in due course. The addition of ascorbic acid to the fluid media during the enrichment process will favour both growth and toxin production.

This simplified procedure may not, however, always succeed, owing to destruction of the specific toxin by proteolysis, or from other adverse conditions induced by the accompanying contaminants. There has, as yet, been no opportunity of testing whether the method is a practicable one for determining the presence of one or more of the pathogenic anaerobes in the exudates of gas gangrene.

When the usual methods of obtaining effective anaerobiosis cannot be applied, the device recommended by Cruickshank and Macdonald (1942) may be adapted to our method and given a trial. These authors grow the inoculum on the surface of an ascorbic-acid–agar medium, superpose a sterile cellophane disk, and pour a layer of the same agar over the cellophane. The original account should be consulted for further details.

Specificity of the Reaction

There can be little doubt that the reaction is a highly specific one. Controls with normal horse serum and with the heterologous antitoxins have been negative. With our present knowledge of these toxins it can be asserted with confidence that when the test is positive the identification of the bacterium needs no support from any other differential character, such as its proteolytic or saccharolytic activities or its pathogenic action in susceptible experimental animals.

The Method as Applied to Investigation of Anaerobic Flora of Wounds and to Diagnosis of Gas Gangrene

The observations recorded here are based on one toxigenic strain of each of the three clostridia—namely, those which are used in this Institute for the routine production of the toxins intended for the immunization of horses. A limited number of comparative observations on halo production by the highly toxigenic Park-Williams No. 8 strain of *C. diphtheriae* and by weakly toxigenic strains—one gravis and two mitis cultures—when implanted on the same plate containing diphtheria antitoxin, showed that the gravis and mitis colonies produced haloes, although the precipitate took longer to form than that which was seen round the No. 8 colony; this result may be significant in the present connexion as indicating that the reaction has a fairly elastic range, provided that time is given for it to mature. Moreover, in a series of agar plates containing varying amounts of *oedematiens* antitoxin good haloes appeared within a range of which the extremes represented 7 and 70 I.U. per c.cm. of the medium, although in some of the plates the reaction was considerably delayed. If 8 I.U. of the antitoxin per c.cm. of the medium should prove to be an excessive amount, 4 units, 2 units, or 1 unit or less per c.cm. may readily be substituted by preparing successive dilutions of a portion of the antitoxin solution with an equal volume of sterile broth and adding 1 c.cm. of the dilution so prepared to the melted agar.

We hope that workers in Army and civilian laboratories who have opportunities of examining severe wounds will give the method a trial and thus help in defining its sphere of usefulness.

Summary

A method of identifying the three chief pathogenic clostridia met with in gas gangrene, by means of specific precipitation resulting from a toxin-antitoxin reaction round the colonies on agar plates, has been described. The appearances presented, and particularly the formation of Liesegang rings, are so characteristic as to leave no doubt of the identity of the associated bacterial species.

Our best thanks are due to Mr. J. Smiles of the National Institute for Medical Research for photographing agar plates illustrating the features of the specific precipitates.

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TRICHLORETHYLENE ANAESTHESIA IN PLASTIC SURGERY

BY

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Striker *et al.* in 1935, and more recently Hewer (1942), have reported very favourably on the use of trichlorethylene as an agent for general anaesthesia. From these reports it appeared that this drug would have definite advantages when employed for anaesthesia in plastic surgery. These advantages were: (1) adequate analgesia in light planes of anaesthesia; (2) no increase in bleeding due to the anaesthetic agent; (3) minimal irritation of the respiratory tract; (4) freedom from post-anaesthetic vomiting; and (5) freedom from explosion hazard. We decided to test the drug on a series of 200 cases. Our experience led us to abandon its use after 100 cases.

Age and Type of Patients

The average age of the patients in this series was 29 years. The youngest was 10 years old, the oldest 65; 50 were between 19 and 40; 4 were under 19, and 46 were over 40. With 13 exceptions these patients were Class A anaesthetic risks. These 13 were considered fair risks, and the majority of them were not regarded as Class A risks only because of the presence of blood in the airway due to recent facial injuries.

Premedication.—Each patient received omnopon gr. 1/3 and scopolamine gr. 1/150 before operation. This premedication was ordered for three-quarters of an hour or one hour before the time scheduled for operation. In 9 cases it was actually given at periods up to two hours before induction, owing to alterations or delays in the operation schedule.

Induction

All patients but one were induced by the intravenous administration of sodium pentothal in 5% solution (Table I).

TABLE I.—*Induction and Maintenance*

Agents Used	No. of Cases
Pentothal, N_2O, and trilene	33
Pentothal, cyclopropane, and trilene	1
Pentothal, trilene, and O_2	65
Trilene and oxygen	1

The average dose given was slightly under 0.5 g. Thirty-three patients had nitrous oxide and oxygen, with trichlorethylene added. One had cyclopropane added during the induction. One patient was induced and maintained throughout with trichlorethylene and oxygen alone. The remainder had trichlorethylene and oxygen only, after the pentothal induction. The average amount of trichlorethylene used was 5.5 c.cm. per hour of anaesthesia and 7.4 c.cm. per patient. The preparation employed was that marketed under the name "trilene" and packed in glass-stoppered amber bottles for use in anaesthesia.

With two exceptions the nitrous oxide–trichlorethylene inductions were smooth, but somewhat more prolonged than we usually expect with ether, using a similar technique. Owing to the effect of the drug on respiration we found it difficult to evaluate the level of anaesthesia. Induction with trichlorethylene and oxygen alone, following pentothal, is prolonged, and often the robust patient recovered from his dose of pentothal rapidly enough to provide some excitement in the second stage. The one patient induced with trichlorethylene and oxygen without previous pentothal had profuse salivation and a very violent second stage.

In all instances we used closed-system anaesthesia of the circle type, with carbon dioxide absorption. In 97 cases the trichlorethylene was administered from a vaporizing bottle containing a wick and placed in the rebreathing circuit. In three a drip vaporizer outside the circuit was used. This last method proved unsatisfactory because of the low volatility of the agent. In 76 cases the anaesthetic was administered through a Magill endotracheal tube.

Effects on Respiration

The respiratory rate was increased in all but 16 patients (Table II). With the increase in rate there was in all cases a decrease in respiratory excursion. Five patients achieved respiratory rates of over 60 a minute at a stage of anaesthesia corresponding to the second plane of the third stage (Guedel). One of these patients had a respiratory rate of 80 a minute at this plane, and one robust subject had respiratory arrest. In the remainder the respiratory rate varied between 26 and 46 a minute. Except in the cases with extreme increase of respiratory rate no cyanosis was seen.

TABLE II.—*Respiratory Rate*

Rate per Minute	No. of Patients
18 to 25	16
26 to 46	78
60 to 80	5
Respiratory arrest	1

Cardiovascular Effects

The most constant effect on the cardiovascular system was the development of bradycardia (Table III). Forty-four patients had pulse rates under 60 a minute, 10 of these rates being between 40 and 50. Twenty-five had rates of between 60 and 70. The pulse rate in most cases varied inversely with the depth of anaesthesia, decreasing as the plane of anaesthesia was deepened. This decrease in pulse rate was associated with increase in respiratory rate. In several cases the respiratory rate equalled or exceeded the pulse rate.

TABLE III.—*Pulse Rate*

Peripheral Pulse	No. of Patients
Normal rate and rhythm	36
Irregularities	19
Bradycardia	44
Irregular during recovery	1

Nineteen patients had irregularities of the peripheral pulse during anaesthesia. With two exceptions these irregularities occurred with normal or accelerated pulse rates, and disappeared with the onset of bradycardia. In these two cases the peripheral pulse rate was irregular at slow rates, and a count of the rate at the cardiac apex showed a pulse deficit of about 30 beats, the apex beat also being irregular. These irregularities appear to be due to the occurrence of extrasystoles. One patient had an irregular pulse rate for 30 minutes during the post-anaesthetic recovery period.

One patient apparently had 3:1 heart-block shortly after induction, the pulse rate increasing suddenly from 40 to 120 a minute. Cyclopropane had been used during the induction of anaesthesia in this case.

During one operation the surgeon applied to a raw area a large pack soaked in 1:1,000 adrenaline solution. The pulse rate rapidly increased from 60 to 120, and became weak and "thready" in quality. It was at this point that inquiry by the anaesthetist revealed the presence of adrenaline in the pack. The pulse improved rapidly after its removal.

Blood pressure usually remained within normal limits. There was a general tendency for some increase in the systolic and pulse pressures in patients with bradycardia or normal pulse rates. In those with tachycardia or irregularities the blood pressure was very labile, and in one case it varied from 104/70 to 150/70 to 120/76 in a period of ten minutes. One young patient, aged 29, whose blood pressure before operation was 124/80, had a range from 160/100 to 240/160 during an anaesthesia lasting 65 minutes; throughout this time his pulse rate remained regular at 56 a minute.

Recovery

All patients recovered consciousness within a reasonable time after cessation of the anaesthetic, the average for the group being 35 minutes, and the longest two hours. Recovery time was roughly proportional to the duration of anaesthesia. With one exception there was no post-anaesthetic depression: this case was the one in which anaesthesia was induced and maintained by trichlorethylene–oxygen alone. The patient recovered consciousness in 90 minutes, but remained drowsy for 24 hours. Peripheral pulse, blood pressure, and respiration, however, were normal.

Complications

Vomiting.—Sixteen patients in this series vomited post-operatively. Of these, 10 vomited a small amount once only during the recovery period; 3 vomited once shortly after recovery; 1 vomited several times during the first 12 hours, and another during the first 36 hours; and the remaining patient vomited once 10 hours after the operation. There were no cases of persistent vomiting. Only one patient had recently taken food, and in this case there was no vomiting. Patients who did not vomit made no complaint of nausea after the anaesthetic.

Respiratory.—Seven patients had a history of recent respiratory infection. One of these had a post-anaesthetic pulmonary atelectasis, and another, with a history of chronic bronchitis, suffered an exacerbation of his complaint. These were the only subjects who showed any respiratory complication.

Discussion

We feel that, on the whole, the advantages of trichlorethylene as an anaesthetic agent for plastic surgery are far outweighed by its disadvantages. The only advantages of the use of the drug as an agent for surgical anaesthesia would seem to be freedom from explosion hazard, minimal irritation of the respiratory tract, and small cost. The disadvantages lie chiefly in its action on the cardiovascular and respiratory mechanisms, and its low volatility.

Although no facilities existed for electrocardiographic examination of this series of patients, it would appear from clinical observation that the drug has a definite action on the conducting mechanism of the heart, as well as a direct irritant or sensitizing effect on the myocardium. The relation of the bradycardia to the increase in respiratory rate and decrease in respiratory excursion suggests to us that part, at least, of the effect on the cardiovascular mechanism may have origin in the central nervous system. We consider that these cardio-respiratory effects require further elucidation before trichlorethylene is accepted as an anaesthetic agent for general use.

Summary

A series of 100 administrations of trichlorethylene for general anaesthesia in plastic surgery is reported.

The respiratory rate is greatly increased by the drug, and the respiratory excursion decreased. This result is associated with slowing of the cardiac rate as deeper planes of anaesthesia are attained. There is some instability of the systemic blood pressure. One case of heart-block occurred—after cyclopropane induction. Extrasystoles are frequent.

Post-anaesthetic recovery was good, and the only respiratory complications occurred in two patients who had a history of recent respiratory infection. Sixteen patients vomited after operation.

It is felt that the cardio-respiratory effects of trichlorethylene require further elucidation before this drug is accepted as an agent for general anaesthesia.

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Speaking at a conference on venereal disease called by the Scottish Committee of the British Social Hygiene Council and held at Edinburgh on March 5, Mr. Thomas Johnston, Secretary of State, said that in Scotland last year there were nearly 5,000 recorded cases of fresh infection, apart from cases among Service personnel. In one Scottish town known infections had risen from 36 to 419. Existing treatment facilities were adequate for the increased number of cases, but it was most desirable that persons infected should come forward promptly and, what was no less important, should continue treatment until they were told by their doctors that it was safe to stop. About 40% of the patients who left centres did so before they were pronounced cured, and over 20% left before even completing a course of treatment. The Scottish Medical Advisory Committee had considered the increase in venereal disease at its first meeting and had advocated better sex education of young people, in which parents, school staffs, and family doctors could help. These diseases were more than a medical matter, and were, in fact, closely bound up with behaviour and with the ethical standards from which behaviour springs.

A NOTE ON TRICHLORETHYLENE ANAESTHESIA

BY

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Since Hewer's (1941) suggestion that trichlorethylene might be a useful general anaesthetic a number of communications have appeared dealing with individual cases and difficulties, but we have seen only one report of a general investigation—that of Elam (1942). We venture, therefore, to offer the following observations. We have used the drug in the form of trilene in 306 cases, and have investigated such various points as could conveniently be done in ordinary hospital practice.

Technique of Administration

We have used the open mask and the machines of Shipway, Marrett, and the standard Boyle–Magill. We ultimately adopted the Boyle–Magill, and found that anaesthesia was well maintained with a flow of 3 to 4 litres of nitrous oxide and 1½ to 2 litres of oxygen per minute, the surface of the trilene in the chloroform bottle being faintly ruffled. There was partial rebreathing but no tension on the spring of the outlet valve. Using this method, surgical anaesthesia was induced in 7 to 11 minutes and maintained on a consumption of 1 drachm of trilene in 5 minutes during short anaesthesias or 1 oz. an hour for prolonged administrations.

Type of Anaesthesia

Induction.—In 22 of 143 cases (15%) there was a little struggling during the second stage. The patients who struggled were nervous women rather than plethoric men.

Relaxation.—This was much less than with chloroform, ether, or gas–ether anaesthesia. In 15 of 53 abdominal cases (28%) anaesthesia could not be pushed beyond plane 1 of stage 3, and resort was had to ether. This figure does not include a number of cases in which our colleagues bore with less relaxation than is generally considered desirable, and we take this opportunity of gratefully acknowledging their forbearance.

Cumulative Effect.—This is reflected in the relatively smaller quantity required in long administrations, already referred to.

Mode of Action

The drug appears to act by virtue of its solution in the blood and action on the central nervous system. We noticed that physical measures designed to increase the amount taken up by the body, over and above that obtained by the technique already described, had no influence whatever on the rate of induction or on the depth of anaesthesia obtained. These measures included heating the trilene with the water-bath designed for ether, bubbling the oxygen through the fluid instead of blowing across the surface, and increasing the tension on the outlet valve. The sole results were that anoxaemia was produced and that trilene was wasted.

We conclude, therefore, that overdosage from presenting too high a concentration of vapour is not the danger it is with chloroform, and that an ordinary skilled anaesthetist will produce the deepest anaesthesia possible in about 10 minutes, after which further efforts at securing relaxation are useless.

Effects of Trilene Administration

Respiratory System.—No salivation or irritation was noticed. Tachypnoea was troublesome in many cases. In 79 of 104 cases the respiration rate was over 40 after the patient had settled down. Rates of 60 a minute and over were often recorded.

Circulatory System.—Blood-pressure observations showed practically no change in the first half-hour and a slight fall thereafter. In a few of the longer administrations (one hour or more) the systolic pressure became irregular, varying up to 10 mm. Hg between beats.

Primary Syncope.—We had one fatal case of this in a girl aged 3 with some history of bronchitis; she was being anaesthetized for a hernia operation. The case resembled in every way the well-known primary syncope of chloroform anaesthesia, and we attribute this to the same mechanism of vagal inhibition.

Sugar Metabolism.—We were able to have blood-sugar estimations in only 3 cases. In each there was a rise after 30 to 45 minutes, but much less than that recorded for chloroform or ether by Hewer (1939). Acetone was found in the urine on the morning following operation in 23 of 68 cases, in none of which had ether been used. This is in striking contrast to Hewer's report that he did not find acetonuria in any case at all.

Post-operative Vomiting.—This was absent in 52 out of 80 cases, and slight in the remaining 28.

Use in Midwifery.—We have administered trilene on an open mask in two normal cases. The cumulative effect was especially noticeable, so that after about 15 minutes analgesia was produced with only the occasional addition of a few drops to the mask.

Conclusions

1. The action of trilene resembles that of chloroform.
2. The limited solubility of the drug in the body fluids renders overdosage very unlikely, and also satisfactory anaesthesia difficult in many cases.
3. Primary syncope is a danger, as with chloroform.
4. Trilene is indicated: (*a*) when it is necessary to administer a non-inflammable anaesthetic by means of a machine—e.g., in diathermy operations on the throat or upper air passages; (*b*) when an adjuvant to gas–oxygen anaesthesia is required and ether is contraindicated.
5. Its use as an analgesic in midwifery deserves consideration.

N.B.—Since the above was written, Mr. Stowell (*British Medical Journal*, 1943, 1, 302) has pointed out that trilene is not suitable for operations with diathermy, since at 125° C. it decomposes, forming phosgene and hydrochloric acid.

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Medical Memoranda

Fatal Poisoning by Methyl Salicylate Liniment

The following case is recorded because of the rarity of published cases of poisoning by lin. meth. sal., because the dangerous potentialities of this liniment as a poison are not fully appreciated, and because of the disastrous result of failing to carry out stomach lavage.

CASE HISTORY

The victim was a Sudanese servant aged 33, of medium height and weight and enjoying normal health. He drank lin. meth. sal. at about 2 30 p.m. on May 19, 1941, in the belief that it was alcohol. The amount of liniment drunk was not more than 4 oz., but it was taken at one gulp in an attempt to impress his friends who had previously sipped it and decided that it was unpalatable. The man rapidly became extremely ill, vomiting copiously and passing into a state of collapse, but, owing to the circumstances of the drinking and the belief of his friends that he was merely extremely drunk, no medical aid was summoned until 5 p.m., when the illness seemed more severe than it should have been. When seen at that time he was restless, fully conscious, able to talk freely and rationally, and did not appear to be in any pain (indeed he admitted that he had no pain), but he was much distressed. He had vomited frequently, and vomit seen later was a clear yellow fluid with a little mucus, smelling strongly of wintergreen. The tongue was moist; there was no evidence of corrosion on the lips, tongue, throat, or buccal mucous membranes. The breath smelt strongly of lin. meth. sal., but breathing was normal. The skin was extremely cold to the touch and a few beads of perspiration stood on his forehead. His pulse was regular, of good volume, and rate 100. Pupils were equal. The abdomen was soft and there was no evidence of pain or tenderness

The stomach was not washed out, but copious fluids were ordered with sodium bicarbonate by the mouth and, later, a mixture of milk and water. This he took well, but he vomited two or three times during the following few hours, though his general condition was improving when he was seen at 6 p m. and again at 7 p.m. Later he complained of noises in the ears, but at 9 p.m. he was feeling very much better, his pulse rate was 80, vomiting had ceased, and he was sitting up in bed smoking a cigarette. During the night he passed water twice. However, the following morning when seen at 7.45 a.m. his condition had greatly deteriorated. His pulse was 90, regular, and of fair volume, the skin was again cold and clammy, and the tongue moist but slightly furred. His breathing, however, was noisy, laboured, and increased in rate, and he was taking very little interest in his surroundings. Two hours later his condition was still worse: respirations 32, temperature 97° F., pulse thready and accelerated to a rate of 112. Fine crepitations were now audible at both lung bases. A white blood count showed a polymorphonuclear leucocytosis with a total count of only 2,400. At 11 a.m. the pulse was 122 and very feeble, respirations 32, skin still cold, and he appeared very gravely ill. The lung signs had proceeded apace, and in addition to the crepitations at the right base there was impairment of the percussion note at the left base with bronchial type of breath sounds. In short, the signs of lobar consolidation were now evident. Sulphapyridine 5 g. was given (10 tablets) and nikethamide (coramine) and strychnine injected; the sulphapyridine was to be continued 1 g. four-hourly. By 1 p.m. the patient was delirious and so restless that morphine 1/6 gr. was required to quiet him. This subdued his restlessness but his condition did not improve, and at 2.45 p m. on May 20 he died; almost exactly twenty-four hours after drinking the liniment.

COMMENT

It seems likely that the fatal issue was not directly due to the toxic effect of lin. meth. sal. *per se*, since there was an initial period of acute illness due to traumatic gastritis, followed by a well-marked period of recovery in spite of evidence of absorption of the poison, indicated by the noises in the ears. It almost seemed as if the danger was past, but the recovery was succeeded by the rapid development within a few hours of signs of lung consolidation. This lung involvement was particularly impressive and definite. It is possible that in the course of vomiting in a somewhat collapsed condition, some of the regurgitated liniment may have been inspired and passed to the lungs, acting as an irritant, and thus facilitating, if not actually causing, the onset of basal consolidation, much in the same way as the irritant poison gases such as phosgene and chlorine act. I feel strongly that gastric lavage would have prevented this complication. The chief reason it was not adopted was that we were misled as to the facts at the time; the real facts only came out at the subsequent inquiry. Finally, one clinical observation was quite striking—the extreme coldness of the skin at the time of the first examination.

I am indebted to Lieut.-Col. T. Scott Law, R.A.M.C., for permission to publish these notes, and to Major J. Mackay Dick, R.A.M.C, for his help in connexion with the case.

ERIC TOWNSEND, M.D., D.P.H.,
Captain, R A.M C.

Tetanus in the Puerperium

Dr. A. T. Duncan's case recorded in the *Journal* of Oct. 10, 1942 (p. 426), recalls to my mind a case of tetanus in the puerperium which occurred in my practice 28 years ago and proved fatal. The chief interest of that case lay in its unexpected origin.

The patient, a 2-para, was a rather fragile and delicate young lady of about 25. Six days before labour occurred she complained of pain and slight swelling over the left upper jaw, obviously due to carious teeth, which had completely cleared up by the time of her confinement. Labour was somewhat protracted and difficult owing to occipito-posterior presentation; forceps were used, and there was a little difficulty in expressing the placenta owing apparently to some adhesion of the membranes. After the confinement the patient ran a temperature (under 100°) for ten days; it then dropped to and remained at normal.

On the 12th day she complained of right-sided trismus with slight pain over the right jaw. There was no swelling, but slight tenderness was felt on pressure over the upper and lower right molars. On the following day right-sided trismus persisted and, in addition, there was slight retraction of the neck. Next morning the temperature was still normal, but there was decided swelling over the right lower jaw, and difficulty in swallowing had developed. Later in the day the temperature rose to 100°. Under chloroform forcible opening of the jaw revealed an abscess of the lower right wisdom tooth with a few drops of pus escaping from the surrounding gum. The tooth was extracted. The temperature dropped to normal and absence of trismus was noted for the next two hours, when it reappeared and remained.

On the 15th day an attempt to swallow medicine produced a very severe tetanic spasm of the throat and neck muscles, in which the patient became black in the face and ceased to breathe, while the arms were stiff and facial contraction occurred. A succession of these severe attacks continued at fairly frequent intervals during that day and the following night, and proved fatal next morning. Dr. Mervyn Gordon, bacteriologist to St. Bartholomew's Hospital, happened to be staying in the town and kindly saw the patient with me. At his suggestion the offending wisdom tooth was sent up to St. Bart's laboratory, and in the abscess at the root of the tooth the tetanus bacillus was definitely found

Consideration as to how the bacillus had reached the tooth led to further inquiry, when it was elicited that the patient was fond of apples and bananas, and had recently been seen to break into the peel with her teeth instead of using a knife or other means.

Penzance. E. C. EDWARDS, M.D.

Reviews

RHINO-LARYNGOLOGY

Surgery of the Nose and Throat. Edited by John Devereux Kernan, M.D. (Pp. 701; illustrated. $15.00 or £3 10s.) New York and Edinburgh: Thomas Nelson and Sons. 1942.

Surgery of the Nose and Throat, edited by Dr. John Devereux Kernan, is another of the Nelson Loose-leaf Series, and is the work of nine contributors, including the editor. The surgery of the nose and its accessory sinuses is described by Harry Neivert in a complete and satisfying fashion. The physiology of the nose and the work of Proetz receive attention, and the need for a conservative outlook is recognized. A much shorter article on the reconstructive surgery of the nose, by James Barrett Brown, follows. This is excellent and well illustrated, though there is a little overlapping with the previous chapter. The surgery of the oropharynx and nasopharynx, by George Renfrew Brighton, is concerned almost exclusively with the tonsils and the local complications which arise from tonsillitis. Adenoids are included, and with this limitation a good description with an anatomical basis is given. The surgery of non-malignant conditions of the larynx is described by John Devereux Kernan and Arthur J. Cracovaner. This portion is comparatively short, occupying 137 pages, including many illustrations; but it is well designed, and ends with a description of laryngofissure. It is full of information on every relevant matter except cancer, to which a separate chapter by Hayes Martin is devoted. This chapter includes the pathology, surgery, and radiological treatment of cancer of the larynx. It is the least satisfactory part of the book, and the attempt by one writer to describe all three aspects of the subject has not produced a convincing description of any of them. The author takes it as an axiom that all extrinsic cancer is inoperable, a proposition which is refuted in the following chapter on malignant tumours of the pharynx, by Henry B. Orton. Chevalier L. Jackson contributes a short chapter on bronchoscopy—an excellent account which does not attempt to delve deeply into the technical details of the manipulative and instrumental manœuvres for removing foreign bodies, but is a useful general survey. The masterpiece is reserved for the end. This is Chapter VIII, on the histopathology of the nose and throat, by Andrew A. Eggston. The normal histology of these regions is first described, and is followed by a short account of the physiology. Then comes a full description of all the pathological processes which occur, the portion dealing with tumours being especially instructive. This section forms a unique feature of the book, which is generously illustrated throughout.

DIABETES MELLITUS

Diabetes Mellitus. By Zolton T. Wirtschafter, M.D., and Morton Korenberg, M.D. A William Wood Book. (Pp. 186. $2.50 or 14s.) Baltimore: The Williams and Wilkins Company; London: Baillière, Tindall and Cox. 1942.

This is a difficult book to review on account of its wide and vague scope, almost entirely theoretical. Perhaps it is fairest to let the authors' preface speak for itself. "This monograph is written for the individual who asks what is the nature of the processes that characterize disease, and what is the purpose, and the accomplishable in the treatment of diabetes mellitus. . . . Only a thorough summary of the fundamental principles involved in the metabolism of carbohydrates, proteins, fats, minerals, vitamins, and endocrines in diabetes mellitus can make one independent of 'rule of the thumb' procedures. This review of the extensive literature of carbohydrate metabolism in health and disease can serve no better purpose than to emphasize the pitfalls and dangers of mechanical methods of diagnosis and treatment of diabetes mellitus."

The book devotes successive chapters to all the main physiological aspects and describes most of the recent experimental work and views—not fully enough to serve as a complete work of reference but in an interesting way, especially as regards glycogenesis, ketosis, and acid-base balance, and the vitamins. At the end of the book the authors leave theory and experiments to include two chapters on general treatment and on diabetic coma, too brief to be of much practical value. For coma they recommend glucose and bicarbonate intravenously, normal saline (3 litres) subcutaneously, and 25 units of insulin, 50 mg. of thiamin, and 100 mg. of ascorbic acid intravenously, the last three to be continued intravenously every hour in half-doses. This is a novelty which is neither explained nor justified, and the advice to massage the site of insulin injection seems superfluous with administration by vein.

CIVILIAN HEALTH IN WARTIME

Civilian Health in Wartime. By Francis R. Dieuaide, M.D., Associate Professor of Medicine, Harvard Medical School. (Pp. 328. $2.50.) Cambridge, Mass.: Harvard University Press; London: Oxford University Press. 1942.

Of recent years there has perhaps been a tendency to regard health as precariously balanced on a razor edge, overlooking the fact that, given good conditions of environment, the human body, as W. B. Cannon pointed out, has extraordinarily wide powers of readjustment. But total war changes environment, occupation, and diet for nearly everyone, so that external re-adjustments are called for. These Dr. Dieuaide of Harvard, in *Civilian Health in Wartime*, has tried to explain to the general public in simple, sensible terms. Naturally he deals with the subject from the American point of view, and many of the statistics given do not apply to this country. At the same time he draws many illustrations from British experiences, and in terms gratifying to our national pride. Reading between the lines, however, we can see that he thinks his own countrymen are still far from realizing the implications of modern warfare as it affects the civilian. Until the war of 1914-18 deaths from disease outnumbered those from wounds; with the rise of preventive medicine and the increase of mechanization the balance has swung the other way, so that "only two infectious diseases, tuberculosis and pneumonia, cause more deaths each year than automobiles." This may be related to the fact that in America families spend 4% of their income for medical care, which is "less than for automobiles, which take over 6%." There are a number of interesting remarks in the course of his argument, such as those on excessive hours of work. "English experience in 1914-18 provides pertinent data. When the weekly hours of male war workers were cut from 63 to 54, time lost for sickness fell by 43%. Among women there was a saving of 52% when hours of work were changed from 62 to 54." This time we seem in danger of forgetting our own former experience. There are some sensible remarks on the superior adaptability shown by women's clothing compared with the unreformed state of masculine attire; and there are still not a few who will agree that "the medical profession has sound reasons for looking askance at proposals which even vaguely suggest a huge national service with a cabinet minister at the top [and] a hierarchy of officials." An excellent epilogue on morale completes a book full of common sense.

Notes on Books

On the death of PAUL SCHILDER, the Society for Psychotherapy and Psychopathology, New York, of which he was the founder and first president, arranged for the editing and publication of his work *Goals and Desires of Man.* It therefore lacks the advantage of a final revision by the author. A convinced Freudian, it is significant to observe that he departed from strict orthodoxy on such matters as the "death wish" and aggression while holding to the Oedipus complex in all its implications, though not a few Freudians have minimized the latter doctrine rather than the former in recent years. There are some interesting analogies drawn from biology, but the psychological studies of Charlotte Brontë, the Duke of Wellington, and Pierpont Morgan are entirely unilluminating. Indeed, the book professes a profundity which it does not really possess. Surely it does not require a prolonged discussion to reach the conclusion that "we cannot evade the assumption that human beings have different gifts," even when backed up by the startling statement that "we have learned in the past years that artistic gifts are almost ubiquitous"! The verbose, heavy-footed style does not add to the attractiveness of a book which, despite its earnest endeavour to put forward a point of view, we found disappointing. It is published in New York at $4.00 by the Columbia University Press, and in London at 26s. 6d. by the Oxford University Press.

Every teacher and student of first aid should possess a copy of *Training in First Aid for Civil Defence Purposes,* A.R.P. Handbook No. 10, a second edition of which is now available (H.M. Stationery Office, price 6d.). It contains some very sound advice—for example, that indoor and outdoor practices should be held first in daylight and then in the dark. Nothing could be better than the summary of general principles of first aid—that in all cases the first consideration is to save life, the second to deal with shock, the third to prevent aggravation of the injuries, and the fourth to arrange for rapid removal of the casualty. There is an excellent account of the use of faked casualties in teaching. It would be as well to avoid the use of such terms as " compound " for " open " fracture and fracture of the " leg " when fracture of the femur is intended. The use of webbing bands (now included in first-aid equipment) for carrying casualties is described and good diagrams are included, but in suggesting material for improvised splints laths from venetian blinds should not come first. Direct digital pressure upon the actual arterial bleeding point is not mentioned, but the use and abuse of a tourniquet are discussed. The handbook states that in all cases of abdominal wounds shock will be extreme; this statement is somewhat sweeping, for in the absence of such shock an abdominal wound might be overlooked. Nevertheless, this handbook is extremely useful and right up to date.

That a book has reached its ninth edition is sufficient evidence that its subject-matter (repeatedly brought up to date) is sound and that it satisfies a demand from a discriminating public. A careful reading of *Food, Health, Vitamins*, by R. H. A. PLIMMER, D.Sc., and VIOLET G. PLIMMER, confirms this to the full. As the authors state in their preface to this edition, they have discarded " what once seemed good " and embodied " what now proves best." Additions to scientific knowledge of the vitamins and their action on the human body are explained in terms understandable by the non-scientific reader, and excellent suggestions are given for making the best of the wartime diet. The book deserves a better binding, even in wartime. It is published by Longmans, Green and Co. at 7s. 6d.

Preparations and Appliances

A SIMPLE METHOD OF SERUM TRANSFUSION IN THE FIELD

Squadron Leader J. C. McC. BROWNE, M.B., B.S., R.A.F.V.R., writes :

The value of early serum infusion in varying concentrations in cases of shock and exsanguination is now well established. The apparatus here described is designed to facilitate the giving of blood serum to a wounded man under field conditions. It is especially applicable to cases resulting from aircraft crashes in isolated places where there has been delay in reaching the scene or where immediate evacuation to a near-by hospital is not possible. The apparatus (Fig. 1) consists of: (*a*) a standard bottle of dried serum fitted with a rubber cap ; (*b*) a 500-c.cm. bottle of sterile fractionally distilled water, with a rubber cap ; (*c*) a small hand-pressure bulb such as is used on a nasal spray, with two valves ; (*d*) a piece of rubber tubing 15 in. long ; (*e*) four No. 18 gauge needles ; (*f*) a glass adaptor ; (*g*) 1 oz. of tr. iodi mitis ; (*h*) an air filter consisting of a glass bulb filled with cotton-wool. All four needles are protected by packing in glass tubes, and the rubber caps by a wax coating. The bulb, tubing, needles, and adaptor are wrapped in a towel and autoclaved. The entire apparatus when packed weighs 3 lb. 12 oz. and measures 9 in. × 8 in. × 4 in.

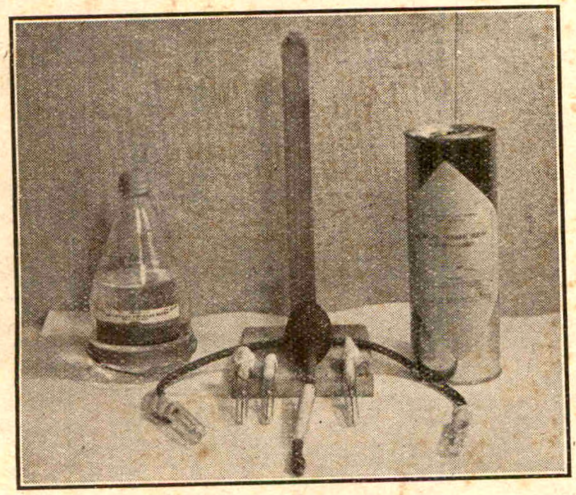

FIG. 1.—Apparatus laid out for use.

Procedure to Introduce Water into the Serum (Fig. 2).—The caps of the bottles are swabbed with iodine after removal of the wax, the cotton-wool plug from one of the tubes being used as a swab. One needle attached to the tubing by the adaptor is pushed just through the rubber cap of the water-bottle, and another on the other end of the tubing just through the cap of the serum-bottle. The third needle is also pushed well through the cap of the latter to allow escape of displaced air. The fourth needle is then pushed through the cap of the water-bottle and the filter and bulb are attached. The water-bottle is then inverted and air is pumped into it until the required amount of water has been displaced into the serum-bottle, which is then shaken until the dried blood serum is dissolved.

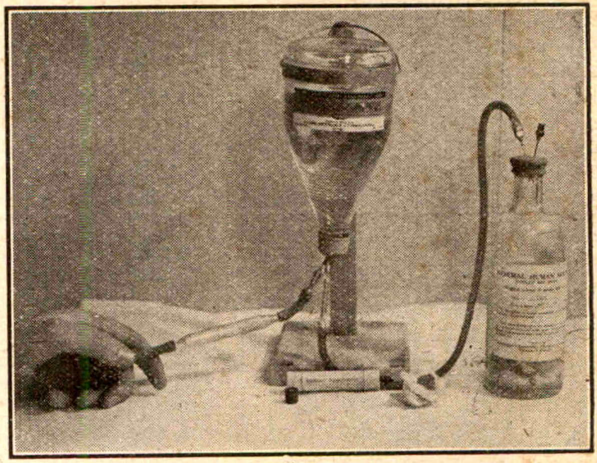

FIG. 2.—Introducing water into the serum.

Giving the Serum (Fig. 3).—The bulb and filter are transferred to the third needle (in the serum-bottle). The needle attached to the adaptor is removed from the water-bottle, detached, and inserted into the vein in the usual way. The serum-bottle is inverted and serum pumped out until all air is removed from the tube and adaptor, when the latter is attached to the needle. Serum can then be pumped into the vein.

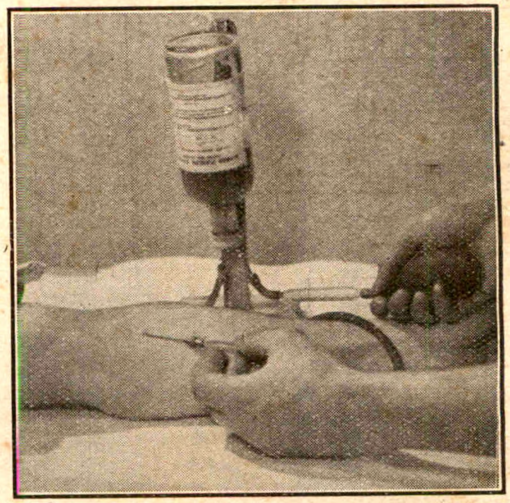

FIG. 3.—Giving the serum infusion.

The following details should be noted : (1) A filter to eliminate solid lumps of serum in the intravenous flow has not been found necessary. (2) In giving the serum it is important that the needle to which the bulb is attached is pushed through the cap to the hilt, the other needle being only *just* pushed through, as otherwise an air embolism may occur, due to bubbles of air passing direct from one needle to the other. (3) With the aid of a small collapsible support for the inverted bottle the whole operation can be carried out by a medical officer single-handed.

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MAMMARY CANCER IN MICE

The rapid advances now being made in our knowledge of the aetiology of breast cancer in mice are exciting widespread interest, which is quite understandable if only because these tumours have been regarded as most typical examples of malignant neoplasms: they are carcinomas arising in glandular epithelium; they are not filterable, though they are transmissible from host to host indefinitely by means of cell grafts, a crucial test of malignancy; and they occur in mammals. The advances have become possible because special strains of mice have now been maintained so long by strict brother-by-sister mating—about 7 years is the necessary minimum—that practically all heterologous genes have been lost and closely related members of a strain are now almost as closely alike as identical twins. In some strains the incidence of cancer of the breast is uniformly high, in others uniformly low; and by such operations as cross-breeding and cross-fostering three major factors have been demonstrated co-operating in the production of these tumours. One factor is an inherited susceptibility; another is some specific element which ordinarily passes from mother to young in the milk; and another is the action of oestrogenic hormones on the mammary gland. Outstanding facts that have to be explained are conveniently illustrated in statements published by Bittner. He observed that in the high-cancer inbred mouse strain A the incidence of cancer of the breast is 96% in females which are allowed to breed freely, but is only 5% in those which are not allowed to breed at all. He observed also that, whilst in breeding females of strain A the incidence is, as just mentioned, 96% in those which have been suckled by their own strain A mothers, it is only 5% in those which have been suckled only on females of the low-cancer strain C 57 black; and, conversely, that in strain C 57 females which have been suckled only by their own strain C 57 mothers the incidence is only 0.5%, whereas it is up to 11% if suckling has been on strain A mothers. With other strains of mice the corresponding figures may be very different, but it would appear that in general the three-factor explanation holds good as a first approximation provided it be recognized that the different factors may vary very greatly in relative importance from strain to strain of mice. Much of the more recent work has been done in America, particularly by Bittner, Andervont, Little, and W. S. Murray, and a detailed knowledge of the present situation may be gathered from the many papers published in *Cancer Research* and in the *Journal of the National Cancer Institute*, both American publications. A comprehensive general review with an extensive bibliography has been published recently by Bittner.[1] All that can be usefully attempted here is a stocktaking statement of what appears to be the more important facts accumulated by workers of established reputation.

Existing special inbred strains of mice fall naturally into two main groups—high-cancer with characteristic incidences near 100%, and low-cancer with characteristic incidences around 2%. Low-cancer strains are of two types: those which, like strain C 57, are low because the individuals are so lacking in sensitivity that tumours develop only under exceptional circumstances, and those which, like strain C, are low simply because in them milk factor is wanting. Bittner has produced a substrain of this latter type, his Ax, by starting from a sensitive strain A female which had become non-cancerous because suckled on a low-cancer C 57 female. Mice of either of these two strains, Ax and C, can form the starting-point of permanent high-cancer lines provided they have been suckled on high-cancer females and so have acquired milk factor. How far significant hormonal features should be regarded as being ultimately only manifestations of genetically controlled hereditary strain characters is an open question. Hereditary susceptibility is a strain characteristic and is transmissible alike by both male and female parents. In Bittner's experiments with strains A and C 57 the mode of transmission was found indistinguishable from that of transmission by a single dominant Mendelian gene; but other workers, using other strains of mice, have found greater complexity. Andervont, for instance, found evidence that multiple genetic loci are involved when he showed that the degree of susceptibility varies with the strain of mouse: hybrids obtained by crossing high-cancer females of C3H strain with low-cancer males of strains I or C 57 or Y had incidences of 100%, 95%, and 71% respectively. Little found that in his mice susceptibility is influenced by several of the known genes. Hardly anything is known of how genetic constitution becomes manifest as susceptibility; whether it is through determination of the chromosomal constituents of mammary cells or by some less direct means.

Bittner has recently shown that by means of a high-speed centrifuge the milk factor can be spun down from extracts of lactating mammary gland, and he has reached the conclusion that very probably the milk factor is a colloid of high molecular weight and may be a virus. The milk factor certainly exhibits some of those qualities of living things which one usually associates with the presence of a virus. The milk may be frozen or dried without loss of potency. The factor is present in the milk of all high-cancer mice, and the fact that the milk remains unchanged in quality and potency from generation to generation indefinitely is taken as evidence that the milk factor must increase in amount, possibly by self-multiplication. The milk acts quantitatively over a certain range of dosage, maximum effect in high-cancer strain A, for example, being reached only when suckling has extended to some 24 hours or when some 2 c.cm. of milk has been given by mouth. Milk may differ in potency from one high-cancer strain to another, but the factor itself is not necessarily strictly strain-specific, since, for example, the milk factors obtained from foster mothers of the two strains C3H and A will both notably increase the incidence of breast cancer in strain C 57 mice. Milk factors, too, from different sources seem much alike in another respect, for none has been noticed producing its own histologically characteristic varieties of breast cancer. The factor is present in the milk of high-cancer strains during the whole lactation period, and mice are known to be susceptible to its influence up to the age of 4 to 5 weeks at least. A number of facts indicate that the milk factor can lie dormant for long periods and may even multiply without ever being associated with frankly cancerous tissue. In high-cancer strains, for instance, the earlier litters are born and receive potent milk long before their mothers reach the minimum cancer age, which is at about 5 months, and there is no indication that such transmission from first litter to first litter, generation to generation, cannot continue indefinitely. The few females of high-cancer strains which remain free from breast cancer to the end of their natural lives commonly transmit milk factor to their suckling young as effectively as other females of their strains. Also, in males of sensitive strains the milk factor commonly lies latent throughout life unless provoked to tumour-forming activity by prolonged administration of oestrone or similar substance. Practically nothing is known of what is happening to the milk factor during these long periods of apparent latency. There is evidence that the milk factor is recoverable from circulating blood and from spleen of high-cancer mice of pre-cancer age. When young females of high-cancer strain are compared with their own litter-mates which have been fostered on low-cancer females, and have therefore received no milk factor, it is found that the mammary gland shows a richer terminal arborization pattern. There is no evidence that milk factor leaves the body in significant quantity except in the milk. No decided infectious or contagious tendency has been observed in groups of mice living together, and when crosses are made between low-cancer females and high-cancer males continuous presence of the male parent makes no difference to the incidence, he cannot in any way transmit the milk factor he absorbed as a suckling.

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[1] *Trans. Stud. Coll. Phys. Philadelphia*, 1941, 9, 129.

If the ovaries are removed whilst the mice are still very young, liability to develop cancer of the breast in later life is reduced. This suggests oestrogenic hormonal factors. The involvement of oestradiol, a natural ovarian hormone, is shown, for example, in the observation that if male mice of sensitive strain—which never develop breast cancers spontaneously—be treated with oestradiol or kindred substances over prolonged periods the incidence of mammary cancers becomes high, attaining in some strains the level of that found in the breeding females. Other constituents of the complex hormonal system of the body are also known to be involved, and there are associated changes in the pituitary gland and in the adrenals. The significant changes which take place in the mammary gland are in some way specific; the fully active lactating mammary gland is not one of the intermediate stages leading to cancer. Little describes how prolonged administration of oestrone produces a gradual hypertrophic change in the mammary gland and how this change progresses steadily until the fully cancerous condition is reached. In advanced stages the changes are patchy in distribution, for in some areas of the gland they proceed more rapidly than in others: in the early period of the frankly malignant condition a cancer may spread more by conversion of neighbouring cells than by multiplication of cells already malignant. Little's findings are remarkably like those described by Sir Robert Muir in his studies of cancer of the breast in women. In mice the milk factor is present in tumour tissue in considerable amounts, as can be shown by feeding tests. Testosterone has an action antagonistic to that of oestradiol, and will reduce the incidence of cancer of the breast if administration is started sufficiently early, but neither oestradiol nor testosterone will affect the growth of an established cancer.

Obviously the story is still incomplete. We cannot yet see clearly the significance which known facts have in relation to the aetiology of mouse tumours in general, or even whether they have significance in relation to all breast tumours of mice. Bittner thinks he has evidence of a second and much rarer type of breast cancer: one which is not generally distinguished from the common type, and which indeed is only peculiar, so far as is known, in the fact that its occurrence is not markedly correlated with capacity to transmit milk factor and produce cancer in the offspring. In considering possible indications for medical procedures in human beings it must be remembered that mankind is a very mixed stock and that the chances that a mother who is producing milk factor—if any ever do—should have a susceptible female child is more remote than among these special inbred strains of mice.

EXPERIMENTAL NEUROSES

No one who has observed the types of war neuroses that may follow exposure to stimuli that threaten danger can fail to be impressed by the similarity that exists, on the surface at least, between some of them and the phenomena of experimental neuroses in animals.[1] In both cases there is a stimulus which has a subsequent effect in producing a state of uneasiness. The human being exposed to air bombing, for example, becomes like the animal in the Pavlovian type of experiment—restless in the presence of anything that reminds him of the original stimulus, with insomnia, irritability, over-sensitiveness to stimuli (including jumping at noises, for example), altered social reactions (such as shyness), apprehensiveness, and visceral disturbances. The same tendencies to improve with a rest away from the scene of action or from the experimental laboratory, as the case may be, and to relapse on return to the old environment, are evident in both instances. The effect of rest, the greater susceptibility of certain individuals, and the relative inefficiency of sedative drugs are all similar. The possible importance of such observations, assuming—and it is still a large assumption—that the similarity is more than an apparent one, is this: that whereas it is necessary to postulate a motive or a wish to escape to account for the existence of symptoms depending on mental conflict, it becomes possible to conceive some symptomatic "neuroses" in fundamentally physical terms—i.e., as the expression of an uninhibitable excitation throughout the central nervous system. This is in accord with (*a*) the occurrence of neuroses after a certain period of time in people of sound morale, this being presumably a fatigue effect, since the first effect of fatigue is probably to loosen inhibition; (*b*) their greater tendency to occur in people of a certain temperament; (*c*) their occurrence in people in whom there is reason to suspect that their inhibitory processes are weak (e.g., certain obsessionals); (*d*) the failure of psychotherapy to do much for this type; (*e*) their specificity—e.g., a man may fly courageously but become extremely unhappy on the threat of air bombardment while on the ground.

There are risks in drawing parallels between dogs and men. It is well known that similar syndromes may have a very different pathology. There is little apparent resemblance between the differentiation of closely similar stimuli, which is the normal experimental condition in animal neuroses, and the frightening situations in which the fighting man finds himself; but, according to Gantt,[2] neuroses exactly similar to those set up by a difficult differentiation can be produced in dogs by exposure to fright. Man does not require to be frightened to develop the phenomena of fear. The "representative-imaginative" function of consciousness becomes the conditioned stimulus instead of the actual situation, so that in war neuroses considered even in this way there is already a psychological factor. It is already a psychoneurosis and not a pure neurosis—i.e., it is not simply a matter of a physical situation resulting in disturbance. But, after all, the same can be said of the experimental animal, in which waiting can also become a conditioned stimulus, as Liddell and Anderson have shown. A psychoneurosis in the strict sense of the term only exists when the individual makes use of the symptoms of physiological disturbance in a social way, either to disguise from himself that he is afraid or to escape from the dangerous situation.

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[1] Anderson, A. D., and Parmenter, Richard: "A Long-term Study of the Experimental Neuroses in the Sheep and Dog," *Psychosomatic Medical Monographs*, Vol. II, Nos III and IV, 1941.

[2] *Amer. J. Psychiat.*, 1942, 98, 475.

It seems possible, therefore, that certain neurotic syndromes in war may be explained without invoking conflict in the mental plane and without invoking motive either. This would be in harmony with another current observation—that individuals developing neuroses when in a Service do not by any means always, and perhaps not often, improve as a result of discharge into civil life. It has always been tempting to apply Pavlov's observations to human beings, but to do so has seemed sometimes too simple and sometimes too far-fetched. It is possible that too much reluctance has been exhibited in this regard in peacetime. Some clinicians[3] more daring than others have suggested that repeated feverish colds may depend on conditioned reflexes, and that certain cases of sensitivity to food have been similarly explained in preference to regarding them as real allergic reactions. Even some of the more definitely social neuroses (psychoneuroses in the proper sense) might be conceived in the same way. For example, Gardner[4] has described the case of a boy who was always in difficulty with the authorities and has suggested that this boy's reactions to people were conditioned by his early responses to his father. There is at least a field for speculation; and in the war neuroses we have something which more closely approaches the experimental situation, making speculation less speculative.

CAUSES OF BLINDNESS

Over 70,000 persons in England and Wales are certified blind; of all these only 8,000 to 9,000 are employed or employable. The problem of the blind is therefore not only a human but also an economic one. With the stricter system of certification that has been in vogue during the past 20 years or so a mass of valuable statistical data is now available, and an excellent analysis of the material seen in Glasgow and the south-west of Scotland during the period 1929-35 has been presented by a Mr. J. Marshall and Dr. H. E. Seiler.[5] The observations cover 3,219 persons, and show cataract and myopia to be the two commonest single causes of blindness, each accounting for about 16% of the total. Venereal disease comes third with 14%, and other causes of sepsis account for about 11%. Then comes glaucoma with about 9%, whilst congenital anomalies and abiotrophies are responsible for over 7%. Surprisingly enough, injury, even in such a highly industrialized area as that surveyed by the authors, accounts for only 6.4%, though this rises to over 10% if the cause of blindness as it affects the first eye is considered. A clearer picture of the disabling effect and economic importance of the various causes of blindness is obtained if they are considered in a different way. Thus, cataract, which comes highest in the list of causes, falls to the eighth place if "patient-years" are calculated from the duration of loss of sight for each cause and the number of cases in these categories. In this way the significance of injury and congenital anomalies increases considerably. The causes of blindness must also be viewed in relation to the main age groups. In the school period congenital syphilis and non-industrial injury predominate; acquired syphilis is the most important single cause in the age group 16 to 29 years; myopia, too, becomes significant in this particular age group. In the age group 30 to 49 years syphilis and myopia again predominate, and industrial injury, though important, does not rank so high as it does in the preceding age group. At the higher ages degenerative lesions (myopia, cataract, glaucoma, and vascular diseases) account for about 60% of the total. In the group of 70 years upwards cataract and glaucoma account for 67% of all cases. Generally speaking, all causes of blindness fall heavier on males, with the single exception of diabetes, where there was a significant excess for females. The relation of blindness to occupation varies, of course, with different regions. For Glasgow and the south-west of Scotland the incidence was outstandingly high in miners and quarry workers, with textile workers and metal workers next in frequency. A matter of some interest is the fact that myopia does not occur with any significant excess in the various occupations.

Studies of this kind reveal only too plainly that great gaps still exist in the prevention of blindness. It is gratifying to the surgeon to restore vision to an elderly patient suffering from cataract, but the social significance of preventive work in the younger age groups, though less dramatic, is far greater. The control of venereal disease, a reduction of industrial eye injury, a deeper understanding of the various inflammatory and degenerative conditions that lead to blindness are all problems that the ophthalmologist has to face.

BOVINE BRUCELLOSIS

The close relation of medical and veterinary sciences imposes on the medical man the duty of keeping in touch with advances in the control of animal diseases. At a recent discussion arranged by the Parliamentary and Scientific Committee on the compulsory pasteurization of milk Wilson[1] stated that an average of 5 to 10% of farms sent out milk containing tubercle bacilli, and 20 to 40% milk containing *Brucella abortus*—both infections deriving from diseased udders. In 1937 Brockington[2] estimated that three-fourths of the milch cows in this country would at any one time be found excreting one or more of the organisms, *M. tuberculosis*, *Br. abortus*, and haemolytic streptococcus, in virulent form. While this view may be an exaggeration, there can be no question about the extent and seriousness of the problem, which is, in the first instance, one of economics and animal husbandry. Efficient pasteurization of the milk supply is essential to ensure safety for the consumer, but this should be accompanied by other measures designed to obtain clean milk and to reduce the incidence of disease among dairy herds. Tuberculosis has received a good deal of attention as one of the chief wartime problems, but veterinary surgeons are also seriously concerned about contagious abortion, which causes considerable loss to farmers from abortion, infertility, and diminution in the milk yield. The true incidence of undulant fever (brucellosis) in man is uncertain owing to the number of undiagnosed cases and the probable large number of ambulatory or mild cases. A useful article on the clinical aspects of the disease was recently contributed to these columns by Dr. D. G. Leys.[3]

Contagious abortion presents unusual difficulties in diagnosis as well as eradication. Infection in animals would often appear to be light, and it may be many weeks or months before agglutinins appear in the serum. A special difficulty in any policy involving the slaughter or segregation of the positive reactors is that many animals in a herd may be infected but still negative to the test; on re-test at some later date non-reactors may then be positive, having in the meantime aborted and spread infection. If infected stock are sold in the open market, infection is disseminated to other herds. Under a new scheme which came into force on June 1 of last year the farmer may pay an annual premium for veterinary supervision, one of the benefits being free inoculation of his cattle with vaccine approved by the Ministry of Agriculture.[4] A. D. McEwen, in a recent review of the main facts about control by vaccination,[5] [6] states that ordinary dead vaccines are useless, and that living vaccines prepared from non-specified strains or from strains which have not been studied experimentally give variable results from time to time, they may infect an undue proportion of the vaccinated animals and should be avoided. He also states that the question of virulence is now receiving official attention, and the attenuated smooth "strain 19" used extensively in the U.S.A. and the rough strain 45 (20) of McEwen are both approved as live vaccines by the Ministry of Agriculture in this country (Standard Vaccines, Nos. 1 and 2). Both these vaccines give a useful degree of immunity, but No. 2 has the advantage that it does not produce agglutinins to confuse subsequent tests of infection. No. 1 vaccine is recommended as a single dose for calves and young non-pregnant cows, revaccination being done at the discretion of the veterinary practitioner, whereas No. 2 is reserved for administration in two doses to older non-pregnant animals. American veterinary surgeons do not usually revaccinate; they hope that a single dose of vaccine to the calf will protect the animal for life. McEwen points out that as No. 2 vaccine does not even cause positive reactions to the agglutination test, there is much to be said in favour of repeated inoculations, about once every twelve months, when the animals are non-pregnant. We question whether official regulations should not stress these "re-call" or "boosting" doses, which have been invaluable in human immunization.

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[3] Higgins, Harold L., *New Engl. J. Med.*, 1941, **225**, 772.
[4] Ibid., p. 775.
[5] *Brit. J. Ophthalmol.*, 1942, Aug., Sept., and Oct.

[1] *Lancet*, 1943, **1**, 25.
[2] *British Medical Journal*, 1937, **1**, 667.
[3] Ibid., 1943, **1**, 187.

According to Gilbert[7] dead vaccines in an oily excipient have given promising preliminary results in goats and cattle. Felix has suggested that the superiority of such vaccines over ordinary dead vaccines is due to the oil protecting some essential antigen which would be destroyed in the presence of water. The use of dead vaccines obviates one possible disadvantage of live vaccines even of reduced virulence—namely, the risk of infecting the inoculated animal. In view of the variable nature of the disease, field trials with Gilbert's and other types of vaccine should be on a sufficiently wide scale; if successful, the use of a specific vaccine might with advantage be made obligatory on all owners of breeding cattle. It may, however, be asked whether veterinary surgeons, laboratory workers, and stockmen could be safely and efficiently protected with some specially prepared heat-killed vaccine. As regards chemotherapy, sulphanilamide and other compounds have given some promise in the treatment of undulant fever in man, but the results so far obtained in contagious abortion in cattle have been very disappointing.

PHYSIOLOGICAL GASTRECTOMY FOR DUODENAL ULCER

A recent paper by T. H. Somervell[8] describes a new method of dealing with duodenal ulcer. The author introduces us to what he calls physiological gastrectomy, which does away with hyperacidity without the operative risk gastric resection always carries with it and which causes it to be often withheld from the sufferer from duodenal ulcer. It is well known that in a case of old healed duodenal ulcer with a large stomach gastro-enterostomy is eminently successful, but in a case of active ulcer associated with a small hypertonic stomach and hyperchlorhydria this operation may produce new ulcers for old by giving rise to anastomotic or jejunal ulcers, so that the last state of the patient is worse than the first. The object of surgical treatment in this type of case must be to reduce the hyperchlorhydria as well as to divert the gastric contents, and hitherto the only effective way of doing this has been by partial gastrectomy. Somervell produces convincing evidence that ligature of the gastric arteries will so lower the acid concentration as to obviate the undesirable effects hitherto attendant on gastrojejunostomy for the active ulcer with hyperchlorhydria. By a combination, therefore, of anastomosis with ligation—a comparatively simple and safe procedure—the patient may be given complete relief without undergoing the ordeal of gastrectomy, with its risk and liability to subsequent complications such as anaemia. The author of this paper, which comes from a London Mission Hospital in Southern India, states that he has personally performed over 2,000 operations for duodenal ulcer. Economic conditions around the Mission are such that dieting and medical treatment are not practicable, and surgery must be used to render the poor native patient fit to resume his staple diet of curry and rice or curry and tapioca. Perhaps the chief appeal of this paper is the advantage which this innovation in surgical technique would appear to offer over the more mutilating procedures at present in vogue.

A NEW JOURNAL

The *Health Education Journal* (1s. 6d.), which has just been issued, is a quarterly periodical published by the Central Council for Health Education. It replaces the former *Health and Empire* of the British Social Hygiene Council. It is perhaps not quite clear for whom this journal is intended, but it is presumably more for the increasing number of lay workers who now interest themselves in health problems, and for teachers, than for medical men. The doctor will, however, find much to interest him in the current number, and especially will get some idea of the sort of problems that are facing those who are valiantly trying to lead people into hygienic paths. An editorial introduction is followed by a report of an interview between the Editor and the Minister of Health, who says that the function of the new journal is "to act as the guide, counsellor, and friend of all those concerned with promoting the health of the people." Another recorded interview of interest is one with Dr. Allen Daley, Medical Officer of Health to the L.C.C. and one of the pioneers of health education in this country. Dr. Daley makes a valuable point when he says that the results of the different methods of health publicity should be assessed by mass observation methods. Other articles include one by Dr. Charles Hill on the "Radio in Health Education," by Prof. Mackintosh on "What are We Trying to Do in Health Education?", by Dr. Harley Williams on "Making Health Films," by Sir Drummond Shiels on V.D. publicity, and by Dr. L. J. Picton on the function of the general practitioner. The point should perhaps be made that, however effective the various ways of conducting health propaganda may be—radio, film, booklet, leaflet—none of these can compare with the most important medium of all, the general practitioner of medicine. It is he who really has the ear and the confidence of the men and women who seek his advice. One function of health education would therefore seem to be to provide solid information on various aspects of health that would be of interest to the general practitioner, who has little time to collect facts and figures but is the best person to make use of these in persuading those with whom he comes into contact to seek for health.

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[4] *Lancet*, 1942, 1, 621
[5] *Vet Rec.*, 1942, **54**, 287.
[6] Ibid., p. 487.
[7] *Proc. roy. Soc Med.*, 1943, **36**, 153
[8] *Brit. J Surg.*, 1942, **30**, 113.

THE PRE-CLINICAL YEARS

WITH SPECIAL REFERENCE TO THE TEACHING OF PHYSIOLOGY

BY

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The purpose of this article is to examine the problem of pre-clinical instruction and to plead for a more imaginative treatment of it, and this with special reference to the teaching of physiology. There is no more pressing problem in the whole of medical education than the nature of the instruction in the pre-clinical years. An increasing weight of opinion, expressed in the medical press and in speeches, is stressing the need for bolder and more honest efforts at bridging the gap between the pre-registration science course and the clinical stage—that is, for making the Second M.B., B.S. of greater value to the student. Great strides have been taken in some of the more progressive medical schools, but if the textbooks are any criterion a more sweeping policy is called for. Are those in whose hands the instruction lies rising to the occasion and responding to the increasing demand for truly pre-clinical teaching?

It is a somewhat disquieting experience to compare what one might call the spirit of the "Resolutions of the General Medical Council in regard to Professional Education adopted on May 29, 1936," with the spirit of the average physiological textbook recommended for medical students. If the former be studied (pp. 3 and 4) it will be seen that the emphasis has shifted tremendously towards the clinical in pre-clinical instruction, and that the teacher is given the widest possible scope and freedom of presentation. So marked is the divergence of accepted pre-clinical teaching from this standard that we find the leaders of the profession putting forward a most earnest plea to the teachers of anatomy and physiology to mend their ways. The masterly summing up of Lord Horder (1939) calls for extensive quotation:

> ". . . Of the prospective doctor's pre-clinical work I have said again and again that the motto should surely be *Respice finem*. I think we saw an unfortunate setback when the medical schools decided to put pure anatomists, pure physiologists, and pure chemists at the head of their departments. Each professor has quite naturally wished to stake out his claim and make it as large as possible. The position has been partly redeemed during recent years by a closer association of the heads of the departments with their clinical colleagues in the college committee. . . .
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> But it is in the teaching of physiology especially that we still see too much cleavage from the later clinical work. The transition from the first to the second of these two parts of the student's work should be much less abrupt than it is. Indeed, it is not at present really a transition at all; it is almost a complete break. After all, what is disease except a state of morbid physiology? . . .
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> Yet that utter strangeness, that scared and helpless look, in a new-time clinical clerk, which too often remains with him for several weeks or months, what does it mean unless this—that there is in his mind the thought that he is about to embark upon an entirely new voyage for which he is quite unprepared? To change the metaphor, his approach to the patient is as to a strange animal which he has never yet met, and whether the issue will be fraught with a peaceful or bellicose issue he cannot say. It *is* a strange animal that we face him with, physiologically, psychologically, and, even in great measure, anatomically. . . . Until we succeed in bridging this gulf we shall not effect a real improvement in our present system. . . .
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> With regard to the use of various instruments that are absolutely necessary for the purpose of the routine examination of the various parts of the body, I long ago advocated that the technique of these should be mastered early—that is, in the physiology classroom. I referred to the stethoscope, the laryngoscope, the auriscope, the ophthalmoscope, and the blood-counting apparatus. . . . The larynx is a natural object in health, and the trick of seeing the vocal cords should be learnt as part of the physiological training; once learned it is not likely to be forgotten. It is the same with the retina: this is a normal structure, and how does one see it except with the ophthalmoscope? But when I ask a new clerk to look at an optic disk he excuses himself on the ground that he is unfamiliar with the instrument. But it is quite likely that he knows a great deal about the theories of colour-blindness, or did when the fear of meeting the question at an examination was upon him. . . . And, in the same sense, if time presses, as we know it does, would it not be a good exchange to omit the study of the minute structure of the organ of Corti, and to learn how to see the drum of the ear? A great deal of my time in the wards was taken up in teaching first-time clerks this physiological routine. This should not be the best use that can be made of a physician who is supposed to be experienced in clinical methods and in the arts of diagnosis and treatment. . . .
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> These examples of the ignorance of the normal at the time of entering the wards and the out-patient departments do not end with lack of acquaintance with simple instruments. The means by which the erect position is maintained and the mechanism of the normal human gait are generally quite unknown subjects. The significance of the knee-jerk and ankle-jerk, and even the method of eliciting them—normal things again—are nearly as foreign to most students at the end of their physiological training as is the use of the instruments to which I have just alluded. . . . This lack of preparedness for clinical instruction causes the student to advance a very little way indeed during his first clerkship. . . . If these and several other *ad hoc* matters in physiology and anatomy are to be included and emphasized during the pre-clinical days, it is clear that some things must be shortened or excluded. The selection of these should be made by a joint committee of all teachers interested, not merely by those who teach the subjects which require curtailment. It should not then be a very difficult matter to come to some satisfactory conclusion. . . ."

No more comprehensive or more progressive pronouncement on what pre-clinical teaching should be has been made, and Lord Horder's main thesis relating to staff and to the content of the teaching cannot be too often reiterated. A few of the salient points from our experience at the Rangoon Medical College under these two headings will be given.

The Question of Staff

In the Rangoon Medical College the chairs of anatomy and physiology are in peacetime filled by Indian Medical Service officers with several years' experience in general medicine and surgery, and surely this should be axiomatic in all such appointments, except perhaps in the provinces of biochemistry and of histology, though even here a strong medical bias is essential. In a number of medical schools such an opinion will be looked upon as sheer heresy. But how, otherwise, is it possible to feed to the pre-clinical student that meat which will prepare him for his clinical activities? The pre-clinical teaching needs to be clinically alive, and this will rest on the teacher's personal clinical knowledge and his ability to inject this in provocative doses into the pre-clinical subjects. He needs to approach his task with sufficient breadth of vision to ensure the retention of essentials and the presentation of the matter from what will be fundamentally a clinical viewpoint.

It would seem that the medical schools should steadfastly set their face against their pre-clinical teaching remaining solely in the hands of the "pure scientists." This applies to organic and physical chemistry as much as to other subjects. The pure scientist in any branch of the subject tends to demand from the student a far too detailed knowledge of that branch.

The Content of the Teaching

Surely we need so to teach the pre-clinical subjects that the student will later look back on his two years with real appreciation of their value to him. Is it rare for the fourth-year student or the senior qualified man to regard his pre-clinical years as rather something which he was glad to be done with and to feel that these two years of hard labour were largely wasted? It is not unknown for the pre-clinical years (which can be made such a dreary drudgery) to be looked back on with a certain bitterness, tinged with a wry amusement. If Lord Horder's motto, *Respice finem*, were truly observed this state of things could never arise.

But the voice of discontent is largely inarticulate: the practitioner soon becomes too concerned with immediate problems to feel the lot of the next generation of students on his conscience, and the student is too bewildered even to realize that he is not being taught on the right lines. Indeed, this article is largely an appeal to the teacher to put himself more often and more sympathetically in the student's place—upon whom the increasing developments of modern medicine already "bind burdens grievous to be borne," without the pre-clinical teacher adding unnecessarily to these burdens. There is something inhuman about a teacher whose notion of preparing a student to deal with such problems as infant feeding or the aetiology of jaundice is to initiate him into the mysteries of chronaxie, the arginase system, or the Hamburger effect. If the net result of the two years' work is the entry into the wards of students flagging in interest and in energy its object is wholly defeated.

There is sure to be an outcry from many quarters at the suggestion that the pre-clinical course is overburdened. It is contended that a drastic pruning of the traditional subject-matter amounts to "spoon-feeding" the student with dogmatic and ready-made examination material; but the fact is, that the student will find abundant stimulus for his reasoning faculties throughout his whole course—that is, to give him an education in the widest sense—and the more abstruse details of anatomy and physiology can soon be mastered by those requiring them for higher studies. The pre-registration subjects alone provide ample opportunity for the inculcation of the scientific method and habit of thought. The principle of pruning, of course, lends itself far more readily to physiology than to anatomy, where it seems at first sight that the subject can be taught only as a whole. But it should not pass the wit of man to devise some way of lightening the task of the student.

There is one point which is often overlooked in the discussion of educational problems, and that is, that the atmosphere and content of the teaching depend not at all upon the curriculum "as advertised" but upon the individual teacher's interpretation of that curriculum. An admirably detailed description of a progressive physiology course has been given by Lee, Boissard, and Hines (1940).

The Case of Physiology

A few salient points from our experience in the Rangoon Medical College in regard to the teaching of pre-clinical physiology will be given. Experience has shown the need for close collaboration between the teachers of anatomy and of physiology, and this for several reasons. It is plainly desirable that any discussion of the function of a system or organ should, where feasible, be preceded by the anatomical study of that system or organ, especially where the nervous system is concerned. Furthermore, overlapping—as, for example, in the case of the tracts of the cord and in the case of the internal ear—can be avoided.

There is nothing original at Rangoon about the general layout of the two years' work. As in most medical schools, the first year's programme includes organic and physical chemistry: perhaps we may look forward to the time when this subject becomes part of the pre-registration curriculum. It is taught in the department of physiology by the lecturer in biochemistry, being merged into the later biochemistry, so forming an integrated whole—"physiological chemistry."

During his first three months in the department the student is naturally a good deal preoccupied with the necessity for passing the examination in organic and physical chemistry; for this reason we do not overburden him at first with physiology; for the first two months he is given a preliminary course covering in the simplest possible terms the whole range of the subject. At the same time he is doing practical work on the blood cells. The succeeding lectures deal with each system in detail: first the blood, then the excitable tissues, reflexes, autonomic system, and the circulation, in that order. This order has been deliberately chosen; it is found convenient to begin with the blood, as it is a section of physiology demanding less knowledge of anatomy and biochemistry than any other. In less degree this applies to the other sections mentioned; at the same time the studies of muscle and nerve, the reflexes, and the autonomic system form necessary preliminaries to that of the circulation. This completes the lecture work of the first year. Meanwhile the practical work has comprised the whole of histology (taught largely with a projector) and a course in "first-year" biochemistry.

The arrangement of the theoretical work of the second year is less of a problem, since the student is now beginning to be able to dovetail one system into another. The central nervous system is studied comparatively late in the second year in order to ensure that all have completed its dissection. Every sixth lecture takes the form of a demonstration on a patient of some aspect of physiology. The selection of suitable types of case for these demonstrations may be regarded as one of the most important of the teacher's duties. The practical work in the second year comprises more advanced biochemistry (largely quantitative estimations, as of the blood sugar) and "experimental physiology." The latter consists of the simpler muscle - nerve experiments, followed by instruction in the handling of the diagnostic instruments; the students are encouraged not to be content until they have mastered the knack of seeing the vocal cords, the fundus, and the tympanum. Where possible, the practical work is arranged to keep pace with the lectures.

There is a very deliberate effort to make the atmosphere of the department a truly pre-clinical one in the full sense of the term. The medically qualified members of the staff are expected to spend a few hours every week in the wards and to keep in touch with the medical journals, to prevent their drifting into a narrow departmental groove. Woven into the texture of the lectures and practical work are clinical procedures, terms, and nomenclature. Illustrations are taken, where possible, from simpler abnormalities of function rather than from solely animal experiments. Of all the hundreds of possible examples, two may be given. In discussing the functions of the cerebellum a far truer picture of their somewhat indefinable nature can be given by noting the results of a chronic lesion of one lateral lobe rather than by dwelling on the effects of extirpation in animals. Then in lecturing on the functions of the duodenum it would seem natural, indeed obvious, to speak in parenthesis of the operation of gastro-enterostomy and the new state of affairs thereby mechanically produced.

It is thus from the outset impressed on the student that disease is itself a "state of morbid physiology." This promise of (clinical) things to come is calculated to introduce the stimulus of genuine interest into the pre-clinical course and to bring it into perspective with the succeeding stages of the medical curriculum. The student will pass on to the Third M.B., B.S. work already accustomed to think in terms of "the patient" and familiar with the clinical outlook and with many typical clinical problems.

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MEDICAL AID TO THE WOMEN OF INDIA

The greatest difficulty which the hospitals of India are facing, according to the latest report of the Countess of Dufferin's Fund for supplying medical aid to Indian women, is the shortage of sisters and staff nurses owing to the demands of the Army. When it is considered that there are as yet only 5,000 registered and fully trained nurses in the whole of India as compared with twenty-one times that number in Great Britain. and that many of these have been trained in small, poorly equipped hospitals, it says a great deal for the work that the hospitals have been able to carry on at all, not only caring for the patients but training pupil midwives and nurses. Two new hospitals have recently been opened, the Alice Horsman Memorial Hospital at Cawnpore and the Lady Sandeman Hospital at Quetta. Particulars are given in the report of the 23 hospitals under officers of the Women's Medical Service. The largest of these is the Lady Hardinge Medical College Hospital at New Delhi, with 345 beds, staffed by 10 members of the Women's Medical Service, with 2 others in training, and 21 assistant surgeons. During the year 2,493 operations were carried out at that hospital, and in the obstetrics and gynaecology unit 1,265 midwifery cases were received and 447 obstetrical and 786 gynaecological operations were performed. The next largest hospitals are the Lady Dufferin Victoria Hospital, Calcutta, with 177 beds, and the Lady Lyall Hospital, Agra, with 155. Reference is made to the difficulties resulting from the lack of understanding of modern medical needs by some of the municipal and other members of hospital managing committees. In most of the municipal hospitals very low fees are charged, because it is considered that taxpayers and their families are entitled to free treatment, and thus well-to-do patients take advantage of the facilities offered.

Reports of Societies

PREVENTION OF ACUTE PYOGENIC INFECTIONS OF NOSE AND THROAT

At a meeting of the Section of Laryngology of the Royal Society of Medicine on March 5, Mr. V. E. NEGUS presiding, a discussion took place on the prevention of acute pyogenic infections of the nose and throat.

Methods of Spread

Prof. A. FLEMING said that the nose in health was more or less sterile except for the anterior nares, where there was a quite simple flora as a rule. Staphylococci were found in the anterior nares of 90% of infants in hospital, in 56% of young children, and in from 20 to 40% of adults. An investigation of students and nurses showed 25% of them to have pyogenic staphylococci in the anterior nares, and among out-patients generally a proportion as high as 75% was found. The post-nasal space contained more bacteria and the tonsils had an abundant flora. Certain antibacterial substances occurred in the respiratory tract, notably lysozyme.

Methods of spread of infection were varied, but all depended on the expulsion of the infective agent from the nose or throat into the air or on to clothing, etc., from which it might pass to someone else. It was always found in infectious diseases wards that after beds were made, especially if they were made violently, there were far more organisms in the air than before. It had been stated that 70% of scarlet fever patients became infected in hospital with a streptococcus other than the one they took in. If the instructions in M.R.C. Memorandum No. 6 on the dressing of wounds were obeyed there would be less cross-infection. Many masks worn were quite ineffective. The American system of sterilizing the air with ultra-violet light seemed in some circumstances to work extremely well, but in others not so well. Persons liable to infection could be immunized up to a point, but it was not practicable to increase the resistance of everyone who might be exposed to risk. Resistance could be increased by watching for and dealing with any abnormality that increased the likelihood of infection. A sulphathiazole snuff was offered as a means of getting rid of staphylococcal and streptococcal organisms in the nose, and in some cases it seemed to do what was claimed for it. Sulphapyridine had been made into a chewing-gum, and it was found that after two hours' chewing there was an appreciable amount in the saliva, so that a wash of sulphapyridine was obtained over the tonsils for a long period. An important principle in prevention was the education of the nurse in bacteriology.

Clinical Aspects

Mr. E. D. D. DAVIS said that isolation was often impracticable and too expensive in personal restrictions to receive general adoption, but more could be done to prevent infection than was usually the case. Greater efforts could be made to prevent streptococcal infections in schools. Isolation in schools and institutions was practicable, and the wearing of masks for the nose and mouth in and out of the sick room should be encouraged. The study of aerobiology was an important adjunct to public health, and included the ventilation and air-conditioning of public rooms and the purification of air by ultra-violet light, and by chemical means such as a harmless spray of propylene glycol.

It was stated that streptococcal infections of the nose and throat had an incubation period of from two to four days, but for how long a streptococcal patient was infectious was not known. It was suggested that he was a source of infection during the period of fever. The immunity produced by anti-catarrhal vaccines was said to be from 7 to 12 months. On the question of the carrier, haemolytic streptococci could be found in the pharynx or nasopharynx for as long as six weeks after a cold, equally in patients who had had their tonsils enucleated and in those who had not. The throats of 100 normal students were investigated bacteriologically every month, and an average of 15 to 20% were found to be carriers of haemolytic streptococci. Enucleation of the tonsils simply because the patient was a carrier was useless. If the carrier was sent away for a fortnight the streptococci usually disappeared, but this meant a serious depletion of nursing and medical staff. Gargles, antiseptic swabbing, sprays, and lotions had little effect, and so the wearing of a mask was enforced. A spray of 5% sulphathiazole was being tried.

As for the prevention of infection before, during, and after operations, tonsil and adenoid operations for children should be avoided during so-called influenza epidemics, which were common in January and February. If the temperature of the patient was above 99° F. on the evening or morning a deliberate operation should be postponed. A clean mouth was a necessity. Carious and loose teeth should have received attention. The use of a tooth brush and mouth wash immediately before operation was often overlooked. At operation unreasonable trauma of nose and throat by curetting and tearing was to be avoided.

In considering the post-operative state the construction of the hospital ward was important. Ear-nose-and-throat wards should not contain more than 12 beds, supplemented by single rooms for isolation of cases. The wards should be divided into groups of 4 or 2 beds by fixed glass screens reaching to a few feet short of the ceiling, and the beds should not be less than 6 ft. apart. An adequate number of small side-wards for septic cases was essential, and a solarium or recreation room with access to a balcony was most desirable. The operation case was much better without lotions, sprays, and gargles, and the operation wound should be left alone.

Discussion

Mr. V. E NEGUS said that at Horton Hospital an interceptor mask of very simple construction—merely a piece of *x*-ray film on a wire frame—had been introduced and had proved very effective. At all events it prevented organisms from being directed straight into the pharynx or nose of the receiver. It was possible for a so-called carrier to be a carrier only at certain times—as, for example, immediately after being in contact with a patient who had some streptococcal infection. Mr. W. M. MOLLISON spoke of the uselessness of the usual gargle. The only method by which the tonsil could be reached seemed to be the sucking of lozenges or the use of chewing-gum.

Mr. T. B. LAYTON said that beds should be at least 10 ft. apart, and in the construction of any new ear-nose-and-throat ward he would demand 12 or 15 ft. On the question of isolation, he said that this method was the limitation of the freedom of the individual for the benefit of the community, but unless there was no doubt at all that it was for the benefit of the community the individual should not have his freedom limited. In convalescence isolation was harmful for the patient. He did not think that any child should be submitted to solitary confinement under the name of isolation for a longer period than three weeks. There was no doubt that mental influences lowered the powers of resistance of the individual to infective organisms, and one of these influences was the unhappiness which attended isolation. Mr. R. G. MACBETH described the construction of a hospital in which abundant provision had been made for bed spacing and for glass screens, and said that the result had been greatly to diminish, even to insignificance, the percentage of cross-infection. An experiment with air-conditioning had shown that after the air was conditioned the number of colonies of micro-organisms had diminished to one-tenth.

Mr. LIONEL COLLEDGE said that he had had several midwifery students sent to him who had been prevented from carrying out their midwifery course because they were carriers—not, apparently, transitory carriers in the manner described by Mr. Davis, but having a carrier period lasting for at least three months. The only thing to be done was to remove the tonsils, and, so far as he knew, it had succeeded, but it was a serious thing to subject anybody to an operation, however trivial, for other than a medical reason. Mr. EWART MARTIN said that the nasal mucus was a most important part of the barrier system against air-borne infection and could be destroyed by the use of antiseptics and also by the use of oils Dr. D. J. GUTHRIE suggested that the use of animal mucus—mucin—as an antiseptic might be tried. Prof. FLEMING, replying to this last point, said that if it was required to infect animals with the staphylococcus for experimental purposes the thing to do was to put the organism in mucin. These organisms did not infect in small doses without mucin. The mucin offered for use in medicine was not, of course, the substance as it came from the animal; it had been treated in various ways, quite enough to destroy any ferment, before it became the commercial mucin. A good deal of work had been done on the lysozyme content of animal mucin, which had been published in the *Journal of Experimental Pathology*.

Correspondence

Free Choice of Doctor

SIR,—As a practising doctor of nearly fifty years' experience, to whom future medical arrangements will make very little personal difference, I should like to support Dr. Lindsey Batten's, Dr. MacWilliam's, and your own attitude to this problem of the personal relation between the doctor and his patient in contrast with the very undemocratic view that some representative body is more competent to choose his personal adviser than is the individual himself. Indeed, this alternative to the democratic method of individual personal choice has a nasty taste of present-day Germany. As Dr. MacWilliam put it: "We want, before every other professional consideration, freedom to function as doctors in response to the demands of our patients, and to the satisfaction of the persons immediately concerned." In your leading article of February 13 you say that a complete medical service, including consultant and other services, should be made available for nine-tenths of the population; and you say further that the Beveridge proposal is that such a service should be available to the whole population, rich and poor alike. You add: "Whether the compulsory insurance scheme should cover 100% of the population, or only, say, 85 to 90%, is a matter which Parliament has not yet decided or even discussed. Whatever the people of this country, through their representatives in Parliament, may decide on this issue of coverage, it would be undemocratic, not to say foolish, for the medical profession to run counter to the rest of the community. . . . But the doctors of this country do not believe that it is in the public interest that the medical profession should be turned into a whole-time salaried civil service, with the doctor the servant of the State. The doctor must be the servant of his patient."

The panel method of preserving the maximum right of the individual in matters other than the economic one was, and is, a most interesting experiment, but it has never had a fair chance and has had to bear on its shoulders all the faults and limitations of the compulsory health insurance Acts and regulations. It is no fault of the panel system that the working man's family is left unprovided with any medical service; or that the working man himself should have no statutory right to specialist treatment of any kind, or to institutional provision, however urgently necessary these may be. As Dr. Batten—whose claim to a hearing has been well demonstrated by his previous expressions of that rare quality, common sense—puts it: "Our private patients are not always good judges of doctors or doctoring, but this can be said for them: in general they demand from us the best we can give. . . . So far the State, as an employer of practitioners, does none of these things, and it shows no sign of repentance or intention to reform. Its only standard of excellence is that which produces no complaints."

Here are a few quotations from non-medical critics with widely different critical standpoints. The first is by Barbusse, who wrote: "The human reality is the individual . . . and every collective organization of men must come back to the individual man, be quickened by the individual life, and respect individual autonomy to the fullest possible extent." And here is Mr. Cole: "A human being, as an individual, is fundamentally incapable of being represented. He can be represented only in relation to some particular purpose or group of purposes." It has always seemed to me that the importance, even the sacredness, of the individual, and equally of his rights, duties, and responsibilities, is the very essence of the Christian-social ethic and of real democracy.—I am, etc.,

London, E HARRY ROBERTS.

Rehabilitation for Skin Cases

SIR,—In your interesting leading article (March 13, p. 322) you emphasize that rehabilitation must now be regarded as reaching far beyond the province of physical medicine and as including "occupational therapy, vocational training, and the arousal and maintenance of mental interests." This prompts me to draw attention to a field of rehabilitation which is seldom considered—namely, the rehabilitation of dermatological cases.

Those who are not in close contact with dermatological work often fail to realize the degree of depression to which many skin cases are prone; not only is depression engendered in the patients' minds by the fact that they are diseased, but the nature of their disorder (which may make them repulsive to themselves and shunned by their friends) may cause much psychological injury; to this is added the anxiety that, because of chronicity or the tendency of the eruption to relapse, they may not be able to continue to earn their living by the work in which they are trained. Because of these and other anxieties many patients endeavour to supplement the treatment ordered by their doctors by such homely remedies as the frequent use of antiseptic soap or sun-bathing, which, although employed with the best of intentions in order to "harden" the skin, frequently cause havoc and still further increase the period of disability.

If the sphere is to be enlarged so that by rehabilitation is meant a period of retreat from which the patient returns to the world not only improved mentally and physically but also armed with information culled from systematic teaching at the rehabilitation centre as to how he may best avoid the hazards of his occupation and his environment, then rehabilitation should have a wide application in dermatology. Regarded merely from the economic standpoint it may be found to be a paying proposition for certain types of infective and sensitization dermatoses; regarded from the ethical standpoint it will be of inestimable benefit to many.

It may be of interest to note that as a result of the facilities granted by the Ministry of Health and the War Organization of the British Red Cross Society and Order of St. John, a rehabilitation centre for military skin cases will soon be opened. It is hoped that by suitable rehabilitation the invaliding rate of certain types of cases from the Army will be reduced, that in cases in which mental depression is retarding progress the atmosphere and environment of the centre will rapidly cause improvement; and, finally, that from a study of the problems which will arise in this branch of rehabilitation much useful information will be obtained.—I am, etc.,

R. M. B. MACKENNA,
Lieut.-Colonel, R.A.M.C.

Scientific Freedom and Social Medicine

SIR,—Some of the statements in Dr. Geoffrey Bourne's article (Feb. 20, p. 227) are clearly fallacious, but some contain that modicum of truth that makes generalizations from them particularly dangerous. Dr. Bourne writes: "There are in existence at the present time two types of medical service—the autocratic as typified by the L.C.C. and E.M.S., and the democratic as typified by the voluntary hospitals." The decision as to whether a service is democratic or not must obviously depend upon what we mean by democracy. If we regard a hospital as an institution run exclusively for the benefit of the doctors or its staff, then clearly to be democratic these same doctors must have complete control. If, on the other hand, we think that the primary duty of a hospital is the care of the patients in it, then, I submit, to be democratic the final decision on all matters must rest, not with a small percentage of the workers in that hospital—that is, with its medical staff—but rather with the representatives of its potential patients—that is, with the public.

It goes without saying, I hope, that nothing must be allowed to abrogate the duty of each individual doctor to do his best for each individual patient under his care. Moreover, I think that at every hospital there should be a committee of the medical staff through which individual and collective viewpoints can be expressed and transmitted to the governing authority. Nevertheless, there must be some relativity, and no one is likely to blame a hospital board if more notice is taken of the advice of Dr. Bourne than of his junior house-physician, assuming that Dr. Bourne's house-physician has access to the committee. Similarly on matters of general hospital administration, the opinion of the medical superintendent of a municipal hospital is likely to be of greater value than that of a junior officer of less experience.

Of course, the work of junior medical officers in municipal hospitals is under a degree of supervision and even control by senior officers, but it is to be hoped that the same is true of house officers, clinical assistants, etc., in voluntary hospitals. If it is urged that this must be so because of the educational functions of voluntary hospitals, then the same case can be made in respect of junior positions in municipal hospitals, for these positions are very largely held by men and women who come to learn by experience with a view to preparing themselves for more responsible work elsewhere. Much has been said of late of the tyranny of medical superintendents, but it would be helpful if critics would produce concrete examples which can be investigated of alleged interference with the professional work of senior and experienced officers, instead of the vague and general statements which so far have been forthcoming. I submit that the holders of senior clinical positions in the municipal service have full freedom in the treatment of their patients and are given every encouragement to publish scientific papers.

Dr. Bourne would have us believe that the committee of management of a voluntary hospital is willing, almost without exception, to accept the advice of its medical staff. But is this really so? I am old enough to remember acute differences of opinion over the appointment of members of the honorary staff, over the opening or closing of departments, and other matters. I can even recall the board of management of a large voluntary hospital insisting on the resignation of its senior surgeon, in spite of the protests of its medical committee. And the unfortunate thing is that, thinking back, I have little doubt that in almost every case the representatives of the subscribers—i.e., the lay committees—were in the right. I am quite ready to admit that the L.C.C. hospitals are far from perfect. They have a long way to go and much to learn, even from the voluntary hospitals. It must be remembered, however, that it is but twelve short years (and three of them war years) since these same hospitals arose from the "slough of despond" of the Poor Law. Some improvements have taken place, as, I think, all will admit. I wonder if Dr. Bourne can honestly say that more progress has been made in the voluntary hospitals of London in the same period.
—I am, etc.,

Northwood, Middlesex. SOMERVILLE HASTINGS.

SIR,—Having been delighted by Dr. Geoffrey Bourne's statement that "the democratic system of medical service is entirely compatible with State control," I was acutely disappointed to find that the bulk of his article was little more than the enumeration of the faults of the municipal system. I was on the point of compiling a similar list of drawbacks of the voluntary system when I realized that neither set of faults was inherent in its particular system, for I have seen the democratic system working well in a municipal teaching hospital, and I have seen autocracy flourish in the voluntary. Defeatism, in fact, had won the day until I read Dr. F. M. Purcell's disastrous suggestion (March 6, p. 300) that 100,000 copies of Dr. Bourne's article should be distributed free! One further quotation from Dr. Bourne's article is sufficient to show how disastrous is this suggestion: "The public must be warned that an autocratic system will impede the speed and efficiency of medical services." This is, of course, nonsense. The speed of some of our largest voluntary hospitals with waiting lists of from two to five years is precisely one of the factors that will make the country reform us if we do not reform ourselves.

With the fervent hope that Dr. Bourne will develop the thesis first quoted, I commend to his notice an article in the *Spectator* (Jan. 29) entitled, "The New Conservatism." The author states that he "is not impressed by the fear of schemes for social security as destructive of enterprise." The Archbishop of York also has recently described as "contemptible" the argument that social security would destroy initiative and take away incentive to work. I myself know several so-called "slaves" in municipal hospitals who are first-rate "chiefs" doing excellent clinical, operative, and research work, in spite of the soul-destroying drawback of having no private practice to keep them stretched.—I am, etc.,

Edinburgh. A. F. ANDERSON.

Future of Women in Medicine

SIR,—I have read with amusement Dr. Jane Scott Calder's dissertation (March 13, p. 329) on sex in medicine, thinly disguised as a serious attempt to treat of the future of women in medicine. Let us examine her concrete suggestions.

1. That medical co-education is fundamentally dangerous on grounds of (*a*) impairment of work due to proximity of the sexes; (*b*) lowering of standards of modesty and morality Does she really believe that every medical student—man or woman—is concerned solely with sex? Was that her own experience or was she, perhaps, trained at a women's medical school and so has no first-hand knowledge of a co-educational one? Why is co-education specially dangerous in a medical school? Because there are bodies about? What is it that lowers the standards of modesty and morality—lumps of bare flesh?

2. That the entrance age be raised to 22 years on the grounds that all but the best will be eliminated. If the well-to-do are the best this proposition is correct.

3. That a condition of entrance be three years' training as a nurse The effect of this will be to add time to an already long course and to assist in closing the profession to those with straitened means If Dr. Calder's proposal has any validity it must be equally applied to men, who will presumably do a three-years course as male nurses

4. That the aim of the teaching staff be to train medical women, not to teach women to try to be medical men. The aim of medical education is to produce competent doctors.

5. That women should administer to women and children only. It frequently does happen that women doctors deal mainly with women and child patients. This is natural and proper, but it is inconceivable that it should be an irrefragable rule. The training period, in particular, is the time when a woman has the opportunity to become familiar with the mentality of the male patient, so gaining a balanced view of her profession. Would Dr. Calder object to a woman anaesthetist having men patients, or would she prefer her to be hampered by differences in management and technique should she suddenly, as is extremely probable, be confronted with one in an emergency? Would Dr. Calder's purdah also debar a woman pathologist from examining specimens from a male patient?

6. That the hospitals be staffed entirely by women. Is this, on analogy with suggestion 1, to make it quite impossible for sex to rear its ugly head? It is difficult to conceive of any valid reason for depriving students of the best teaching available. Perhaps Dr. Calder is of opinion that a woman-staffed hospital would provide this. If so she is in a decided minority.

7. That the house staff be chosen 75% by special house staff examination and 25% by character and qualities useful to the hospital's future. The path of the medical student and newly qualified doctor is only too heavily beset with examinations, which in any case are a poor test of practical capacity. In selecting officers for house appointments they are unnecessary. The applicants are personally known to the medical staff and can be chosen for character and ability rather than mere book knowledge.

8. That special attention be given to developing a sense of social and public responsibility. This is a quality that comes from within; it cannot be inculcated by "experts," however "sensible."

9. That there should be no birth control clinic at the hospitals From the prominence given by Dr. Calder to this subject I judge it to be a particularly ferocious bee from the swarm in her bonnet. It is obvious that she is in entire ignorance of the principle of birth control, which, briefly, is to space out families.
—I am, etc.,

London, N.W 3 HELEN BOWER ALCOCK.

SIR,—While agreeing with some of the statements made by Dr. Jane Scott Calder (March 13, p. 329) in her thoughtful letter on medical women, now and in the future, she makes other statements which are sufficiently provocative to challenge further discussion.

1. Women are not to demand the same training, opportunities, and privileges as men, for "women are created women: men are created men." Is there, then, a female brain and a male brain? Does the woman doctor approach the diagnosis, prognosis, and treatment of her patients with a different type of grey matter from that of a man? Her psychology is different, but surely her intellect is not.

2. The sexes violate each other's dignity when each invades the other's sphere. Does this imply that a single woman, a widow, or a grass widow must either starve or sell herself in order to live, rather than earn an honest living by taking up a "man's" trade or profession? Is not all labour, whether of mind or body, a worthy and dignified thing if performed with the right motives and carried on with honour?

3. Women are created for the dignity, nobility, and responsibility of wifehood and motherhood. That, surely, is a fundamental fact acknowledged by all, and it would be well indeed if such privileges were the lot of all women. But is there anything undignified, ignoble, and irresponsible in the woman doctor who carries another woman through the travail of childbirth and tends her with skill and loving care? Is the task of the medical woman less truly feminine than the similar task of her professional colleague, the midwife?

4. Co-education is fundamentally dangerous. This is stated to be due to proximity of the sexes, resulting in lessening of concentration and lowering of moral standards of behaviour. If this be so in most cases (there will always be the abnormal person), then early

home training must be sadly at fault, and sex must have obtained an undue prominence in the minds of those concerned. The segregation of women to their own medical schools and hospitals merely accentuates the sex aspect in medical matters, and suggests, furthermore, that the art of medicine deals with something essentially indelicate, if not worse.

5. Let the entrance age for students be raised to 22 years. This will eliminate all, probably, but the best. It would eliminate all but the wealthy. Does Dr. Scott Calder really believe that strength of character, brilliance of mind, and discipline of the emotions are more readily found among the financially favoured than among those obliged to earn their living?

6. Finally, Dr. Scott Calder urges that men and women doctors should work together for the common good. One wonders how this desirable end is to be attained if they are to be segregated from each other in their years of training at university and hospital. The masculine woman is indeed a sorry sight, but feminine attributes are not best perpetuated and strengthened if women are kept apart from their complementary fellow-workers of the male sex.

—I am, etc.,

Knott End, Lancs. MARY CARDWELL, M.D.

SIR,—I read with dismay Dr. Jane Scott Calder's letter (March 13, p. 329) on the future of women in medicine, advocating the separation of women from men during training and in their eventual work—dismay not so much at the future of women as at the future of medicine as administered by a band of women whose tolerance, humour, and insight into character have been stultified by segregation during their most impressionable years.

I deplore this emphasis on sex, which leads not to co-operation with men but to rivalry. We are all servants of medicine, searchers after truth, and on this field there is no need for a woman—to quote Dr. Calder's words—"remembering and being proud of her sex." She should be unconscious of it. When, very occasionally, a new patient murmurs an apology for a necessary display which he imagines may be distasteful to a feminine eye, I reply, "That's all right; while I am here I am not a woman, but a doctor."—I am, etc.,

Birmingham DOROTHY ROUGHTON.

Vitamins and Physical Efficiency

SIR,—It is clear from the opening sentence of their article on this subject (Feb. 27, p. 243) that Drs. A. A. Harper, I. F. S. Mackay, H. S. Raper, and G. L. Camm assume that the average student's diet is deficient in vitamins, and that such deficiency has been responsible for deterioration in fitness, since they were able to detect an improvement in resistance to infection and other minor deviations from health as well as in physical efficiency when vitamin supplements were administered to their experimental subjects, cadets at Manchester University. I am not quite sure that these are fair assumptions; but, accepting them as such, my interest is particularly directed to their consideration of "fitness" from two entirely different aspects. I recall a recent report of a similar investigation performed upon a number of school children in whom no advantage whatever in respect of general health and freedom from sickness appeared to accrue from the administration of vitamins. I am not in a position to cite the original report, but Dr. Harper and his colleagues are satisfied with a difference in favour of experimental subjects over the controls which is statistically significant, and anyway it is not my intention to deal with this side of their investigation.

But the authors are also satisfied that there is a corresponding gain upon the physical side, a gain in physical fitness on the lines one is accustomed to recognize in regard to athletic capacity. This improvement they accept as a reflection of the lessened susceptibility to minor infection, or as due to some other action of the vitamins. Now this, surely, is opposed to general experience. The highly trained athlete is by no means immune to infections; on the contrary, he is often particularly susceptible. On the other hand, a high degree of resistance to a bacteria-saturated atmosphere is only too often accompanied by a wretchedly low level of fitness, using that term in the accepted athletic sense.

The possible relation of vitamins to training and to the highest possible level of athletic capacity has naturally appealed to those of us who have been interested in athleticism and allied subjects during the past couple of decades. Ever since men have undertaken feats of speed or endurance, the dietetic side of training has always occupied a prominent place, and claims for superiority have been credited to every article of foodstuff and every kind of system: the more bizarre the greater the appeal to the imagination. Yet a critical consideration has led to the conclusion that there may be equally good results with widely different dietaries. I am speaking, of course, of pre-war days, when there was unrestricted access to any and every kind of foodstuff, so that individual peculiarities and tastes were untrammelled.

Yet there was a certain wish to believe that there might after all be something in the idea that this, that, or the other vitamin had some special relation to athletic capacity. The craving which men in full training experienced for some prohibited or greatly restricted article of diet might then indicate a natural necessity rather than the original sin which old-time trainers discouraged or reprobated. I myself have been at times impressed by the craving for butter; but here it was naturally difficult to distinguish the high-calorie value itself from the fat-soluble vitamins as the essential factor. At one time vitamin B made a bold bid for popularity, and I recall the amusing pronouncement of one authority, with a journalistic flair for the sensational, advocating its liberal administration to athletes, who are notoriously "highly strung," to ensure an adequate provision of the antineurotic vitamin!

I should feel more drawn towards the conclusions in this article and prepared to disregard the usually accepted antagonism between resistance to infection and athletic fitness, and to recommend the administration of vitamins to would-be champions, if I were satisfied with the nature and the records of the tests employed. These included the breath-holding time and the endurance test, familiarly known as the "40 mm. test." I have never been able to accept these as standards of physical fitness, not because they do not indicate some special capacity but because practically all athletes whom I have tested, especially by the latter method, fail miserably in their performances. I do not recall a single example of a man exceeding 50 seconds in the "40 mm. test." I have examples of men of the most supreme physical fitness—athletic champions with world's records to their credit, long-distance cyclists capable of exceeding 20 m.p.h. continuously for twelve hours—who faded out at 20 to 25 seconds. Yet these cadets under consideration averaged practically a minute at their first examination. One of two conclusions seems unavoidable: either that a number of supermen must have been included, which is surely inadmissible, or that the criteria of the performance and interpretation of these tests were very different from those we are accustomed to recognize.

The authors were puzzled by the anomaly that notwithstanding the administration of the vitamins the resting pulse rate became faster and not, as they had expected as a concomitant of improved physical fitness, slower. Their controls showed a diminution of 7.5 beats per minute; those who received vitamins a diminution of approximately 5 beats per minute. So slight a difference appeals to them as significant. As the result of many thousands of observations over 30 years I am prepared to accept a variation of 10 beats per minute as within normal limits, especially in regard to young men of this age whose autonomic nervous system is relatively labile. I am inclined to regard the post-exercise deceleration test as of value in assessing physical fitness, an investigation which I note was undertaken by Dr. Harper and his colleagues, who found, as I would have expected, no significant difference as the result of vitamin administration.—I am, etc.,

London, W.1. ADOLPHE ABRAHAMS.

Abortus Fever

SIR,—I was very glad to see Dr. D. G. Leys's article on abortus fever (Feb. 13, p. 187), in which he reports eight Scottish cases of this disease, illustrating the extraordinary variety of its manifestations and the consequent ease with which the correct diagnosis may be missed. There are many points in his descriptions and comments which are of great interest and which I would gladly discuss, but knowing the restrictions from which you suffer I will confine myself to a few observations which Dr. Leys and others may perhaps find helpful.

Dr. Leys remarks that "the disease does not appear to be a cause of abortion in women, for more than one case has been observed in an undisturbed pregnancy." It is quite true that the great majority of pregnant women suffering from this disease do not abort and that the reality of such an occurrence was long in doubt. There are now, however, a number of well-authenticated cases. The most convincing of these is perhaps the one recorded by Carpenter and Boak[1] in which *Br. abortus* was grown from the vaginal contents in a case of incomplete abortion, and was also recovered by guinea-pig inoculations of an extract of the entire foetus and placenta. This organism was identified culturally, morphologically, and by the agglutination and complement-fixation tests as a bovine abortus strain. An equally convincing case, but in this instance due to infection with *Br. melitensis*, was reported by Janbon and de Kerleau[2] in a tripe worker at a slaughter-house. This woman had had nine pregnancies, of which eight resulted in normal labour but one ended in spontaneous abortion, and the causative organism was isolated from her blood, her uterine discharge the day after delivery, and from the spleen, liver, heart's blood, and gastric contents of the foetus as well as from the placenta and placental exudate.

An interesting group of cases was reported by Simpson and Frazier[3] in which five women who had suffered from repeated abortions, and in whom a Wassermann reaction was negative, gave a positive agglutination against abortus to a titre varying from 1 in 80 to 1 in 320. All these women drank raw milk, and in four of the cases there was a history of fever. Frei[4] has reported the case of a woman who had a normal pregnancy in 1922 but later had four successive abortions. Her husband was a farmer whose cattle became infected with *Br. abortus* at the end of 1922. In May, 1928, subsequent to the four abortions, *Br. abortus* was found in large numbers in the woman's cervical discharge, and in July of the same year her blood was found to agglutinate the organism to a titre of 1 in 400. As regards my own series of 616 cases, abortion was reported in only one case. The evidence in this case was incomplete, but the clinical history and an agglutination titre of 1 in 1,000 leave no doubt that this was a case of undulant fever. The patient aborted about the seventh month, but apparently no attempt was made to grow the organism from the placenta, foetus, or vaginal discharge.

In speaking of the diagnosis of this disease Dr. Leys says that the "agglutination test seems to provide all that is required for a positive diagnosis." While agreeing that this test is far the most valuable diagnostic agent we have, one should not lose sight of the fact that cases do occasionally occur in which agglutinins are absent but the diagnosis is beyond doubt. One of the pioneer workers on this disease suffered for a number of years from a complaint which she firmly believed was undulant fever, but a number of distinguished doctors who investigated her case refused to accept this diagnosis until the organism was eventually grown from her blood. During all this time repeated efforts to detect specific agglutinins in her blood were uniformly unsuccessful. This, of course, furnishes an additional reason for attempting a blood culture with the special precautions (such as growing in 10% CO_2 and preserving the culture for three weeks instead of three days) which are called for in the case of this organism.

Dr. Leys is right in supposing that meningism is uncommon in this disease, but it is not by any means unknown. Three cases have occurred in my series. In one, stiffness of the neck was the only sign, but in another neck rigidity was accompanied by a positive Kernig's sign, tremor of the hand, pin-point pupils, slurring of speech, and intense drowsiness, and on spinal puncture the fluid showed slightly increased pressure, though it was clear and the cell count was normal. In the remaining case the neck stiffness was accompanied by the absence of both ankle-jerks and one knee-jerk, and on lumbar puncture the blood was normal apart from a colloidal gold reaction of 1223321000. He will find some interesting accounts of similar cases in papers by Molinelli, Miyara, and Basso;[5] Olin,[6] Hardy, Jordan, and Borts,[7] and Sfez and Cohen-Boulakio.[8]

Lastly, with regard to treatment, I agree with Dr. Leys that nothing like a specific remedy has been found for this disease, and that on the whole the results obtained with the sulphonamide compounds are disappointing. He will find the details of the results in my series in a letter of mine which you published in 1941.[9] By far the most successful remedy in my experience is protein shock with T.A.B. vaccine. Of thirty-four cases in my series which were so treated, definite benefit was obtained in twenty-five, doubtful benefit in five, and no benefit in four.—I am, etc.,

Ministry of Health, S.W.1. W. DALRYMPLE-CHAMPNEYS.

Weil's Disease

SIR,—Writing of Weil's disease Dr. K. Blum (Feb. 20, p. 231) advises that every illness with jaundice and high fever should be suspect. It should be emphasized, however, that if jaundice be considered a necessary diagnostic feature many examples of the infection will be overlooked, as more than 50% of cases of Weil's disease do not develop jaundice. In fact, jaundice is no more necessary for the diagnosis of the disease than is a rash for the diagnosis of typhoid. From classical attacks with jaundice to inapparent infections recognized only in retrospect by serological tests, a wide range of clinical types—for example, those presenting influenzal, meningeal, respiratory, or abdominal features—may be encountered. Weil's disease is always worth considering when faced with a clinical picture in which fever, generalized muscular pains and tenderness, conjunctival and scleral vascular injection, and a polymorphonuclear leucocytosis for which there is no obvious cause are predominant. The suspicion should be strengthened if the urine contains albumin, cells, and casts, and if there has been the risk of contact with material contaminated by rats. Cases are particularly to be found among those whose occupations bring them into contact with such contaminated material. During the war of 1914–18 there were many among soldiers from rat-infested trenches, and although these conditions have not been reproduced in the present war, cases may occur in soldiers infected through the inevitable minor abrasions associated with field training or through immersion in water where rats may be present. Military medical officers should therefore be on the look-out for the disease.

Diagnosis is most conveniently confirmed by the agglutination reactions of the patient's serum, the titres rising to significant levels between the first and second weeks of the illness. Adhesion and lysis tests are less commonly employed, and recovery of the organism from the blood during the earlier stages and from the urine during the later stages of the disease makes considerable demands on technique and time. In this connexion it may be remarked that the organisms soon die in acid urines, and, therefore, delay in dealing with such specimens rapidly diminishes the chances of successful isolation; it has been suggested that alkalis should be given to the patient in order to render the urine alkaline when recovery of the organism from the urine is desired. Bearing on this matter is the observation that epidemics of the disease among the cane-cutters in Queensland tend to occur after the heavy rains, which reduce the acidity of the soil and so assist the survival of the organism. In the treatment the early administration of anti-leptospiral serum should be considered, as it is difficult to forecast accurately the course of a case of Weil's disease.

Whatever may be meant by the reference to the relationship between "ordinary infectious hepatitis in wartime" and "morbus Weil," white blood cell counts are a valuable clinical means of differentiating leptospirosis from the common infective hepatitis which is now so widespread. A leucopenia with relative lymphocytosis is commonly accepted as characteristic of the latter infection, although perhaps the exact deviations of its blood picture may still be open to some question. On the other hand, there is no doubt about the valuable diagnostic association of a polymorphonuclear leucocytosis with Weil's disease.—I am, etc.,

London. F. MURGATROYD.

Anaesthesia for Laryngofissure

SIR,—I entirely agree with Mr. L. Colledge (Feb. 20, p. 230) and Mr. W. Howarth (March 13, p. 334) with regard to the use of morphine in laryngofissure and, indeed, either before or after any operation of a severe nature on the upper air or food passages; it should never be administered. I agree with Mr. Colledge, but I disagree with Mr. Howarth, about the temporary tracheotomy in laryngofissure. One great advantage is that if a disk is removed from the anterior wall of the trachea plugging can be inserted from below before opening the larynx; this entirely prevents the passage downwards of blood into the trachea and bronchi.

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[1] *J. Amer. med. Ass.*, 1931, **96**, 1212.
[2] *Presse méd.*, 1939, **24**, 453.
[3] *J. Amer. med. Ass.*, 1929, **93**, 1958.
[4] *Schweiz. med. Wschr.*, 1929, **59**, No. 12, 334.
[5] *Día. Méd. Ano.*, 1934, **7**, No. 8, 207.
[6] *Acta Soc. Med. Suec.*, 1935, Bd. 61.
[7] *J. Amer. med. Ass.*, 1936, **107**, 559.
[8] *Tunisie Méd. Ann.*, 1931, **25**, No. 9, 472.
[9] *British Medical Journal*, 1941, **2**, 455.

I well remember two cases which prove the advantage of preliminary tracheotomy. On one occasion in a nursing home of a large provincial town I operated on a man of 16 st. who had a high blood pressure. I succeeded with some difficulty, owing to excessive haemorrhage, in removing the growth, but nothing short of very firm packing would stop the somewhat alarming bleeding from the cavity of the larynx. The packing remained in position for about 3 hours; and when it was removed there were no signs of haemorrhage, and I returned to London feeling that if there was any more haemorrhage it could easily be controlled, as the tracheotomy tube, needless to say, was left in position. Fortunately there was no further trouble.

Another patient developed alarming haemorrhage 48 hours after operation, and I reached the nursing home just in time to save his life; owing to the presence of a tracheotomy opening I was able to arrest the bleeding. Had the operation been performed without tracheotomy there is little doubt the patient would have died, probably before my arrival. As a matter of fact he survived for 7 years and eventually died of cerebral haemorrhage.

Even supposing the absence of an opening in the trachea resulted in an increased mortality of 1%—and I am convinced this is too low a figure—it would be worth while to carry out tracheotomy in every case, as it is a perfectly safe procedure.—I am, etc.,

Aylesbury. NORMAN PATTERSON.

War Neuroses: Their Nature and Significance

SIR,—It is interesting that Dr. W. Ronald D. Fairbairn (Feb. 13, p. 183) has brought out the important problem of morale as the result of working from the E.M.S. angle. This focus has emerged from a mass of clinical findings observed from bringing peacetime psychotherapy to bear on wartime neuroses in the combatant Services.

The psychiatric services have a foot in each of the combatant and the civil-social camps, and they are trustees for both. They have thus a difficult task, and have had to create their own framework and evolve within this, and more and more has it become apparent that accurate psychometric assessment is the major issue for shaping a policy and avoiding the necessity for treatment of breakdowns, which is likely to be more than usually difficult and disappointing. Most psychotherapists will not quarrel with Dr. Fairbairn's psychopathology in regard to psychogenic anxiety, but one is not so clear about some of his inferences. Morale is a factor that is going to concern peacetime social life after fighting ceases, and one aim of psychotherapists in the Services must be to diagnose functionally unfit men and return them into civil life before there has been an undue loading of their psychological defences, for these are what they need in civil life.

What does the psychotherapist mean by "morale" when he is discussing this with his colleagues? When a man who has not previously shown delinquent traits begins to lose his morale in the Services and to cease to pay attention to authority and what his fellows think of his behaviour, is he suffering from a regression (in the psychological significance of the term) or is he tending to revert to something nearer akin to his animal ancestry (in the atavistic and biological meaning of the word)? Spinoza once remarked that "the stone in the air would think itself free if it could forget the hand that had thrown it." If man could forget man's hand he would begin to feel he had lost contact with his social sense, with other hands to appeal to for help, as well as feeling free of cultural demands and obligations that his fellows required from him. This kind of loss of contact would seem to be different from the "separation anxiety" of a psychogenic origin if it continued far enough, and it would be observed as a factor displaying mental attitudes and behaviour consonant with these as well as somatic symptoms. A sudden and severe traumatic shock can cut through all psychological defences like a knife and plunge the individual into a physically felt (psychological) danger-situation in which there are no hands to appeal to for help, either because there is literally no perceptual awareness of this in the depths of the fugue or because those in the situation are too dangerous to approach. Such cases are not uncommon. Are all fugues regressions? The loss of morale may be a slower but steady encroachment on the psychological defences (social-sense) until a point of regression is reached where delinquency, as atavism, begins to be displayed. In the previously diagnosed psychopathic personality his delinquency is not now unduly severely dealt with, and the individual is removed to a more suitable sphere.

I think that when Dr. Fairbairn writes of the neurotic Service men *en masse* needing an evangelist rather than a psychotherapist he unconsciously recognizes this atavistic tendency, for he insensibly slips from the psychological significance of morale into that of ethic and morals. Not that many psychotherapists would agree that pastoral psychopathy is desirable either in peace or war. By the terms of our own psychopathology we have all become social through being neurotic, since culture and civilization are emergent from repressions, inhibitions, and social conditioning. But in atavism the individual is heading either for the "animal" world of fear and danger in which he reacts according to the depths of his nature or toward throwing off the feeling of psychological guilt and being free of its repressing restraint. The return into civil life of men with loss of morale or delinquent tendencies is going to be a big problem, and the aim should be to avoid this. It is a psychiatric problem now, and will be after fighting has ceased. It is the biggest problem with regard to the treatment of Germany after the war.—I am, etc.,

London, N.W 8. JOHN MACKWOOD.

SIR,—In my article on the war neuroses (Feb. 13, p. 183) I endeavoured to express my views in a manner sufficiently simple and devoid of psychopathological technicalities to enable them to be understood by the average medical reader. There are certain misunderstandings, however, against which it is difficult for an author to safeguard himself—namely, such as may be introduced by a critic who displaces the original emphasis from one point to another, and treats in isolation particular items which are intended to form parts of a coherent whole. Such is the type of misunderstanding which finds its way into Sir Arthur Hurst's criticism (March 6, p. 299) of my views. Thus, in ascribing to me the view that a war neurosis is "the result of an attempt to restore emotionally the intra-uterine state of security which was rudely disturbed by the experience of birth," he is conferring the status of a major thesis upon what was intended rather to be of the nature of a philosophical aside. At the same time he completely ignores the basic clinical fact to which I draw attention—namely, that separation anxiety (i.e., anxiety over separation from home) is the central and universal symptom in all forms of war neurosis. No theory which fails to offer an explanation of this clinical fact deserves any serious consideration, and in my article I attempted to provide the explanation which seems to me best warranted by the evidence

According to my reading of the evidence the development of acute separation anxiety in a Service man is due to a regressive reactivation of a state of infantile emotional dependence which has never been properly outgrown. I also feel justified by the evidence in concluding that a war neurosis is characterized not simply by the appearance of certain symptoms but also by specific personality changes associated, both by way of cause and effect, with a lowering of morale. Since the cure of a war neurosis is not just a question of removing symptoms but one of reversing personality changes which are resistant to psychotherapy, and since morale is the very life blood of a military group, I further conclude that the cultivation of morale should take precedence over psychotherapy as a method of dealing with the problem of the war neuroses. Such are the "fantastic beliefs" in the light of which Sir Arthur considers it "easy to understand why Dr. Fairbairn finds that the war neuroses are resistant to *his* psychotherapy" (my italics). Here I must claim a greater measure of modesty than Sir Arthur appears disposed to grant me, for I can assure him that my opinion is based not upon the results of *my* psychotherapy but upon the results which I have observed, whether mine or anyone else's, and not least upon those observed in cases which had been previously returned to duty as cured.

I am not prepared to dispute the results obtained by Cooper and Sinclair during the siege of Tobruk under what Sir Arthur describes as "the most unfavourable conditions." My experience is admittedly confined to cases treated outside the zone of active warfare. I venture to suggest, nevertheless, that, however unfavourable the conditions at Tobruk might be from the standpoint of psychotherapy, they were conspicuously favourable from the standpoint of morale; and this consideration seems to me to support my general conclusion that the problem presented by the war neuroses is one of morale rather than one of psychotherapy. No results are of the slightest significance, of course, unless assessed in the light of a long-term (as against an immediate) follow-up, and it is only in the light of such a follow-up that the results obtained at the Seale Hayne Military Hospital during the last war by means of "simple psychotherapy in the form of explanation, persuasion, and re-education" can possibly be assessed.

Long-term results aside, however, I cannot refrain from raising the question whether such "simple psychotherapy" is really psychotherapy at all. Nothing that Sir Arthur has said convinces me that I was greatly in error when I felt driven to remark: "What these people need is not a psychotherapist but an evangelist." During the last war scientific psychotherapy had as yet barely emerged, but I fancy that in those days the evangelist had an easier task than he has now after twenty-odd years of complacency and disillusionment. I fancy, also, that it was easier to become an evangelist then.—I am, etc.,

Edinburgh. W. RONALD D. FAIRBAIRN.

Pleurisy and Pleural Effusion

SIR,—In the recent correspondence in the *Journal* on the above subject I see no mention of the subcutaneous tuberculin test, which I have been using with satisfactory results for the past 30 years. I begin with old tuberculin human (T) 0.0002 c.cm. If no reaction follows the dose is doubled again and again up to 6 doses, when the case is pronounced negative. If a distinct reaction follows any particular dose, the test doses are stopped, and the patient is advised to have sanatorium or a course of tuberculin treatment. The test doses are given once or twice a week according to convenience. I find that over 40% of these cases do not react to test doses, and can be set aside as non-tuberculous. This is a much larger proportion than could be rejected by von Pirquet or the intradermal tests.—I am, etc.,

Belfast. JOHN R. GILLESPIE.

Bagassosis

SIR,—The article by Drs. L. I. M. Castleden and J. L. Hamilton-Paterson on bagassosis (Oct. 24, 1942, p. 478) should stimulate interest in the occurrence of respiratory disorders among workers in sugar-cane factories in the Caribbean area. It is remarkable that these disorders have escaped notice up to the present.

During the grinding season air in a cane factory is filled with megass dust (or, as the authors term it, "bagasse" dust), and it is diffused throughout the surrounding air for a considerable distance, hence workers in the factory and people living in the neighbourhood inhale considerable quantities. Somewhat similar conditions are found in rice mills. Having noted that a considerable number of patients suffering from respiratory disorders, especially asthma, who had been referred to me for allergic tests worked in cane or rice mills, extracts of megass and of padi dust were made by Coca's method and the skin reactions of such patients tested by intradermal injection of 0.02 c.cm. Patients who worked in cane factories gave a positive reaction to the megass extract, and those in rice mills to the padi extract.

Early cases obtained relief and sometimes cure by avoiding the offending dust, but as this meant obtaining employment elsewhere, often at lower wages, they tended to return to their former employment, with consequent recurrence of symptoms. Treatment by desensitization with the appropriate extract was quite effective in the early cases, but old-standing cases complicated by chronic bronchitis and emphysema were less amenable to treatment. The latter were helped by small desensitizing doses of vaccines as recommended by Coke and Coke, followed by desensitization to the specific allergen. It would appear, therefore, that these disorders are, as the authors of the paper observed, the result of an allergic reaction. Not having had an opportunity to investigate these conditions in the factory, I am unaware to what extent workers in these industries are affected, but conversations with patients gave me the impression that it is not inconsiderable. The occurrence of respiratory disorders among workers in these industries requires investigation in all sugar- and rice-producing countries in order that methods for prevention may be devised.—I am, etc.,

P. A. CLEARKIN,

Georgetown, Demerara. Govt. Bacteriologist.

Eventration of the Diaphragm

SIR,—With reference to the article by Dr. A. J. E. Mills (Jan. 23, p. 97) under the above heading, there is not sufficient detail to make an exact diagnosis, but it would appear to be similar to that first described by Roemheld and also by Bergmann and Herz. The gastro-cardiac symptom complex first described by Roemheld is another cause for pains in the region of the heart. Gastro-intestinal disturbances result in an upward displacement of the dome of the left diaphragm, and this in turn causes displacement of the heart and larger blood vessels. In such cases there is always a large amount of air in the stomach or the large intestine, especially the left colonic flexure. Patients do not complain much so long as the stomach is empty. This explains, in the case described by Dr. Mills, the inability of the patient to play games for three or four hours after a meal. If he had tried to play games immediately after a meal he would, in all probability, have felt a pain in the heart area, back of the lower end of the sternum, and in the left shoulder. There is no mention of this patient's chest or abdominal measurements or details about his weight. In all probability he had put on some weight, and was also a mouth breather and was therefore unable to breathe deeply. No mention is made of blood pressure or blood-pressure curves in response to exertion; glycosuria is often seen in these cases, possibly due to diminished blood supply to the pancreas; there may have been anacidity, subacidity, fermentative dyspepsia, colitis, or aerophagia; avitaminosis B$_1$ is common. There is probably an atrophic condition of the diaphragm and often loss of tone in the abdominal muscles as well as inverted breathing. The hiccup is easy to account for and is caused mechanically. The vagus nerve runs through the narrow slit on either side of the hiatus oesophageus. In normal subjects there is ample room for the diaphragm to move up and down, but in old age or as a result of accumulation of gas in the abdomen the hiatus may be enlarged and become lax enough to have either some of the stomach pushed up or the oesophagus pulled down to form a kind of hernia causing irritation of the vagus. This would explain the disappearance of the hiccup when lying down.

This condition is fully described by Bergmann under the heading "epiphrenal syndrome." He carried out many experiments on animals by putting rubber balloons through the oesophageal hiatus and then filling them with air to stimulate the vagus in order to get the effect. These hernias have been demonstrated by *x* rays in 300 cases by Knothe at the Bergmann Clinic. There is also the work of Herz (*Die Sexuelle Psychogene Herzneurose,* Vienna, 1909) on phrenocardia connecting some of these cases up with psychogenic sexual neurosis. He substitutes the word "dyspnoea" for "respiratory block" in order to make a differential diagnosis between the neurosis connected with the diaphragm rather than from the lungs. His work was confirmed by Erb and others.

The position occupied during sleep is very helpful in making a differential diagnosis. Most of the patients sleep on the left side, whereas subjects of organic heart diseases usually sleep on the right. These patients also have hearts that are too small for their bodies and are subject to extrasystoles on sudden change of position. Only recently I saw a patient, aged 23 and home on seven days' leave from the Army, who complained of his heart: feeling of fullness and pain in the region of the heart, difficulty in breathing, nausea, and general feeling of anxiety. On examination (standing) the stomach was distended and there appeared to be a large amount of gas under the left side of the diaphragm. On examining him lying down I noticed the position of his apex beat moved upwards and outwards, and he was most uncomfortable, so much so that I decided to siphon off the air and gave him immediate relief.

These patients are often subjected to attacks of intercostal neuralgia, and one can see small capillary varicosities over the left costal arch, the supraclavicular fossae are frequently seen to bulge, and, according to Roemheld, there is often a deficiency of gastric secretion, and toxins are liable to be absorbed and injure the myocardium by visceral reflex effect.—I am, etc.,

London, W 1. J. E. O'LOGHLEN.

Staffing of Miniature Mass Radiography Units

SIR,—The machines for the examination of the civilian population have been designed for the express purpose of radiographing men and women at the rate of 5,000 a week or 250,000 a year. Naturally it will take time and organization to ensure that each unit will be fed to capacity and at a uniform rate.

The unit may be found to be easy to take to pieces and to reassemble, but difficult to transport from one centre to another, and the best choice of site for its operation may be found only by trial and error. It seems that in the larger towns the first group of machines is likely to be static, and should therefore be erected in a convenient site, where large numbers of the population pass or congregate. The need for adequate dressing-room accommodation has been stressed by Dr. Henderson (Jan. 16, p. 81), and heating and cloakroom attendance should not be overlooked. Sites that automatically suggest themselves might be the London railway termini, the larger stores, or air-raid shelters accommodating some thousands of persons. Such sites might appeal more to the man in the street than, say, the out-patient department of a large hospital.

The method of stamping the identity card, practised abroad, would seem a convenient one to remind the owner of the date when re-examination should be carried out, and to enable the patient's doctor to obtain any information he may require regarding the examination.

It will be found that each machine will be capable of taking a considerably larger number of miniature films than any small group of medical men is able to interpret, and it will be found necesary to make provision for the interpretation of a large surplus of miniature films. It makes little difference whether such interpretation is carried out by physicians or radiologists so long as it is accurate, and I think Dr. Henderson's suggestion that each series of films should be examined by two observers is a wise one, and would suggest that the reports should be made independently and should be correlated by a third observer. It is understood, of course, that every suspected abnormal finding would be checked by routine radiography prior to a clinical examination. Personally I feel that many interpreters would be willing to carry out, say, 500 interpretations per week in their own hospitals or homes provided they were kept informed of the results of the subsequent findings.

The success of the scheme will depend largely on the co-operation of the public, who will need to be informed by the Ministry of Health of its object through the cinema and Press. —I am, etc.,

London, S.W.3 J. V. SPARKS.

Trichlorethylene Anaesthesia

SIR,—Trilene has recently been accused of having two faults: first, that it is liable to be decomposed into phosgene by the heat of the diathermy apparatus; and, secondly, that it may cause auricular fibrillation.

As regards the formation of phosgene, this is no more likely to happen with trilene than with chloroform. In spite of the fact that chloroform is freely used in the presence of fires, flames, and sparks the references in the literature to phosgene formation are rare. Phosgene causes lacrimation and coughing in half the concentration required to do any harm. Lukis describes a case in which coughing and lacrimation were caused by the use of open chloroform in a small room where there was a coal fire and gas jets. The symptoms quickly subsided when the window was opened.

As regards auricular fibrillation, I had a case this morning of a healthy young woman who was being anaesthetized with N_2O 70% + O_2 30% and trilene for dissection of her tonsils. After blind nasal intubation the pulse was normal in rhythm and rate, but 5 minutes later it became faster and grossly irregular. At that time anaesthesia was deeper than necessary (plane 3). Anaesthesia was lightened to plane 2, and 10 minutes later the pulse returned to its normal rate (80 per minute) and rhythm. Anaesthesia was continued for another 15 minutes with the same agents without further incident. There was no cyanosis.

Transient alterations in the heart's action are found to occur not very uncommonly during all kinds of inhalation anaesthesia if they are watched for sufficiently carefully, and not enough data have been gathered to enable a decision to be made as to whether or not trilene is a worse offender in this respect than ether.—I am, etc.,

Colchester. DOUGLAS CLENDON.

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Little Audrey and the Doc

SIR,—Little Audrey had a friend called Emma, who awoke one bright post-war morning with a very bad cold. Her mother, who knew all the answers, said she was to get out of her nice warm bed at once, dress herself, and come to the Health Centre. Emma tried crying, but it didn't work, so she got out of bed and shivered, and presently shivered still more in the rain at the bus stop. She got her own back by coughing all over everyone in the bus, which was very full, because a lot of other people with impetigo, sprained wrists, scabies, rheumatic fever, and what-have-you were going to the Health Centre too. When they got there Emma and her mother sat in a beautiful big waiting-room for hours and hours, while her mother wondered what to do about the shopping and the washing, and got crosser and crosser. Emma just went on coughing and wheezing, till, by-and-by, a man in a white coat said they couldn't see Dr. Smith because it wasn't his day, so Emma just yelled and said she wouldn't see anyone else, and the man said she was a very naughty girl and took her into a room where he examined her very carefully and wrote out a lot of forms in duplicate. Then they had to wait again, because Emma was to have her chest *x*-rayed and her sputum typed and her blood count done. So they had a bun instead of dinner, and Emma went on shivering and got red in the face and sweated, and Emma's mother got crosser and crosser, and Emma cried again, till, about tea-time, another man in a white coat said it was all right: Emma had pneumonia and must go to hospital, and that the ambulance would be along soon.

It turned out to be a very interesting case, because Emma got an empyema, and had all sorts of operations and tests and had ever so many notes and reports all in duplicate, except for some that were in triplicate, and she went to a lovely convalescent home; and her mother was able to get on with the washing and the shopping without a coughing child in the house.

Little Audrey (she was Emma's friend, you remember) woke up with a wheezy cold, too; but her mother was old-fashioned and just rang up Dr. Brown, who had brought little Audrey into the world and knew her colds of old. Dr. Brown came round, and opened the windows and felt the hot-water bottle. Then he tickled little Audrey, who loved him and called him doc-doc, which was most unscientific, till little Audrey laughed and laughed and laughed. She laughed so much that she laughed all the germs out of her chest and got well the next day, which was all very dull, because no one did anything really clever or wrote up any notes in duplicate. —I am, etc.,

Ashtead, Surrey W. EDWARDS.

I. L. Hamilton-Paterson and L. I. M. Castleden (*Brit. Heart J.*, 1942, **4**, 103) record three cases of infracardiac tumour—namely, a sarcoma of the right auricle in a woman aged 45, a pseudo-myxoma of the left auricle in a man aged 46, and an aneurysm in a man aged 27, which in life produced signs and symptoms attributable to Ayerza's syndrome, mitral stenosis, and pulmonary stenosis respectively. The following classification of heart tumours is suggested: (1) benign tumours due to organization of blood clot—pseudomyxomata; (2) malignant tumours arising from the mesenchymal elements of the heart wall; and (3) benign congenital tumour

Obituary

JOHN F. FERGUS, M.A., M.D., F.R.F.P.S.Glasg.

It was with great regret that the medical profession in Glasgow learned of the death on Feb. 18 of Dr. John F. Fergus in his 78th year. Dr. Fergus belonged to a distinguished medical family in Glasgow, his father being the late Dr. Andrew Fergus (an intimate friend of Lister when in Glasgow), one-time President of the Royal Faculty of Physicians and Surgeons, and his elder brother, Dr. Andrew Freeland Fergus, the well-known ophthalmologist.

John Freeland Fergus was educated at the High School of Glasgow and Glasgow University, graduating M.A. in 1883, M.B., C.M. with high commendation in 1888, and M.D. in 1897. After graduating he was house-physician at the Western Infirmary, and continued his studies at Vienna and Jena. Throughout his professional career Dr. Fergus was much concerned in public medical affairs. He represented the Royal Faculty on the board of management of the Glasgow Royal Infirmary, and for several years was convener of the medical committee. He also represented the Royal Faculty on the board of the Royal Technical College of Glasgow, and gave good service in a similar capacity to the Broomhill Home for Incurables and the West of Scotland Seaside Homes, Dunoon. Always actively interested in his university, he was largely instrumental in securing the excellent playing fields at Anniesland, and as an assessor on the university court, elected by the general council of the university, he played an important part in the government of the university. In all of these positions he showed a proper business sense, and was actuated by a spirit of fair-mindedness and anxiety for the welfare of the institution. In the last war he was a visiting physician to the Springburn-Woodside Red Cross Hospital, and after the war assisted in the teaching in the Royal Infirmary as assistant to the Muirhead professor of clinical medicine.

Dr. Fergus was a most ready writer, both in prose and in verse. He contributed to the *Glasgow Medical Journal* papers of purely medical interest as well as some on the history of medicine. "Some Medicines of our Ancestors" was published in that journal in 1918, and about the same time his paper on "The Medical School of Salerno" was read to the Royal Medico-Chirurgical Society. Perhaps it was as a poet and reciter of his own poems (though he maintained that they were no more than "trivial verses") that Dr. John Fergus was most widely known to the profession and the public of Glasgow. He was the author of many topical poems much in request at medical and other social gatherings, and was a member, sometime vice-president, of the Glasgow Ballad Club. His volume entitled *Carmina Urbis et Ruris* contains compositions for meetings of one of Glasgow's favourite social medical societies—the Town and Country Club. In the last war he published a small volume, *The Sodger and Other Poems*, the proceeds of the sale of which were devoted to the Sailors and Soldiers Families' Association. The *Fancies of a Physician*, published in 1938, is a representative collection of some most admirable verse, "medical and otherwise," grave and gay, in Scots and in English, the most noteworthy celebrating the Royal Faculty and its founder, Maister Peter Lowe, the Royal Infirmary, and the Royal Medico-Chirurgical Society. He leaves a wife and son and daughter, to whom sincere sympathy will be extended.

Dr. R. H. Tasker died at sea in the latter part of November, 1942, as the result of enemy action, at the age of 50. Ronald Henry Tasker began his medical studies in the University of Bristol and did his clinical work at the Bristol General Hospital. In 1917 he qualified M.R.C.S., L.R.C.P., spending the next two years with the Fleet as temporary surg. lieut., R.N. He was house-surgeon and house-physician at the Bristol General Hospital and filled resident appointments at Herefordshire General Hospital and at Ham Green Hospital, Bristol. In 1926 he became medical officer to the Burmah Oil Company and entered with enthusiasm into life in the East. For 16 years he rendered able and devoted service in various parts of Burma, and at the time of the Japanese invasion was in charge of the company's hospital at Syriam, Rangoon. Here he remained while the demolitions were completed, afterwards making a precarious escape to India. He finished the remainder of his term of service in Assam, and was returning to England when his ship was torpedoed in the South Atlantic. In 1930 he married Dr. Dorothy Buckmaster, daughter of the late professor of physiology of Bristol University, and to her and to the young son and daughter the sympathy of the profession will be extended. A colleague writes: It is difficult to convey any idea of Ronald Tasker's vivid and joyous personality. Everything humdrum and petty was dispelled by his unforced gaiety and abounding good nature. His was the great gift of laughter and the superlative merit of communicating happiness to others. Yet he was conscientious to a degree in his professional work, in which he showed great skill as a surgeon, and he had a remarkable athletic career. Ronald Tasker was a county player in association football, tennis, and badminton. In his student days he played, as an amateur, for Bristol City, then in the Second Division of the Football League. While recovering from a severe football injury he studied croquet and became a first-class player. His wife shared his love of games, and for many happy years they were a formidable pair in tennis and badminton tournaments in Burma. Possessed of amazing energy and concentration, for both work and play, he found time to be widely read, especially in comparative religion and anthropology. His friendship was actuated by sincerity and loyalty, but never by expediency. Thus there were those in many walks of life who were proud to call him friend, and would cordially agree that they owed to him some of their happiest hours. There were 54 in the lifeboat in which he died, after being many days adrift, and one of the two survivors has told me the tragic story of his passing. An inspiring colleague, a gallant sportsman, and a true friend.

Dr. Donald Buchanan, who died at Eltham on Jan. 18 at the age of 63, came of a family which had lived on the Isle of Barra for many generations. Buchanan studied medicine at Aberdeen University, where he graduated M.B., Ch.B. in 1908. He took the D.P.H. of the University of Birmingham in 1910, proceeding M.D. in 1911. Some years before the outbreak of the last war he was appointed port health officer at Singapore, and later at Port Moresby, New Guinea. From the latter post he returned to this country to serve with the R.A.M.C.—he was attached to the Territorial Army before he went abroad—and distinguished himself in France, being mentioned in dispatches several times. When the war ended he went to Edinburgh, where he took the F.R.C.S. He then settled in South-East London and built up a large practice there. Last August he published *Reflections on the Island of Barra*. An able practitioner, he will be sorely missed by the many patients who looked on him not only as their medical adviser but as their friend in need.

We regret to announce the death on Feb. 19 of Dr. T. Anstey-Chave of Redhill. Born at Hereford in 1870 and educated at the Cathedral School, Thomas Anstey-Chave first joined a firm of London stockbrokers, but finding that City life was deleterious to his health he decided to take up medicine, which was his original interest. From St. Bartholomew's Hospital he qualified M.R.C.S., L.R.C.P. in 1896, and four years later took the M.B.Lond. and the F.R.C.S.Ed. He was then appointed house-surgeon at the Hereford General Hospital, and after holding two assistant posts at mental hospitals he took a share in a general practice in Cardiff, where he stayed for 13 years. His health, however, gave way and he went abroad for some months. When he recovered he took over the practice of Dr. Drake of Redhill, developing the radiological work there, and became an acknowledged authority in the district. He was radiologist to the East Surrey, Sevenoaks, and Dorking Hospitals, and had several other radiological appointments. Dr. Anstey-Chave had been a member of the B.M.A. since 1899. He represented his Division at the Annual Meetings in 1917 and 1918, and was secretary for the Reigate Division in 1922 and chairman from 1925 to 1927. He was also secretary of the Surrey Medical Benevolent Society from 1922 until his death.

Dr. James Mair Rutherford, whose death, we regret to announce, took place at Bristol on Feb. 22, followed his father's profession and also his specialty, for he was the son of the late Dr. James Rutherford, medical superintendent of the Crichton Royal Institution, Dumfries, and for the last 34 years had been medical superintendent of Brislington House, a private mental hospital near Bristol. Rutherford qualified M.B., C.M. at Edinburgh in 1894, took his membership of the Royal College of Physicians of Edinburgh in 1906, being awarded the Gaskell Prize, and became a Fellow in 1909. He was senior assistant physician at the Royal Asylum, Morningside, before he went to Bristol. Of athletic build, Dr. Rutherford excelled at hockey and golf, and was also a first-class shot. He had been a member of the B.M.A. for 46 years.

Medical Notes in Parliament

Diphtheria Outbreak traced to Milk Supply

Sir FRANCIS FREMANTLE on March 11 asked the Minister of Health whether the outbreak of diphtheria in East Yorkshire, traced to new clean milk from a farm, was due to infection the spread of which could have been prevented by pasteurization, and what action had been taken to avoid such danger in future. Mr. ERNEST BROWN replied that the spread of infection in the case referred to would have been prevented by pasteurization. Only one cow was kept on the farm concerned, and the sale of milk from this farm had been ended.

Health in the West Indies

Colonel OLIVER STANLEY opened, on March 16, a debate on colonial administration in the West Indies. He said the section on health in the Stockdale report well set out the health problems which would have to be met. In many ways the most important was the suggestion of the health community system, an attempt to take into rural, scattered communities the health advantages normally found in an urban, highly populated area. The Colonial Office had given authority for a large-scale experiment in this health community system in the Jamaica parish of St. Catherine.

Mr. CREECH JONES referred to malnutrition and doubted whether the proposals of the report were enough to deal with the squalor and dreadful housing in most of the West Indian colonies. Dr. HADEN GUEST cited evidence from the Committee on Nutrition in the Colonial Empire that in Jamaica rickets was frequently found among younger school children. The health problems of the West Indies were insoluble without adequate nutrition. To erect a costly medical structure on the basis of the poverty of the West Indies would give the doctors appointed an impossible task. Dr. MORGAN suggested a mobile team of medical experts ready to go to islands where epidemics had broken out or to others where water supplies needed attention. The Stockdale report did not mention or did not emphasize hookworm disease because Government policy made that disease endemic. There was no decent scheme, except in Trinidad, for proper latrines to prevent the infection. Medical officers engaged in preventive work had no opportunity for doing their work properly. Leprosy could be abolished in the West Indies in a generation. Many sufferers from leprosy filtered back to this country by means of retired officers from the Colonies and now tramped the streets of Great Britain unrecognized.

Dermatitis in Mining Industry

On March 17 Mr. BERNARD TAYLOR asked what steps were being taken to deal with dermatitis in the mining industry. Mr. TOM SMITH answered that any epidemic of this disease, however small, reported among a particular set of workers at a particular mine was investigated in relation to the working conditions, and ameliorative measures taken so far as possible. The large majority of the cases appeared to be sporadic in the sense that they comprised, in ones and twos, workers having many different occupations and employed at many different mines. These cases presented a difficult problem which would be further investigated through the medical officers of mines who were taking up their duties in the coalfields.

Vaccination in the Army.—Answering Mr. Viant on March 16 Sir JAMES GRIGG said vaccinations in the Army were performed in accordance with instructions essentially similar to those issued by the Ministry of Health to public vaccinators. Successful cutaneous vaccination must of necessity lead to the formation of scar tissue, but scars resulting from present methods of vaccinating soldiers were generally very slight.

Medical Regrading and Army Employment.—In a reply on March 16 Sir JAMES GRIGG said a man's physical condition tended to improve as a result of Army training, and in a normal case the medical officer who had watched the man at work could properly determine when he was fit for a higher medical grading. This arrangement would, however, shortly be modified. Army selection centres were being instituted. Eventually all soldiers whose change of medical category entailed a change of employment would pass through these centres and there be classified and allotted to the duties they could best perform. Men suffering from defects which could be cured would be given special remedial training

Public Health Propaganda.—Asked how many posters in the series entitled "Coughs and Sneezes Spread Diseases" had been issued by his Department for publication, Mr. BROWN said on March 16 that in the current campaign which began last October 152,170 posters and vehicle bills had been issued at a cost of £12,600.

The Services

Capts. O. I. Green, W. N. Hine, and E. D. V. Nicoll, R.A.M.C., have been awarded the M.C. in recognition of gallant and distinguished services in the Middle East.

The name of Lieut. (now Capt.) D. P. G. Paisley, R.A.M.C., was included in a list of officers and men commended for brave conduct in a *Supplement* to the *London Gazette* dated Feb. 17, 1942. We regret that, through an oversight, this item of news was not published in the *Journal* at the time.

Temp. Surg. Lieut. W. D. G. Troup, R.N.V.R., has been mentioned in dispatches.

The annual general meeting of the members of the Auxiliary R.A.M.C. Funds will be held at 11, Chandos Street, W., on Monday, April 5, at 6 p.m., when the annual report and financial statement for the year ended Dec. 31, 1942, will be presented and officers elected for 1943.

CASUALTIES IN THE MEDICAL SERVICES

Major W. L. BROOKES, Indian Medical Department, is included as "died" in an India Office Casualty List published on March 15.

Temp. Surg. Lieut. JACK BLOOR HOUGHTON, R.N.V.R., is included as "missing, presumed killed," in an Admiralty Casualty List published on March 13. He was born on March 20, 1917, and received his professional education at King's College Hospital, qualifying M.R.C.S., L.R.C.P. in 1940. Before entering the R.N.V.R. in July, 1941, he held an appointment at the Blind School Hospital, Leatherhead, Surrey. In Aug., 1942, he was mentioned in dispatches for distinguished services in convoys to Murmansk. He was a member of the B.M.A. and his home was at Woodthorpe, Nottingham.

Lieut. EDWARD RAYMOND STONE, R.A.M.C., is included as "killed" in an Army Council Casualty List published on March 17. He was born on March 5, 1913, and graduated M.D.Georgetown in 1939. He entered the U.S.A. Section of the R.A.M.C. in Aug., 1941. His home was at Washington, D.C.

Prisoners of War.—Lieut. W. G. Anderson, I.M.S., Acting Major A. M. Best, I.M.S., Capt. T. R. S. Cormack, R.A.M.C., Acting Major A. C. Glendinning, I.M.S., Capt. D. W. F. Gotla, R.A.M.C., Lieut.-Col. C. W. Maisey, R.A.M.C., Col. J. M. Mitchell, O.B.E., I.M.S., Capt. L. Sefton, R.A.M.C., Surg. Lieut. D. R. Syred, R.N.V.R.; Surg. Lieut. J. C. Wyatt, R.N.

Missing.—Capt. J. A. Perkins, R.A.M.C.

Medical News

Sir Hugh Lett will deliver the Thomas Vicary Lecture at the Royal College of Surgeons of England, Lincoln's Inn Fields, W.C., on Friday, April 2, at 4 o'clock. His subject is "Anatomy at the Barber-Surgeons' Hall."

The Council of Epsom College will in July award a France Pension of £30 a year to a necessitous medical man, fully 55 years of age, who has been registered for five years, and who is in need of help. The Council will also award St. Anne's Scholarships to girls attending Church of England schools, who must be fully 9 years of age and be orphan daughters of medical men who have been in independent practice in England or Wales for not less than five years. The value of each scholarship is dependent upon the means of the applicant and the locality and fees of the school selected. Educational grants will also be available from the Sherman Bigg Fund for children of either sex. These are not restricted to orphans or to members of any religious denomination, but candidates must be of public school age and in need of such help. Forms of application for the vacant pension and for the scholarships and grants can be had from the Secretary's Office, Epsom College, Surrey, and must be completed and returned by April 30.

A postgraduate lecture and demonstration on living models of clinically approved means of contraception will be held at the C.B.C. Mothers' Clinic, 108, Whitfield Street, W.1, on April 1 at 2.30 p.m. Applications to attend should be sent to the secretary beforehand.

At a recent meeting of the Central Midwives Board for Scotland Prof. R. W. Johnstone and Prof. James Hendry were elected chairman and deputy chairman respectively for the ensuing year.

Surg. Rear-Admiral C. P. G. Wakeley will give a lecture on "Blast Injuries in Total War" at Chichester County Hall on Thursday, April 1, at 2.30 p.m.

Air Commodore Geoffrey Keynes, R.A.F.V.R., will give a discourse on "The History of Blood Transfusion" at the Royal Institution, 21, Albemarle Street, W., on Friday, April 9, at 5 p.m.

The annual general meeting of the Institute of Hospital Almoners will be held at St. Ermin's Restaurant, Caxton Street, St. James's Park, S.W., to-day (Friday, March 26) at 6 p.m., when Prof. James Mackintosh will give an address.

A conference on education, arranged by the Association of University Professors and Lecturers of Allied Countries in Great Britain, will be held at the Royal Institution, 21, Albemarle Street, London, W.1, on April 10. The two subjects for discussion will be the function of a university in a modern community and methods of practical co-operation between Allied universities in the future. Tickets of admission may be obtained from the conference secretary, 40, Queen's Gate, S.W.7.

Miniature mass radiography units are to be set up in Edinburgh, Glasgow, and Lanarkshire. Mr. Tom Johnston, announcing this decision, also stated that the scheme providing allowances for dependants of patients undergoing treatment for tuberculosis was nearly complete. Maintenance payments would include sums for dependent children according to age and payments to meet such special items as high rents, insurance, mortgage charges, etc. The scheme might have to be reviewed in the light of plans arising out of the Beveridge report or out of any general arrangements for rehabilitation.

Proposals for the establishment of a department of neurology in association with Manchester University are being submitted to the Nuffield Trust by the Provincial Hospitals Regionalization Council at Manchester.

Mr. G. W. Blomfield, F.R.C.S., has been appointed director of the Radium Centre, Sheffield.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* a rise in the incidence of whooping-cough, 90 cases, and of acute pneumonia, 77 cases, and decreases in the notifications of measles, 682, and dysentery, 28, were the chief features of the returns during the week. The fall in the notifications of measles was largely due to experience in the North. The largest decreases were those of Yorks North Riding 361, Yorks West Riding 277, Durham 232, Lancashire 184, and Yorks East Riding 149. In the South with a few exceptions the incidence continued to rise, the most notable increases being Essex 157, Gloucestershire 135, Devonshire 85, Sussex 82, Berkshire 73, and London 60.

There were 79 deaths from influenza in the 126 great towns. This is the third consecutive week that a fall has been recorded, and it seems that the danger of a possible large epidemic has passed. During the first nine weeks of this year 887 deaths were recorded in the great towns, compared with 644, 1,683, 3,489, 2,053, 559, and 6,679 for the corresponding period of the six preceding years.

During the week 68 cases of dysentery were reported, 28 fewer than in the preceding week and the lowest weekly total for the past six months. Lancashire with 18 cases and London with 12 accounted for almost half the total notifications. The only other notable local fluctuations in the incidence of infectious diseases were for pneumonia, rises of 45 and 40 being recorded in Durham and Wales respectively, and a fall of 78 in Yorks West Riding. In London there was an increase of 52 in the notifications of whooping-cough.

In *Scotland* there was a sharp rise—from 10 to 22—in the number of cases of cerebrospinal fever in the city of Glasgow. The increase in the notifications of dysentery was due to the experience of the city of Aberdeen, where 12 cases were reported; 11 were recorded in Glasgow, and the two cities together accounted for two-thirds of the total. There was another small rise in the incidence of measles in Glasgow, where 317 of the 477 notifications were recorded.

In *Eire* the chief feature was a decrease of 23 in the notifications of diphtheria.

The Week Ending March 13

The returns of infectious diseases in England and Wales during the week included: scarlet fever 1,907, whooping-cough 1,864, diphtheria 794, measles 19,799, acute pneumonia 1,315, cerebrospinal fever 86, dysentery 78, paratyphoid 4, typhoid 4. Deaths from influenza in the great towns numbered 69.

No. 9

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended March 6.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	91	6	39	4	5	218	12	41	8	8
Deaths		1	1				1	3		
Diphtheria	827	46	215	103	32	876	32	183	60	22
Deaths ..	15	—	4	1	1	19	—	6	4	—
Dysentery	68	12	38	1	—	120	20	26	1	—
Deaths	—	—	—	—	—		1	—	—	—
Encephalitis lethargica, acute	1	—	—	—	—	8	—	—	1	—
Deaths		—	—				—	—		
Erysipelas			70	7	1			51	9	1
Deaths		—	—				—	—		
Infective enteritis or diarrhoea under 2 years				24						
Deaths	48	8	4	14	2	38	4	8	11	1
Measles	19,200	1,421	477	11	45	2,550	213	200	138	47
Deaths	22	3	—	—	1	1	1	1	2	—
Ophthalmia neonatorum	103	4	25		2	9	4	16		—
Deaths										
Paratyphoid fever ..	7	—	—	1	—	12	1	2	—	
Deaths ..	—	—	—	—	—	—	—	2	—	
Pneumonia, influenzal*	1,450	72	26	14	9	1,276	62	19	4	14
Deaths (from influenza) ..	79	8	8	—	2	62	10	6	1	—
Pneumonia, primary .			411	19				328	22	
Deaths		—		12	15		62		17	15
Polio-encephalitis, acute	2	—				2	—			
Deaths ..		—					—			
Poliomyelitis, acute ..	4	1	1	2	—	3	—	1	1	—
Deaths		—	—				—	—		
Puerperal fever .	—	6	17	3	—	1	1	7	2	—
Deaths		1					—			
Puerperal pyrexia ..	179	14	16		1	197	16	10		—
Deaths										
Relapsing fever ..	—	—			2	—	—			—
Deaths										
Scarlet fever ..	1,928	148	268	49	50	1,231	34	166	46	17
Deaths .. .	1	—	—	—	—	—	—	—	1	—
Small-pox	—	—	—		—	—	—		—	—
Deaths .. .	—	—	—	—	—	—	—	—	—	—
Typhoid fever† .	2	—	4	20	3	10	1	—	9	—
Deaths	2	1	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—			—	—	—
Whooping-cough ..	1,876	197	176	35	19	1,290	164	45	24	6
Deaths .	9	2	2	3	—	8	2	—	—	3
Deaths (0–1 year) .	412	42	69	47	34	430	52	79	43	20
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	4,948	773	609	232	148	6,049	883	768	294	167
Annual death rate (per 1,000 persons living)			13·7	15·3	‡			17·3	19·6	‡
Live births .. .	6,489	793	851	445	250	5,196	529	760	312	214
Annual rate per 1,000 persons living			17·4	29·3	‡			15·7	20·8	‡
Stillbirths	215	14	25			254	37	42		
Rate per 1,000 total births (including stillborn) ..			29					52		

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes paratyphoid A and B for Northern Ireland.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

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ANY QUESTIONS?

Iron in Diet or as Drug

Q.—*If hypochromic anaemia is said to result from deficiency of iron in the diet, how is it that an increase in dietetic iron makes no improvement in hypochromic anaemia?*

A.—It is difficult to give much more than maintenance requirements of iron by diet alone. In hypochromic anaemia the marrow is abnormal and often requires stimulation by a large dose of iron before it will respond. This has been called the "threshold phenomenon"

Cramp in an Elderly Woman

Q.—*What is the cause of cramp in elderly women? What is the best way to prevent them and to relieve them?*

A.—Varicose veins, arteriosclerosis, and diabetes are probably the commonest causes of cramp in elderly women. Treatment is primarily of the causative condition. Relief may be obtained from warm leg baths twice daily, nicotinic acid 50 mg daily, and resting with the feet up.

Enterospasm and Spastic Colitis

Q.—*I would be grateful for suggestions in treatment of a case of severe and frequent enterospasm in a man of 50 who is also suffering from rheumatoid arthritis. He has had every sort of orthodox and unorthodox treatment for the latter, which is thought to be allergic and not infective in origin. For the enterospasm he has had belladonna and atropine in all forms, and ephedrine. He has had wash-outs. It would be very difficult to arrange for psychological treatment.*

Q.—*There is an increasing tendency nowadays to classify "spastic colitis" as an allergic disease. Is there any evidence as to the nature of the allergen, and is it possible to desensitize a patient, as in asthma? Apart from this, what is the best treatment, and what advice should one give a patient with regard to war work?*

A.—Enterospasm is never a primary condition. Its treatment therefore depends upon the discovery and removal of the cause Atropine before meals in maximal dosage for the individual, with codeine if there is diarrhoea, relieves the discomfort and pain. The causes of enterospasm can be summarized as follows:

1. Acute intestinal irritation with or without actual enteritis and/or colitis (*a*) Food poisoning. (*b*) Excess raw fruit, especially unripe, or raw vegetables, especially wartime salads of vegetables not commonly eaten raw.
2. Abuse of purgatives: extremely common.
3. Intestinal carbohydrate dyspepsia: very common. Associated with distension of colon and excessive flatus, the passage of which gives relief. Treatment by restriction of potatoes and other root vegetables, and rice.
4. Excessive smoking.
5. Allergy: recurrent very short attacks of pain which may be associated with diarrhoea, vomiting, rhinorrhoea, or urticaria.
6. Lead poisoning
7. A rare form of tabetic crisis.
8. Organic disease of colon. (*a*) Colitis; always diarrhoea with mucus and generally blood in stools. (*b*) Diverticulitis; pain and tenderness, especially left iliac fossa; normal stools. (*c*) Carcinoma.

There is no such clinical entity as "spastic colitis." True colitis is always associated with spasm; it is primarily infective, occasionally toxic, and never allergic Spastic colitis is sometimes used as a synonym for "muco-membranous colic" which has become very rare in recent years. This too is not a colitis, as sigmoidoscopy shows a healthy mucosa and the mucous shreds and casts contain no inflammatory material. It is a form of colon spasm occurring in nervous individuals, generally women, and associated with excessive secretion of mucus. It is always accompanied by constipation, which should be treated with paraffin and isogel but no aperients or enemas. In rare instances it is caused by specific foods and may then be allergic; such foods should be avoided, but desensitization is useless. The more war work the patient does the better, as it helps him to become less bowel-conscious.

LETTERS, NOTES, ETC.

Double Beds and Scabies

Dr. FREWEN MOOR (Norwich) writes: A few months ago I pointed out that the spread of scabies was largely due to the use of double beds, and that the almost complete immunity of the rich was due to their use of single beds for children and unmarried adults. Scabies is only an extreme case of the general law that infectious and contagious diseases are disseminated by close and prolonged contact. Who in his senses would share a bed with a person suffering from influenza or even a cold in the head, unless he definitely wanted to catch it? And yet that is done as a matter of course in the great majority of English homes. After the war there will be an enormous demand for furniture to replace what has been destroyed and for the setting up of new homes, and now is the time to launch propaganda for single beds. Of course these will cost more, but people might be persuaded to go to the extra expense if the advantages were pointed out to them in good time. I do not know whether the houses built by the public authorities always have bedrooms big enough to take two or three single beds instead of a double one, but this is a matter to be considered when new houses are being planned. A lot of attention is paid to conditions in factories, but unsatisfactory hygiene in the home has hardly been touched, although it is really more important. We doctors are too much inclined to accept existing conditions and to treat the results. Now is a favourable opportunity, unlikely to recur, to change one bad old custom.

Nasal Defence

Dr. ALEXANDER FRANCIS (London, W 1) writes: Dr. Octavia Lewin (Feb. 6, p. 178) is right in thinking that the nose supplies one of Nature's most important lines of defence, but wrong, I maintain, in regretting that coupons are now necessary for handkerchiefs. There is nothing, except the local application of preparations containing adrenaline and ephedrine to the nasal mucous membrane, which does more damage to the proper functioning of the nose than frequent nose-blowing. Resistance to catching cold depends chiefly upon active circulation. Nose-blowing interferes seriously with the proper circulation in the nose; it drives the blood into the turbinated bodies, causing nasal obstruction and increased secretion, thereby providing a good example of a vicious circle: the more one blows the more the secretion, the more the secretion the more one blows. Anyone can produce a condition of nasal obstruction and catarrh by sufficient nose-blowing, whereas nasal obstruction, if not too well established, and hypersecretion can be removed by deep nasal inspirations, which draw the blood away from the mucosa and promote a more active circulation. To teach children to blow their noses constantly is a most harmful practice, as it leads to the engorgement of the turbinated bodies, to increased nasal secretion, and to the development of adenoids.

Filaria Worm in Eye

Dr. ANDREW SIMPSON (Hawick) writes: I was interested in the accounts by Squad. Leader M. C. T. Reilly and Dr. C. R. Duncan Leeds of the removal of filaria from the eye. I have had to remove a worm from a patient's eye on three occasions, the last being a few weeks ago. She was in Nigeria for some time, but left there 5 years ago, and says that she left the infective area 7 years ago. She had no trouble until 1939, when, following swellings in various parts of the body, she appeared with a worm wriggling in the subconjunctival tissue. On each of the occasions it was about 5 a.m., and I found that the application of tropocaine (Waite), while anaesthetizing the eye completely, had no effect on the worm. A straight needle held in artery forceps was used to pierce the conjunctiva about the centre of the worm, and, impaling it, to withdraw it through the incision. The patient tells me that her husband has had them removed from his eye with darning needles, and certainly this method seemed very easy Perhaps I was lucky that on each occasion the worm was so accessible. It was about 35 mm. long each time and a *Loa loa.* The time factor seems to bear out a longer stay in the body than is usually held as its life, while there are continuing small swellings in this case in the breast and particularly the legs.

Nocturnal Cramp

Dr. LIONEL J. PICTON writes: The old "sovran remedy," one-tenth of a grain of calomel at bed-time, should not be forgotten. It may be guaranteed to obviate the cramp from the second night of its use. How it acts I know not; but at a guess it may be a catalyst.

BRITISH MEDICAL JOURNAL

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ASTHMA IN CHILDHOOD*

BY

Sir ARTHUR HURST, M.A., D.M., F.R.C.P.

Consulting Physician to Guy's Hospital, and Chairman of the Medical Advisory Committee, Asthma Research Council

"I have suffered under the Tyranny of the Asthma, at least, Thirty years; and therefore I think myself to be fully informed in the History of that Disease; And since I have practised Physick, I have made many Trials for the Relieving and Preventing of the Fits; and out of Compassion to those Miserable Patients, I design to relate what I have found useful both to my self and others." Thus wrote Sir John Floyer in his *Treatise on Asthma* in 1698. Floyer's patient, Dr. Johnson, relates how he "panted on" till his death at the age of 83, thirty-six years later. Though my experience of asthma extends over only forty-eight years, compared with Floyer's total of sixty-six, it is perhaps this rather extensive experience which prompted your President to invite me to open to-day's discussion.

The Asthma Diathesis

Many years ago I defined asthma as the reaction of an over-excitable bronchial system, including the medullary centre, the vagal nerve-endings, and the bronchial musculature and mucosa, to blood-borne irritants and to reflex and psychical stimuli, and I see no reason for altering that definition. The irritable bronchial system, which constitutes the asthma diathesis, is a congenital and often inherited constitutional abnormality. It results in the vagal constituent of the bronchial nervous system being predominant over its sympathetic partner. In the presence of this diathesis certain allergens and reflex and psychical stimuli, which have no effect on normal individuals, give rise to spasm of the bronchial muscles, often associated with hyper-secretion of the bronchial mucous glands, together with congestion of the bronchi, which is the natural accompaniment of their excessive functional activity. Associated with the physical side of the asthma diathesis there is probably a psychological side, which manifests itself in a special type of personality. It is extremely difficult to decide how much of the "asthma personality" is a result of over-protection by too anxious parents—the great importance of which I first learnt from Dr. H. C. Cameron—and how much is constitutional. Rogerson (1937) has, however, given good reasons for believing that there is a constitutional element, which manifests itself in intelligence above the average, over-anxiety, and lack of self-confidence. At the same time the asthmatic child is often aggressive and dominating.

The constitutional factor in asthma shows remarkable variations at different times. A patient may be almost constantly asthmatic for weeks together and then have a period of complete freedom, when he can expose himself with impunity to all the allergens to which he is usually sensitive, eat big meals just before bedtime, take unlimited exercise, and face psychological difficulties which on other occasions would cause severe attacks. It is often impossible to recognize what leads to these periods in which the bronchial system appears to have lost its irritability. But there is no doubt that the more completely attacks are prevented by removing all known exciting causes the less irritable does the bronchial system become. One might be tempted to believe that the cure of asthma is not to have it; but unfortunately this is not true, as even after long periods of freedom the diathesis is still present and the asthma may recur. It is, however, a fact that if a child can be kept completely free from asthma for a couple of years he is quite likely to remain free for the rest of his life.

Biochemical Causes: Allergy

In recent years so much attention has been directed to the question of hypersensitiveness to proteins and other chemical substances in asthma that there has been a tendency to regard "allergy" as the one essential factor. The truth is, however, that an individual who is hypersensitive to one or more proteins does not suffer from asthma unless he has the asthma diathesis. In its absence he may have hay-fever, various cutaneous disorders, or gastro-intestinal attacks if his nose, skin, or alimentary canal respectively is hypersensitive, or he may have no resulting symptoms of any kind. There is no doubt, too, that many asthmatics are not allergic at all, their attacks being caused only by reflex and psychical stimuli. It is none the less of the greatest importance to give every asthmatic an exhaustive cross-examination with the object of discovering whether any or all of his attacks are due to his being allergic to some food, animal emanation, pollen, dust in his home or working place, or orris-root powder. Hyde Salter described in the second edition of his admirable monograph on asthma, published in 1868, how his detective work had demonstrated the asthma-producing influence of cats, horses, feathers, guinea-pigs, rabbits, sheep, deer, hares, and cattle in some of his patients.

When I was in America in 1919 I visited Chandler Walker, as I had been told that he had devised a method of recognizing the allergens to which an asthmatic was sensitive by means of skin reactions, and it was hoped that this would revolutionize the treatment of asthma. (The method was, however, not really new, as Blackley had applied pollen to the forearm "after the skin was abraded as in the ordinary mode of vaccination" in cases of hay-fever and hay-asthma in 1865, and it had also been tried in hay-fever by Noon and Freeman.) Walker demonstrated his methods and gave me a collection of allergen solutions, most of which were the first of the kind to be used in England. In the last twenty-three years I have had an extensive experience of the skin tests, which have been applied by various experts but never by myself. The results have been profoundly disappointing, as with two or three exceptions they have never revealed an allergen responsible for a patient's asthma that had not already been recognized by careful cross-examination. On the other hand, on several occasions I have been told that a positive reaction was obtained with a food which the patient rarely or never ate or with the emanation of an animal or a pollen with which he never came into contact, and in other cases no reaction was obtained with an allergen to which the patient was proved to be sensitive.

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* The opening address in a discussion in the Section for the Study of Disease in Children at the Royal Society of Medicine, Nov. 27, 1942.

Reflex Causes

The respiratory tract is the main reflex source of asthma. When a child with a narrow nasal airway lies down at night the passive congestion of the cavernous tissue of his turbinals may be sufficient to bring them into contact with the irritable mucosa of the septum and thus give rise to reflex bronchial spasm. The narrow airway may be congenital, or the result of an injury or of chronic infection which leads to permanent congestion of the mucous membrane and the development of polypi. Intermittent congestion is also a common reaction to the inhalation of allergens. Suitable treatment, with a minimum of surgery, may prove very beneficial, and no asthmatic child should be allowed to remain a mouth-breather.

In many cases the first attack of asthma in a child is the direct sequel of an acute bronchial infection, and subsequently all or the majority of attacks may follow a cold or bronchitis, to which some asthmatic children are especially liable. The infection may act in two ways. It may lead to a temporary increased permeability of the nasal or bronchial mucous membrane, which allows access to the blood of an effective dose of an allergen, such as that in feathers, with which the child can come into contact at ordinary times with impunity. The extremely irritable condition of the inflamed bronchial mucosa in acute bronchitis may also lead to bronchial spasm by a short or long vagal reflex. There is no evidence that a patient is ever allergic to the toxins of the infecting organism. It is consequently not surprising that by using adequate controls Knott demonstrated that autogenous vaccination has no direct effect on asthma. When, however, asthma is secondary to chronic respiratory tract infections in patients over 35, short courses of prophylactic inoculations in the spring and autumn often appear to reduce the liability to infection and to the resulting asthma.

A distended stomach and a distended rectum may both produce reflex attacks of asthma, which is never caused by alimentary toxaemia. Evacuation of the stomach by vomiting and of the rectum by a well-conditioned defaecation reflex without the use of drugs or enemas gives immediate relief, which could not have happened if the asthma had been the result of alimentary toxaemia—the so-called, but mythical, "asthma toxicosis," about which several monographs have been written.

Psychological Causes

The most common psychological exciting cause in asthma is expectation, the effect of which Bree recognized in his own case as long ago as 1797. An asthmatic who has been accustomed to having attacks in certain places or under certain conditions is very likely to continue to do so when the original allergic or reflex causes have ceased to be operative. Frequent repetitions result in a well-established conditioned reflex. Thus an attack caused by pollen or food during a visit to a certain town may produce reflex asthma conditioned to the town even at a time when neither the pollen nor the food is in season. Certain emotions may also give rise to attacks, as Floyer pointed out 200 years ago. Of these, annoyance—often manifested as outbursts of temper—excitement, and anxiety are the most common. A frequent cause of temper is the strict diet imposed upon a child on account of positive skin reactions to certain foods. It is too much to expect a small boy not to feel resentful on being forbidden to eat a favourite food when he sees his brother and sister and friends enjoying it. It is far better to send him away from home to surroundings in which he can eat everything with impunity than to remain at home, where he comes to regard himself as differing in some strange way from other boys and girls. Laennec told how fright led to an attack in a patient of his when his night-light went out, corresponding with the patient of to-day who becomes severely asthmatic if he breaks his syringe or finds that he has left his adrenaline at home.

The bad influence of the home on many asthmatic children is to a great extent a reflection of their parents' anxiety. It is the psychological rather than the allergic atmosphere from which they need to be removed. Confirmation of this is provided by the frequency with which an attack follows the first visit of his parents to a child who has been moved to new surroundings. Except for encouragement and simple explanatory talks for older children direct psychotherapy is rarely required, but it is always important to teach the parents of asthmatic children the proper attitude they should adopt towards them. The first essential is to hide completely any anxiety they may feel. A spirit of optimism should be instilled into both the patient and his parents, and they should be made to realize that improvement is likely to occur before long and that conditions which have hitherto given rise to asthma may at any time cease to do so. The child should not be pampered, but be encouraged to lead as normal a life as possible. He should be kept in bed for bronchitis but not for asthma. He should be sent to a boarding school at as early an age as possible.

Asthma Treatments

In 1902 a specialist from over-seas, having cured 347 of his 402 asthmatic patients by cauterizing what he regarded as an asthmogenic point on their nasal septa, settled in London. He was at first successful with the 80% of his cases with normal-looking noses, the remaining 20% being the unhappy people with abnormal noses, often in part the result of surgery. Forty years have passed since then, and this method of treatment is almost forgotten, having given place in succession to at least a dozen other specific treatments, each with its 70 or 80% of cures. The inventor of one of these—inoculation with an albumose isolated from the urine—told the secretary of the Asthma Research Council that it was unnecessary to collect any more funds, as the asthma problem had at last been solved! A Leyden professor cured 80% of 800 patients by putting them in air-conditioned rooms, in which cacti were the only plants that could live and in which cut flowers faded within an hour. "The efficient treatment of asthma is impossible," he wrote, "without employing an allergen-proof chamber." I arrived at an Amsterdam hotel the same day as another asthmatic from England entered his clinic. I lost my asthma the same night after a good dinner and a visit to a music-hall, whilst he took several days to lose his in a stuffy but air-conditioned bedroom. A couple of years after the inventor's death the tall chimneys of the allergen-free houses, which had given the distant view of Leyden a unique appearance, had all disappeared.

A few years ago many rooms in England were adapted at considerable cost for a new form of inhalation therapy, which was introduced by an unqualified practitioner and boosted by a film star and a number of medical men. Later the inventor had to leave the country, and so far as I know all the installations are now derelict.

Treatment by specific desensitization has had a more widespread and lasting popularity than any of the earlier forms of specific treatment. Investigations, begun by E. T. Conybeare and Witts (1935) and continued by Boland and Lintott (Boland 1938; Boland and Lintott, 1939) at the Guy's Asthma Clinic, have shown that *improvement occurred in the same percentage of cases treated with injections of normal saline solution as with injections of specific allergens.* In a later series, in which paroxysmal rhinorrhoea was the most prominent symptom, Boland and Lintott found that desensitization with inhalant protein had no greater beneficial effect than normal saline solution given with the same ceremony.

Non-specific protein injections in the form of peptone, tuberculin, sanocrysin, or the patient's own blood gave equally good results in the hands of those who believed in them, no doubt because the suggestive effect is the same whatever the nature of the injection.

With an experience of 2,000 cases spread over a period of forty years James Adam of Glasgow claimed to get excellent results from a special diet combined with nasal treatment. The diet, which he described in great detail in his monographs on asthma (1913, 1939), was one which he believed prevented "toxicosis" and did not depend in any way upon the avoidance of foods to which the patient might be found to be allergic.

Before the war every good Frenchman who suffered from asthma took his annual holiday at Mont Dore, *le providence* *des asthmatiques*, and every good German asthmatic took his at Bad Reichenhall. My own experience at these resorts convinced me that they acted entirely by suggestion. At Mont Dore one drank the water, inhaled its vapour, and, to make doubly sure, had a daily foot-bath in it. My first visit I enjoyed, and it did me good. My second visit I went without my wife and I hated it; it made me worse, but I got quickly well when I joined her in Paris. The psychological atmosphere at Bad Reichenhall was so unpleasant that I did not cease being asthmatic till I left for Pontresina, where I was at once able to walk and climb all day with complete comfort.

All these forms of treatment produce approximately the same percentage of temporary "cures." They are so diverse in nature that the only thing they have in common is the faith their exponents have in them, a faith which is transferred by suggestion to the patient with sufficient strength to be successful in about 75% of cases. Unfortunately the asthma diathesis remains unaffected, so that recurrence is just as frequent as after spontaneous remissions.

Treatment

The Asthmatic Thorax and Expiratory Exercises.—In an attack of asthma the obstruction caused by the spasm of the bronchioles is diminished by the rise in the negative pressure in the thorax caused by the forced inspiration and increased during the forced expiration by the conversion of the negative into a positive pressure. This explains why asthma differs from all other forms of dyspnoea in being mainly expiratory. The lungs at once become distended to the utmost, and only very limited deflation is possible. Swift relates how a farmer of his friend Anthony Henley, "suffering of an asthma, said, 'Well, if I can get this Breath once *out*, I'll take care it shall never get in again.'" If the attacks are frequently repeated or prolonged the thoracic muscles assume a new postural tone, so that even when the attack has passed the lungs remain over-distended and the characteristic big chest, hunched shoulders, and wide epigastric angle of the chronic asthmatic persist. The respiratory excursion is much reduced and the child is unable to take exercise without dyspnoea. This condition is often mistaken for emphysema, but in contrast with true emphysema it can be rapidly and completely cured by expiratory exercises, an excellent illustrated description of which has been edited by Dr. Livingstone for the Asthma Research Council. These exercises restore the normal postural tone of the thoracic muscles, so that the chest resumes its natural shape and the lungs their normal size, the respiratory excursion returns to normal, and the child is able to take vigorous exercise without distress. So long as any tendency to asthma persists, simple expiratory exercises should be carried out every morning and evening unless an attack is actually present, and any postural errors, especially habitual shrugging of the shoulders, should be corrected.

Exercise, Clothing, and Baths.—Expiratory exercises should not be regarded as a substitute for walking and open-air games but as a form of training. Nothing is more undesirable than prohibiting games. An asthmatic child should be taught to regard his asthma as an inconvenience and not a disease. It is almost always possible to find a school where he is free enough from attacks to be able to join in every kind of sport. Swimming is particularly beneficial. In peacetime, whenever possible, the Christmas holidays should be devoted to winter sports, and especially ski-ing. If exercise is found to cause shortness of breath, this can often be prevented by taking a small dose of ephedrine or theophylline half an hour earlier. The modern reforms in children's clothing are most welcome, and no boy or girl with an asthmatic tendency should be sent to a school where the ancient and unhealthy fashions are retained. Asthmatic children should be encouraged to have a cold bath every morning all the year round or at least a cold douche after a hot bath of very short duration. Bed is the worst place for an asthmatic in the daytime unless bronchitis is present, and even after a disturbed night it is best to have a cold bath and get up for breakfast, if necessary after a preliminary dose of ephedrine or theophylline.

The Allergic Factor.—In many cases it is possible to discover by a carefully taken history one or more allergens to which a patient is sensitive. These should be avoided as completely as possible, and it is probably always wise to substitute kapok for feather pillows and to use face-powders which do not contain orris-root. I regard an attempt at specific desensitization as justifiable only when a patient is sensitive to an allergen which it is impossible for him to avoid without grave inconvenience, and even then it is doubtful whether any good effect it may appear to have is not the result of suggestion. It is essential that this allergen should be used alone, even if, as is commonly the case, the patient is also sensitive to others. If it is only one ingredient of one of the pernicious mixed brews on the market it is impossible to increase the dose of the specific allergen sufficiently without causing an excessive reaction from the dust extract which they contain and which is poisonous for everybody.

Iodide.—Many asthmatic attacks end with the expectoration of tenacious mucus, but coughing always aggravates the dyspnoea. A small dose of iodide taken at night or night and morning makes the sputum more watery and much easier to expel. The patient should be taught to control his desire to cough; he will then be able to expectorate the mucus a few minutes later quietly and without effort. Stramonium is often prescribed with iodide, but the harm it does by counteracting the good effect of the iodide by drying the secretion and by upsetting the digestion more than outweighs any slight benefit which might follow its feeble antispasmodic action.

Caffeine and Theophylline.—Strong coffee has long been a popular remedy for mild asthmatic attacks, and for nearly forty years I have known how useful caffeine is in helping asthmatic patients to take exercise which would otherwise have been impossible. I have recently found theophylline monoethanolamine still more effective, and I regard its introduction by Lamson and Bacon (1941) of Los Angeles as one of the greatest boons to chronic asthmatics since the discovery of the effect of adrenaline in 1910 by Brian Melland of Bowdon. It is supplied in capsules under the trade name of theamin. The usual dose for adults is one or two 3-grain capsules, but in children 1 or 2 gr. is often sufficient. It is more effective than ephedrine and less likely to cause unpleasant symptoms. It often prevents the development of dyspnoea if taken before exercise, and prevents nocturnal attacks if taken on going to bed. Mild attacks in the daytime can be aborted if it is taken early enough, but, like ephedrine, it is useless for attacks of any severity.

Adrenaline.—With a good "adrenaline technique" it is always possible for a patient, however frequent and severe his attacks, to control them sufficiently to enable him to lead a life of moderate activity and to avoid becoming a hypochondriacal invalid. In exceptionally severe cases in adults it may even be necessary to give a dozen or more injections a day for long periods. But the patient is still able to carry on his business or profession, and if his technique is good enough he can continue to appear before the world as a fit man. I once taught the adrenaline technique to a surgeon who had decided to retire on account of severe asthma. The new regime made it possible for him to remain in full activity for nearly twenty years, when he died from an acute abdominal disorder. When old enough, the patient should be taught to inject the adrenaline himself at the first sign that an attack is developing: 1 to 4 minims is generally sufficient to abort it, though 5 minims or more would have been required to arrest it if he had waited for somebody to give him the injection when it was fully developed. The small dose produces none of the unpleasant symptoms often caused by large doses injected too rapidly; it leads to no rise of pulse rate or blood pressure. The frequency of injection is immaterial, as there is no cumulative action, but it is of course most important that the patient should not get into the habit of injecting adrenaline when it is not really required, or for mild dyspnoea in the daytime which could be controlled by ephedrine or theophylline. No asthmatic need ever have a bad night; he should sleep eight or nine hours even if he wakes four or five times with asthma, as prompt treatment will send him to sleep within five minutes.

The rare condition of status asthmaticus, in which severe asthma continues uninterruptedly for days or weeks and may end in fatal exhaustion, can almost invariably be arrested by the method of continuous adrenaline injection, which I introduced 18 years ago. The needle is kept in position, and after an initial injection of a dose which is known to cause no unpleasant symptoms, 1 minim is injected every 15, 30, or 60 seconds, according to the patient's reaction, the rate being adjusted so as to cause no unpleasant symptoms and no acceleration of the pulse. The injections are continued, if necessary, even for half an hour or more until relief occurs.

Conclusion

It may perhaps be thought that I have been too pessimistic about the treatment of asthma. But though I am no believer in "asthma cures," and though I regard most of the popular treatment to-day, like that of ten, twenty, and thirty years ago, as nothing more than gross suggestion, yet I know that every asthmatic can derive much benefit from good advice. He can be taught a way of life and, among other things, how to avoid the exciting causes of his particular brand of asthma, how to control attacks which he is unable to prevent, and above all how to be happy in spite of the bad luck of having been born with the asthma diathesis.

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PSYCHOLOGICAL FACTORS IN ASTHMA*

BY

C. H. ROGERSON, M.D.

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For some years, and especially at Guy's Hospital between 1933 and 1937, it was my privilege to study in considerable detail a series of children suffering from asthma. Many of these cases have presented in addition other manifestations of what has been termed the asthma–eczema prurigo complex. I have not been able to satisfy myself that any significant distinction could be made between children suffering from asthma alone and those showing skin symptoms; but to avoid any misapprehension I would like to make it clear that my cases included a rather high proportion of sufferers from eczema prurigo—many of them, indeed, came originally from the skin department.

Upon the basis of my work I wish to make certain observations concerning the causation and treatment of asthma. It has been a common experience of mine to find that in a case in which psychological factors were obviously prominent all physical measures had been exhausted before the patient was handed over to the psychiatrist as a last resort. No psychiatrist who had any experience of asthma would claim that physical treatment should be laid aside in favour of psychological treatment. He would, however, in every case feel strongly that psychological treatment should supplement physical treatment at the time when the latter treatment was being given and not as an afterthought. In the great majority of cases the psychological treatment ought not to be given by the psychiatrist at all, but by the physician in charge of the case, and should consist of an assessment of the total situation in which the illness is occurring, having regard to certain principles which I propose to lay down, followed by an attempt to bring correction to bear on those points where it is needed. In a minority of cases technical psychotherapy is required, and should be given along with the physical treatment.

Influence of the Parental Attitude

I will deal first with the psychological factors in the causation of asthma. There is in this disease among children one observation which we must all have made, and which stands out clearly in case after case—namely, that there is an unusual quality in the relations between the child and one or both of his parents. I shall here quote from observations of my own made in 1934 upon one of the earlier cases I was able to study intensively.

The patient, a boy aged 7, was referred to me because he suffered from the fully developed asthma–eczema prurigo complex. My notes contain the following description: "The child came into the out-patient department clinging to his mother and afraid to leave her side. He was pale and thin, with bright eyes and an anxious countenance. During the course of the interview he wheezed continually and scratched himself surreptitiously. When now and again his mother observed him in this latter practice, she appeared greatly distressed and stopped him momentarily. After numerous fruitless attempts to make him leave off she broke down and wept in a hopeless fashion. There was an air of tension in all her dealings with him, as if she was expecting that at any moment something unforeseen but altogether terrifying might happen to him. The child reflected perfectly the maternal over-anxiety. He described his symptoms in an adult manner, speaking in terms of irritation of his skin and a tightness in his chest."

It is merely necessary for me to add that he was an only son of good and conscientious parents, who regarded him as better than the other children in the neighbourhood, with whom he was not allowed to play.

This case must be typical of hundreds, and one's first reaction is to blame the mother for her over-protection and over-anxiety, and to demand that the child be given greater freedom and be allowed to play with other children. The results of such action often seem to justify the belief that parental over-anxiety is the chief psychological factor in the production of symptoms. In this particular case the line of treatment I have described was followed, in conjunction, of course, with such physical treatment as was deemed necessary. The result was remarkable: the timid over-anxious child became bold and aggressive; his asthma and his skin condition both died away.

Such a formulation as this, however, necessarily leaves one dissatisfied. We know that not every over-protected child develops asthma. Is the special parental attitude in these cases, then, of no particular significance—no more, in fact, than one would expect to observe in any sickly child? Or is there, on the contrary, some fundamental connecting link between the personality of the asthmatic child and the anxiety of his parents? These are questions to which I believe I can give a definite answer which also goes a long way towards correlating the psychological side of the asthma problem with the various physical facts known about it. For the sake of clarity I shall give my answer and then proceed to adduce the facts upon which it is based.

The Asthmatic Personality

In my experience the asthmatic child tends to be of a special personality type characterized in its purest form by the following features: (1) he has an intelligence much above the average; (2) he is irritable and aggressive, quick to respond; (3) he is over-anxious, insecure, un-selfconfident. As a result of his insecurity he often appears at first sight repressed and submissive, but even then there is generally an air of subdued tension about him, and, given an opportunity for freer and more confident self-expression, he becomes aggressive and domineering. He is, in fact, the type of child who makes more demands upon his parents, particularly his mother, than almost any other. He is an intelligent individual who twists her round his finger, aggressive enough to get his own way and anxious enough to demand her continual attention. Again and again I have seen children who subsequently developed asthma showing in their earlier years all these characteristics and developing with their distracted parents a relation exactly like that seen in the case of the full-blown asthmatic. To fulfil their own personality needs they both dominate and demand protection from their parents. The fulfilment of these exaggerated needs, however, leads them, as we all know, ultimately into a state of frustration which they cannot either tolerate or get away from; thus the typical relationship development—aided, of course, in many cases by maternal over-anxiety.

Now for the facts upon which I base my assertions concerning the asthmatic personality.

Intelligence.—I have records of the measurement of intelligence by trained psychologists of more than 50 of these children who attended the department of psychological medicine at Guy's Hospital. The average intelligence quotient was 108.8, as contrasted with an average of 90 for a comparable sample of the population attending the same department suffering from other conditions. This very great discrepancy is of course statistically significant and indicates a marked intellectual superiority of the asthmatic children over the general population. I do not assert that every asthmatic child is a genius, but the tendency towards high intelligence is very important. (I may add that I have never met with asthma in a mentally defective child. Others may have had this experience.)

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* A paper read on Nov. 27, 1942, at a meeting of the Section for the Study of Disease in Children, Royal Society of Medicine.

Other Personality Features.—Facts concerning personality apart from intelligence are very much harder to quote or put forward convincingly. I used two methods with a group of 30 of these children. First, I wrote down in full the description given by the parents in response to the question "What type of child is this?" Secondly, I arranged for an independent trained observer to watch a series of children, including these asthmatics, in a playroom and to record her impressions. The results were as follows: 23 out of 30 patients were described by parents as nervous; 22 as restless, active, excitable; 19 as irritable, aggressive, domineering; 21 as over-anxious, un-selfconfident, afraid. From a corresponding group of children referred to the department of psychological medicine for neurotic difficulties or behaviour disorders it was found that 6 were described as restless and excitable, 4 as aggressive and domineering, and 6 as over-anxious and afraid. These observations were fully confirmed by more detailed studies in children's play, which it would be inappropriate to quote here at length.

As already stated, these same personality features were so often observed by reliable witnesses before the development of the asthma that I am not prepared to believe them secondary to that condition. Indeed, the intelligence quotient stands out as a fact which cannot be explained away in any such fashion.

What is the Meaning of this Personality Type?

I believe this question has a simple answer. On the physical side one of the fundamental facts concerning the asthma-eczema prurigo subject is his abnormal sensitiveness and irritability. His skin, his mucous membranes, his smooth muscle, are all apt to react violently and excessively. I consider that his personality is nothing more than a psychological expression of those same traits. He is quick to react and highly irritable, and it is interesting that the word "irritable" should be used alike of a state of the mind and a state of the skin. He is literally more highly strung than his more, or possibly less, fortunate brethren.

The facts which the psychiatrist observes are corollaries of the facts which the physician studies. They are, to paraphrase Sherrington, two ways of one mind and body, and until we are prepared to accept them as such and to treat them simultaneously we shall not be doing all that is possible for the alleviation of the condition.

Relation between Psychological Difficulties and Asthma

Finally, a few observations concerning the relation between psychological difficulties which I have indicated and the actual phenomenon of an asthma attack. There are certain broad ways in which psychological conflict may be converted into physical symptoms:

1. The symptom may be symbolic of the nature of the conflict, as when, for example, a feeling of choking follows thoughts of drowning.
2. The symptom may be a sign but not a symbol of the nature of the conflict. This distinction, which is perhaps more familiar to philosophers than to physicians, is here very important. For example, palpitation and sweating may be a sign of anxiety; they are not, however, under most circumstances symbolic of the nature of the anxiety.
3. The symptom may be the result of a conditioned reflex.
4. The symptom may be teleologically determined—i.e., as a means of avoiding a difficulty or gaining an end.

I suppose that all these relations may exist in the case of asthma. Trousseau gave us a classic example of the conditioned reflex. Psycho-analytical literature affords us examples of the symbolic asthma attack—for instance, when the asthma attack is traced to an early repressed fear of suffocation. Such examples have, I fear, not always been very convincing. The teleological factor may play a part—some asthmatics certainly seem able to turn on an attack at a convenient moment—but it can seldom be of primary importance. In both these relations, the symbolic and the teleological, it is of course important to distinguish between true asthma and hysterical hyperpnoea. I doubt whether this distinction has always been drawn with sufficient care.

In the vast majority of cases the asthma attack is, I am sure, a sign of the conflict, its general resultant, in the same way that palpitations are the general result of fear. The important factor that in nearly every case appears to be the connecting link between the psychological conflict and the physical symptom is tension. From the psychological point of view the asthmatic stands tension very badly. When pent up, thwarted, or frustrated he develops asthma upon the slightest provocation. When free and relaxed he is able to stand far more harmful stimuli without developing an attack.

In describing the reaction between the asthmatic child and his parents I mentioned that he secured his immediate needs (i.e., domination of his parents and their constant attention) at the expense of his ultimate needs—that is, freedom of self-expression. The situation which he helps his parents to create is one in which tension is specially engendered. Of course parental difficulties are not the only problems of the asthmatic which create tension. In adults especially, failure of plans, quarrels, and frustrations of all kinds may give rise to the attack. One of the worst offenders is the asthma itself, which interferes with the self-expression of the sufferer and so creates a vicious circle in which the more severe the asthma the greater the frustration. This seems to be the reason why so many patients have found that it was necessary for them to continue their normal lives at all costs, regardless of asthma attacks, otherwise they became much worse. With increased tension comes also increased anxiety, and therefore increased feeling of insecurity. The improvement that follows some line of physical treatment confidently adopted may often be attributed to the feeling of confidence which it produces.

The psychological factors I have described are capable by themselves of producing an attack. Often, however, they provide a background, augmenting and reinforcing the more obvious physical features. Trousseau gives an example of this when he quotes his own experience to the effect that the combination of stable dust and rage at a cheating coachman produced one of the worst asthma attacks of his lifetime. There are more subtle examples too. I have on at least three occasions observed children who were definitely sensitized to one or other of the common forms of foodstuff and who developed asthma in their home surroundings on exposure to these foods and yet ate them with impunity in the freedom of a convalescent home.

I would say, therefore, that one of the most important but least appreciated roles of the psychological factor in asthma is to render the organism more sensitive to the operation of the physical factors, whatever they may be, which produce the attack.

Conclusion

Having formulated these general principles the treatment would appear clear enough. In many cases the person best able to modify and direct the child's personality development is the child's own parent, and the physician's role should be that of guide to the parents, and often their supporter, in their efforts to follow his instructions. He should bear in mind that the relationship which he observes may not be entirely the fault of the parents, who are often not such fools as they may appear. Where the child's personality is very difficult psychiatric help may be required in modification, but the psychological problem is usually best dealt with by the physician who is looking after the case and who is in control of all the remedial agents. I do not believe there is any doubt that psychological treatment of the kind I have described can play a very important part in moderating the symptoms.

Perhaps I may fittingly conclude with the remark of the mother of the child whose case I described at the beginning, who said after a period of guidance: "He used always to cling to me and wheeze so dreadfully; but now I have made him stand on his own bottom, and he does not have asthma any more."

Much of the work upon which these observations are based was carried out at Guy's Hospital under the direction of Dr. R. D. Gillespie and with the aid of the Rockefeller Foundation. I am greatly indebted to both.

THE TREATMENT OF BURNS

BY

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This paper describes the methods of treatment used for cases of burns admitted to the Accident Service of the Radcliffe Infirmary. On account of its importance the treatment of burns of the hands is given in some detail.

Principles of Treatment

Burns are wounds with special characteristics. The treatment of each should be governed by the same principles, which may be defined as follows:

1. *Time.*—The injury must be treated at the earliest opportunity.

2. *Cleaning.*—The lesion and its surroundings must be thoroughly cleaned without further injury to the tissues.

3. *Excision of Dead Tissues.*—This is the most important step in the successful treatment of all wounds. Unfortunately the size and situation of burns, together with the difficulty of distinguishing dead from living tissue, render the complete excision of all devitalized tissue impossible in the majority of cases.

4. *Drainage.*—No provision for drainage need be made. The aim of treatment is to keep the burned area as dry as possible. Natural drainage may be hindered by the superimposition of an impermeable coagulum, such as that produced by tannic acid and similar agents.

5. *Rest.*—Damage to the growing tissues partaking in the repair of the lesion is avoided by keeping the part at rest. Rest is the most effective means of abolishing pain and the accompanying muscular spasm. Infrequent dressings minimize injury to tissues growing on the surface.

6. *Prevention of Oedema.*—Oedema should be prevented by the application of firm pressure (Siler and Reid, 1942) or, when a limb is involved, by elevation of the limb. Fluid leaving the damaged capillaries round a wound forms the exudate which escapes from the raw surface, and the growth of organisms is favoured by the excessive moisture. At the same time, fluid escaping into the tissues is removed by the lymph stream. Therefore, movement of an oedematous part carries with it a greater risk of sweeping bacteria and their toxins into the general circulation (Barnes and Trueta, 1941).

7. *Replacement of Lost Skin.*—Where the full thickness of the skin has been destroyed it should be replaced at the earliest opportunity by means of skin grafts.

Technique of Treatment

On admission of the patient to hospital a rapid examination of the burns is carried out. Morphine (1/4 gr. for an adult) is given, and the patient made comfortable in bed. When the burns exceed 10 to 20% of the body surface, and shock is likely to develop, a transfusion of human serum is immediately started. Serum is preferred to plasma because of its higher protein content. The pulse rate and blood pressure are recorded at intervals of 15 to 30 minutes, and the haemoglobin estimated. In the initial stages no attempt is made to calculate the total fluid requirements on the basis of a single determination of the haemoglobin. Such calculations are misleading, because fluid continues to escape from the blood during the first 48 hours. Thus the haemoconcentration may actually increase while fluid is being administered (Fig. 1). The rate and amount of the transfusion are controlled by the blood pressure. The cessation of transudation from the capillaries, and of the need for transfusion, is shown by the return of the haemoglobin to approximately normal levels.

As soon as the patient is under the influence of morphine he is transferred to the operating theatre. Originally a general anaesthetic was administered in order to clean the burns, but it has been found possible to carry this out, both in adults and in small children, under the influence of morphine alone. Special gentleness is necessary when cleaning the palms of the hands and the edges of the burn, because these are the most sensitive parts. The burns are cleaned with soap and water, or with some more powerful antiseptic detergent—e.g., cetyl-trimethyl-ammonium-bromide (C.T.A.B.) (Barnes, 1942). In order to ascertain the percentage of cases that were infected before admission to hospital bacteriological examination was carried out on swabs from the untreated surface of burns admitted within 48 hours of the accident. In an unselected group of 52 major and minor burns pathogenic organisms were isolated on seven occasions (haemolytic streptococci, 2; *Staphylococcus aureus*, 5). It is clear, therefore, that the majority of cases that become infected do so only after admission to hospital. This is due to exposure to infection from the nose, throat, and, in particular, hands of nurses and doctors, and possibly from infected bedclothes.

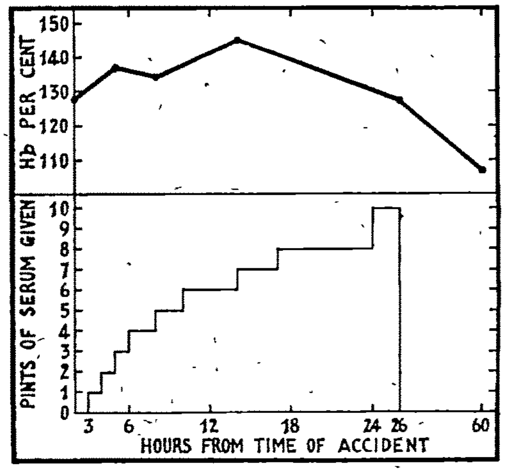

FIG. 1.—Records from a severe case of burns, showing rise of value of haemoglobin during course of serum transfusion. The patient was a man aged 32 with extensive burns of body and arms.

During the cleaning all loose epidermis is removed, and blisters are either excised or punctured and pressed down on the raw surface. A final washing with soap and water is given, and the surface lightly dried. A single layer of fine-mesh good-quality bandage, which may be either dry or impregnated with vaseline, is applied. On the whole I prefer the dry bandage.

For the limbs, including the hands, complete immobilization is secured by enclosing them in plaster-of-Paris casts applied directly over the gauze. The hand is placed in the "position of function"—i.e., slight dorsiflexion of the wrist, 60 degrees flexion of the metacarpo-phalangeal joints, 45 degrees flexion of the interphalangeal joints, and with the thumb opposed to the index finger. In such a position maximal relaxation of the long muscles of the fingers is obtained. If the burn is deep, or if it extends above the level of the wrist, the elbow is immobilized. The olecranon and epicondyles are padded, and the joint is fixed in a slightly flexed position (120 degrees), with the forearm semi-pronated. A thick pad of wool is placed round the arm at the upper level of the cast in order to fill the gap that will otherwise inevitably appear between the limb and the plaster during the first few days. The cast is made with a long slab of plaster laid over the back of the forearm, moulded over the fingers, and carried up the front of the forearm. The cast is completed by one or two plaster bandages, and a small loop is made by which it may be suspended (Fig. 2).

For burns of the trunk a thick dressing of wool and gauze is firmly applied with crêpe bandages. The dressings should extend well beyond the margins of the burn, and many bandages should be used to prevent gaps appearing in the dressings as a result of movements of the patient in bed. When a limb is extensively burnt, thoraco-brachial and hip spica casts are used. On the other hand, a burn of the trunk alone is not enclosed in plaster, because of the lack of complete immobilization within the casts.

Subsequent Treatment

When the burn is extensive continuous records of blood pressure and haemoglobin are made for the first 48 hours or so. The urinary output is measured: a return of the normal output is a good prognostic sign. Dressings are kept as dry as possible by exposure to the warm air of the room. During the first few days they become soaked with exudate from the dependent parts, and thus provide an avenue for infection which may reach the burn. Large plaster casts must be dried under a heat cradle and similar precautions be taken to keep them dry. When soakage does occur it is inadvisable to change the dressings or casts, for this would still further increase the risks of infection. The exudate dries after the second day, and by no means every such case becomes infected. Among the cases I treated there was a high incidence of infection with *Ps. pyocyanea.* The appearance of the characteristic green pus indicated that in the majority of these cases infection started from the edges of the dressings, and presumably came from the bedding.

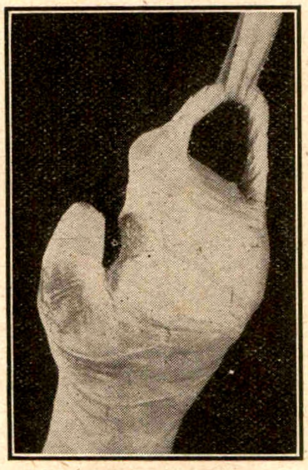

Fig. 2.—Photograph showing complete enclosure of a burnt hand in plaster. Note loop for suspension of cast.

Management of the Plaster Casts

When a fresh burn of the hand and forearm is enclosed in plaster it is essential that the limb should be adequately elevated. Failure to do so is followed by swelling and intolerable pain. The hand must always lie above the level of the elbow and the elbow above the shoulder. It is particularly important to watch the position of the elbow when a patient sits up in bed during the first few days. When these precautions were observed it was never found to be necessary to interfere with casts applied as early as three hours after the accident.

When the plaster has dried the cast becomes warm. This warmth over the region of the finger-tips is an indication of a satisfactory circulation beneath the plaster. Movement of the fingers within the cast can usually be detected after 24 to 48 hours. When vaselined gauze is used as a dressing the vaseline soaks through the plaster during the first 24 hours. Other than this there is no exudate unless the burn is infected. It is important to use an absorbent type of plaster (home-made bandages) so that any exudate formed may readily make its way to the outer surface. Elevation should be maintained for two days in the case of superficial burns, and for periods up to 10 days when the burn is deep or infected. Elevation considerably reduces the exudate from an infected burn. If elevation is maintained for several days the elbows may become sore. This may be relieved by abducting or adducting the shoulder in order to shift the pressure points.

Change of Dressings

The initial dressing is left in place for 10 to 21 days. Superficial burns are usually healed at the end of this time (Fig. 3). For deeper burns the dressings are changed in order to remove any sloughs that have become loose. When casts are applied to burns of the hands that are seen late and are already oedematous, they will become loose within a few days. It may then be necessary to change the cast earlier, but when there is a serious local infection it may be wiser to delay the change in order to avoid possible systemic reactions as a result of the manipulations (Fig. 4).

Dressings are changed in the operating theatre with the usual aseptic precautions of a surgical procedure. In order to avoid injury to the fingers plaster casts are removed with a knife rather than with plaster shears. The dressings are carefully removed, and those that are dry and adherent to the surface are not disturbed. The raw surface is cleaned with soap and water. Loose sloughs are cut away, taking care to avoid injuring living tissue beneath. At each change of plaster for a burn of the hand the patient is encouraged to put the wrist and fingers through a full range of movements. A fresh dry dressing and another cast are applied if the burn is not healed. After the first change, dressings are renewed at intervals of 7 to 10 days until either healing is complete or all dead tissue has separated and the surface is ready to receive a graft. Grafting can be undertaken with every prospect of success 3 to 6 weeks after the time of injury.

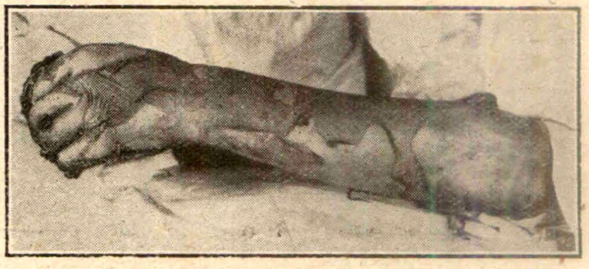

Fig. 3.—Petrol burn of hand and forearm cleaned with soap and water, put into plaster cast, and left undisturbed for 3 weeks. Healing complete on removal of cast. Full function returned within 24 hours.

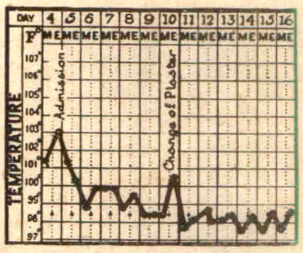

Fig. 4.—Temperature chart of man aged 42 admitted with septic tanned burns of both hands and arms. Casts applied to both arms. 7 days later plaster casts were changed because they were very loose. Note rise of temperature, which was accompanied by a rigor.

Skin Grafting*

In the majority of cases thick split-skin grafts cut with the Padgett dermatome were used. No attempt was made to clean the raw surface by means of frequent wet dressings before grafting. Dressings or plaster casts that had not been changed for periods up to 14 days were removed at the beginning of the operation, and the surface cleaned with soap and water or C.T.A.B. immediately before applying the grafts. Although the number so treated was small, it is worth recording that 10 consecutive cases were successfully grafted in the presence of infection with *Ps. pyocyanea.* A firm dressing was applied over the grafts, and a plaster cast was sometimes added. Limbs were elevated to control exudate from the surface. The grafts were not inspected for 10 days.

Functional Results

In a series of 20 hands immobilized in plaster casts for 3 to 5 weeks permanent stiffness was never seen (Figs. 5 and 6). It must be stated that in only one case was the burn severe enough to lead to exposure of the extensor tendons after the separation of the slough. The fingers recover their mobility within a few days of the removal of the cast if active exercises are encouraged. The newly healed skin may feel tight, but this can be relieved by rubbing in lanolin, as recommended by Wakeley (1942). The hand and wrist may temporarily feel weak as a result of the immobilization of the muscles.

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* The operations in these cases were performed by Dr. J. M. Converse of the American Hospital in Britain.

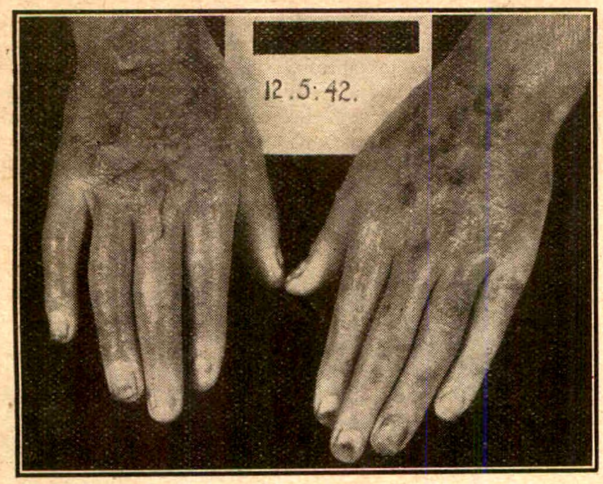

FIG. 5.—Burns of hands of man aged 32 immobilized for 3 weeks; grafted and immobilized for 10 days.

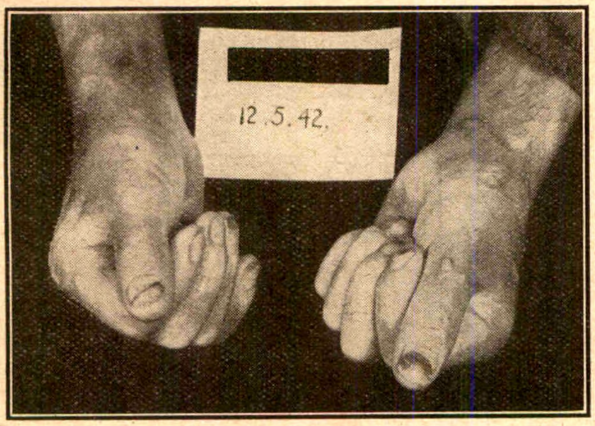

FIG. 6.—Same patient as Fig. 5. Movements 8 weeks after accident.

Discussion

It has been found possible to treat burns by methods similar to those successfully applied to the treatment of other wounds. Burns are particularly liable to become infected, on account both of their size and of the impossibility of removing dead tissue. The incidence of infection can be reduced only by exposing the lesions as infrequently as possible. In a busy general hospital dressings can be carried out with proper aseptic precautions only if they are done at long intervals, thus permitting time and care to be taken over them. Where infection does take place systemic disturbances resulting from it may be controlled by immobilization of the affected region. The benefits to be derived from the immobilization of a series of infected burns have been described by Roulston (1941). Immobilization of the hand does not necessarily lead to stiffness, provided care is taken to place the fingers in a good position. Nevertheless, it would be unwise to continue such immobilization for periods exceeding 4 to 6 weeks.

It is sometimes stated that part of the treatment in the later stages of a deep burn should include the cleaning of the raw areas by means of frequent wet dressings before applying skin grafts. It seems doubtful whether a case so treated, with all the risks of cross-infection attendant on the frequent changes of dressings, fares any better than one given a single cleaning just before laying on the grafts. The mere presence of bacteria upon the surface of the wound is no indication as to the possibilities of success with skin grafts.

When a large number of cases have to be dealt with simultaneously there is a great advantage in being spared the necessity for the frequent changing of dressings in all the cases. A case of extensive burns is in need of careful and continuous nursing during the first few days. Such attention is the more easily given when there is no need to interfere with the local lesion.

Summary

The principles which govern the treatment of burns as wounds are outlined.

A simple technique of treatment, which includes the use of plaster-of-Paris casts for burns of the hand and forearm, is described. If plaster is applied, elevation of the limb is essential, to prevent oedema, and the hand must be placed in the correct "position of function."

The value of immobilization, infrequent dressing, and the prevention of oedema is pointed out.

Burnt hands do not become stiff merely as a result of immobilization, provided that this is carried out correctly for a limited period.

In spite of the presence of infection with *Ps. pyocyanea*, skin grafts will "take" on granulating burns that are dressed infrequently.

I wish to thank Dr. R. L. Vollum for undertaking the bacteriological investigations, Miss M. H. H. Shaw and Mr. H. Axtall for doing the photographic work. Thanks are also due to the Medical Research Council, who provided a grant for technical assistance.

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SULPHAGUANIDINE IN NEONATAL EPIDEMIC GASTRO-ENTERITIS

BY

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Since the virtues of sulphaguanidine in the treatment of alimentary infections were discovered by Marshall and his colleagues (1940, 1941) this sulphonamide compound has won general recognition as the most effective drug hitherto employed in the treatment of a variety of intestinal infections. It has greatly lessened the severity of the symptoms and the duration of illness in the various types of dysentery, and has been very successful in infective gastro-enteritis in infancy and childhood. The principal object of this paper is to record the excellent results achieved with this drug in epidemic gastro-enteritis in the newborn, the most lethal of the commoner neonatal infections.

Epidemiology of Neonatal Gastro-enteritis

Outbreaks of infective gastro-enteritis occur periodically in all maternity hospitals in which opportunities for cross-infection among the infants arise owing to imperfect architectural and nursing arrangements. In all epidemics the vast majority of affected infants are bottle-fed. The publicity given to the prevalence of the disease in the maternity hospitals in New York City by Rice and his collaborators (1937) has focused attention on the appalling waste of infant life in maternity hospitals from this preventable alimentary infection. These workers reported 505 cases of epidemic diarrhoea in 11 maternity hospitals in New York in the 2½-year period July, 1934, to Dec., 1936, the incidence being the very high one of 14%. The earlier literature contains surprisingly few references to such a common disease. The paper based on the largest series of cases, and the only one of note emanating from this country, was published from this hospital in 1936 by Craig. The impetus given to the study of the disease by Rice *et al.* has accounted for the appearance of numerous publications in the U.S.A. (Abramson and Frant, 1938) and this country (Ormiston, 1941; Crowley *et al.*, 1941) in the last few years. These have shown that few maternity hospitals are exempt from periodic epidemics of neonatal gastro-enteritis. The complacent attitude towards this grave infection is attributable to the long intervals which usually occur between successive outbreaks. The causal bacterium or virus still eludes identification. Some believe, however, that normal inhabitants of the bowel may cause the disease by assuming pathogenic properties, as in epidemic gastro-enteritis in lambs. Outbreaks have been attributed to *B. proteus vulgaris*, *B. coli mutabile*, *B. lactis aerogenes*, and other commensals. Special bacteriological assistance has been given in many of the cases in this series, and no organisms of the enteric or dysenteric groups or any other pathogens have ever been isolated. Rice *et al.* and others, particularly in the U.S.A., believe that this disease is confined to the first month of life, but it may be that feeble resistance to infection in the early weeks rather than a distinctive aetiology accounts for the more severe features of gastro-enteritis in the newborn.

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* Holder of a Crichton Research Scholarship, University of Edinburgh.

Incidence and Mortality Rate

Six epidemics and a few sporadic cases, comprising a total of 102 infants, with gastro-enteritis, have occurred in the Simpson Maternity Hospital, Edinburgh, during the three years 1940-2. For some unaccountable reason there were more epidemics and a higher incidence of the disease during this period than for many years. The incidence was approximately 1.5%. There were 50 mature and 52 premature infants, the incidence in premature infants thus being very much higher than in mature infants. Universal bottle-feeding is the chief reason for the greater incidence in premature infants. The nurseries in this hospital are visited daily by an experienced paediatric staff, and a clinical chart and a record of each infant are kept. A series of uniform observations has thus been made, and it is unlikely that more than a few very mild cases have been overlooked. Cases of gastro-enteritis complicating thrush infection of the upper alimentary tract have been carefully excluded. A post-mortem examination was made by Dr. Agnes Macgregor in all of the 58 fatal cases. Fig. 1 shows the mortality rate in each of the three years, 1942 being divided into the period before the introduction of sulphaguanidine therapy and the period after its commencement. The dramatic fall in the mortality rate in 1942 can be attributed almost entirely to the introduction of this drug. The greatly improved results did not justify the use of controls. The accompanying table shows the relation of the mortality to the maturity in treated and untreated infants.

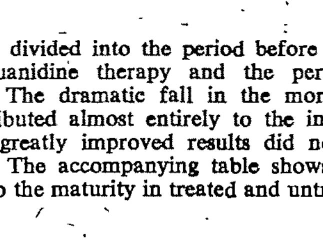

FIG. 1.—Mortality rate in gastro-enteritis before and after the introduction of sulphaguanidine.

Table showing Relation of Mortality to Maturity in Infants Treated with Sulphaguanidine and those Untreated

	Treated		Untreated	
	No.	Mortality	No.	Mortality
Mature infants—over 5½ lb. ..	11	0	39	69%
Premature infants:				
(a) 5½–4 lb., incl.	11	0	19	84%
(b) Under 4 lb.	8	38%	14	86%

Clinical Features

The first signs of gastro-enteritis usually appear after the first week of life, but they occasionally develop earlier. A sudden failure of appetite is the first sign of illness. Diminished vitality, a tired sickly appearance, and pallor follow within a few hours. Diarrhoea as a rule develops within a few hours of the onset, but may be delayed for 24 hours. The stools are watery in most cases. They are usually yellow, but may be greenish, and mucus is occasionally present. Blood sometimes appears in severe cases. The stools frequently exceed 10 a day and are sometimes uncountable. Signs of dehydration usually appear by the second day, and rapidly become severe in the absence of appropriate treatment. Approximation and overlapping of the cranial bones with a reduction in the size of the anterior fontanelle are often earlier signs of dehydration than a pinched facies. The weight course shows a sudden reversal, and the loss amounts to several ounces daily. Fever is an inconstant feature, but there is often a moderate degree either at the outset or at a later stage. Vomiting is absent in many cases; it tends to be a much more pronounced feature in some epidemics than in others, and the diarrhoea is sometimes milder when the vomiting is severe, suggesting a predominantly upper alimentary infection. Abdominal distension is common after the first two or three days. Screaming attacks may be caused by colic.

In the absence of appropriate treatment the dehydration and weight loss progress rapidly, and pallor, weakness, and anorexia soon become extreme. Sclerema, a grave terminal sign, occasionally supervenes. In a state of such extreme weakness the aspiration of vomitus readily occurs, causing bronchopneumonia, which is often the terminal event.

Treatment

Not a moment should be lost in starting treatment in such an acute disease; for severe toxaemia, a prolonged illness, much difficult nursing, and possibly a fatal issue may thus be forestalled. Even such a potent drug as sulphaguanidine cannot be expected to give good results when it is not administered until the illness has lasted several days; but it is never too late to introduce it in liberal doses, as therein lies the main hope of recovery.

(*a*) *General.*—The following routine, in conjunction with sulphaguanidine therapy, has given very satisfactory results. It has the virtue of simplicity.

An initial purge has been dispensed with when diarrhoea has become established. Milk is entirely withheld, and 5% lactose or dextrimaltose water is given *ad lib.* every one and a half hours. If fluid amounting to 4 oz. per lb. of birth weight per day is not taken, the total must be made up to this amount by gavage. Such an ample fluid intake is essential to replace the excessive loss, and to ensure adequate renal elimination of that part of the sulphaguanidine absorbed from the gut and prevent its crystallization in the renal tubules and urinary tract. When there is much vomiting the sugar should be given in 1/5 normal saline instead of water. In severe cases the fluid may have to be introduced by stomach-tube for several days. A thin male catheter (No. 18 French) attached to the barrel of a 10-c.cm. or 20-c.cm. syringe may be used for this purpose. Only sugar and water or diluted saline should be given until the appetite returns; this may not occur for from several days to a week. It is a great mistake to introduce any milk until the general condition shows considerable improvement and the feeds are taken with some eagerness. Apprehension is often shown over such prolonged withholding of milk, but in the absence of a return of appetite there is no indication whatever for giving it sooner, and better progress is made without it.

The above regime, coupled with sulphaguanidine therapy, obviates the need for the parenteral administration of fluid except on rare occasions. Only one of the 30 cases treated with adequate doses of sulphaguanidine was given fluid parenterally. The frequent subcutaneous administration of saline was a routine procedure with former methods of treatment, and intravenous fluid was sometimes required in addition. The comparative ease with which severe dehydration can be prevented when sulphaguanidine is given is a measure of its efficacy.

The necessity for introducing milk gradually when the appetite returns must be emphasized. It is customary in this hospital to give it in alternate feeds in the form of either half-strength breast-milk or 1/12 sweetened condensed milk. The number of dilute milk feeds is slowly increased until milk is being given at every feed. Then the feeds are gradually strengthened according to the demands of the appetite. When convalescence is well established fresh milk should be substituted for sweetened condensed milk. The re-establishment of milk feeding in a premature infant is shown in Fig. 2.

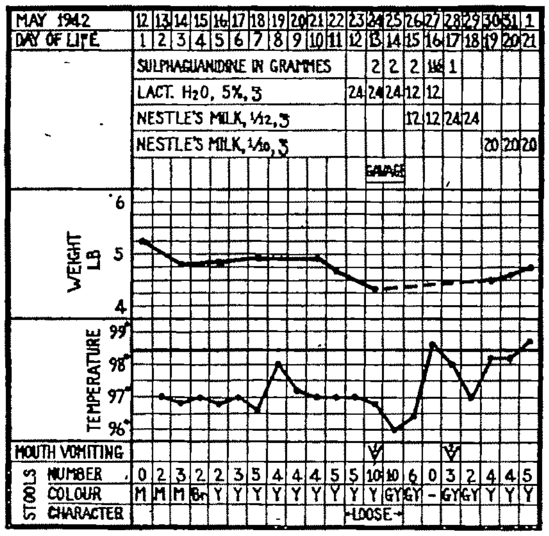

FIG. 2.—Clinical chart of baby, birth weight 5¼ lb. Epidemic gastro-enteritis developed on the eleventh day. The chart shows the course of the weight, temperature, and stools, and the treatment by starvation and with sulphaguanidine.

(*b*) *Sulphaguanidine.*—It is of the utmost importance to give full doses. Owing to its slow absorption from the bowel, and the necessity for achieving a high concentration therein, larger doses of this sulphonamide should be given than of the others. In this series of cases the mature infants received an initial dose of 0.75 g. tabloid sulphaguanidine, B.W. & Co., followed by 0.5 g. every four hours, and premature infants an initial dose of 0.5 g. followed by 0.25 g. every three hours. The latter dose is well tolerated by very premature infants provided ample fluid is given. These doses are continued for several days until there is pronounced clinical improvement with a return of appetite. It is then gradually reduced, being stopped a few days later (see Fig. 2). It was continued for as long as a fortnight in some of the cases in this series.

(*c*) *Prophylactic.—Immediate isolation* of all infants suspected of infective gastro-enteritis is an essential precaution in maternity hospitals. This dangerous disease should be suspected when an infant which has been feeding and progressing satisfactorily loses its appetite and shows diminished vitality and pallor. Confirmation of the diagnosis should be followed by strict precautions, to limit the extent and duration of the outbreak. There should not be any new admissions to the nursery in which the case occurred until all the contacts have been discharged. These contacts should be watched very closely for the first signs of the disease. Unless such strict measures to stamp out the infection are taken at its first appearance—and they are often neglected—an epidemic which will drag on for weeks or months may occur. Frant and Abramson (1938) have drawn up an excellent code of hygiene for the prevention and control of this and other infections in hospital nurseries.

Toxicity of Sulphaguanidine

Sulphaguanidine is one of the less toxic sulphonamides owing to its slow absorption from the bowel. This property enables very much higher concentrations to be attained in the bowel than in the circulation and other tissues of the body. About 20 to 25% of the drug is excreted in the urine. Acetylation does not occur in the intestine, but 20 to 50% of the assimilated drug is conjugated. After oral administration the maximal concentration in the blood is reached in about four hours, and most of the drug is excreted within 24 hours. Stickney, Heilman, Bargen, and Dearing (1942) found, in a series of 70 patients who were mostly adults, that with an average dose of 0.1 g. per kilo of body weight given every four hours the maximal concentration of free drug in the blood usually did not exceed 4 mg. per 100 c.cm., and seldom reached the level of 6 mg. per 100 c.cm.

The maintenance of a high fluid intake is important to eliminate the possibility of excessive concentration of the drug in the urine, with crystallization in the urinary tract. The urine of infants receiving the drug often contains a few characteristic crystals in the form of parallelogrammic plates, and needles occurring singly and in sheaves, but these should never be abundant.

A recurrence of frequent defaecation, which appeared to be a delayed toxic effect of sulphaguanidine on the bowel, occurred in 8 of the 30 infants. This phase began 8 to 10 days after starting with the drug, and subsided a few days later. The stools were small in bulk and normal in appearance. In some cases the drug was still being given, in others it had been discontinued for a few days. The diarrhoea had usually been controlled for a few days before the increased frequency of defaecation recurred. A return of frequent stools, provided they are normal, is no indication for continuing or resuming either drug or starvation treatment, as convalescence is uninterrupted.

In their series of 70 cases, mentioned above, Stickney *et al.* observed the following undesirable reactions: nausea 4, dermatitis 3; headache 2, indigestion 2, vomiting 1, and haematuria 1. The estimation of toxicity in the newborn must of course depend on the observance of signs such as dermatitis, vomiting, and haematuria. Agranulocytosis seems to be a rare complication with sulphaguanidine, but should always be watched for on account of its seriousness.

Comment

In computing the comparative death rates in cases treated with sulphaguanidine and those untreated, four infants who received the drug have been excluded. These four were among the first to be treated with the drug, and were given only half the dose which was afterwards found to be necessary for an optimal effect. Moreover, treatment of two of them was not begun until the fourth day. All four died, and it seems irrational, from a comparative standpoint, to include them in the group of cases all of which were treated in the standard manner recommended here.

The mortality rate in the series of 30 cases treated with sulphaguanidine would probably have been still lower if there had not been so many very premature infants. There were 11 mature and 19 premature infants, and 8 of the premature infants weighed less than 4 lb. at birth. The three fatal cases all belonged to the latter group. In addition to extreme prematurity two of the infants who died had complications which might have determined the fatal issue. One showed clinical signs of intracranial haemorrhage which were confirmed at necropsy, when both subdural haemorrhage from a fairly large tentorial tear and subarachnoid haemorrhage were found. It is reasonable to assume that this complication substantially reduced the chances of recovery from the gastro-enteritis which supervened on the tenth day. The other infant seemed to be responding well to treatment when its condition suddenly deteriorated, six days after the onset of the disease, and signs of bronchopneumonia developed. A necropsy showed that aspiration of vomitus had caused the pneumonia. As this infant was improving and beginning to feed well it would probably have recovered if the unfortunate accident of aspiration, which is commoner in premature infants, had not occurred.

Much work remains to be done on the action of various sulphonamide compounds in neonatal gastro-enteritis. More experience with sulphaguanidine is needed, and the action of sulphapyridine, sulphathiazole, and other compounds requires investigation. Sulphapyridine and sulphathiazole are valuable therapeutic agents in bacillary dysentery and some other alimentary infections, and may be beneficial in neonatal gastro-enteritis, but they are likely to prove more toxic to the newborn infant than sulphaguanidine.

Summary

The dramatic reversal of the prognosis in epidemic gastroenteritis of the newborn wrought by sulphaguanidine therapy has been demonstrated.

To achieve optimal results sulphaguanidine must be given in the full doses recommended.

An ample fluid-intake must be ensured. Fluid every 1½ hours is recommended. Tube-feeding may be necessary when there is anorexia. Parenteral administration is seldom required.

Milk should be withheld entirely until the appetite returns, and reintroduced very gradually.

I wish to express my thanks to Prof. Charles McNeil, paediatrician to the Simpson Maternity Hospital; to Dr. G. B. Ludlam, lecturer in bacteriology, University of Edinburgh, for personally examining many specimens; and to Dr. J. M. Robson, lecturer in pharmacology, University of Edinburgh, for helpful advice on the use of sulphaguanidine.

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SCABIES TREATED WITH ONE APPLICATION OF BENZYL BENZOATE

BY

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Lately many articles have been published on the treatment of scabies by various methods, and many people still are insistent on the necessity for the disinfection of clothing and bedding by steam. In view of this the methods of working and the results obtained at the Poolsbrook Treatment Centre, Staveley, from Aug. 13, 1942, to Dec. 31, 1942, in treating approximately 1,000 cases of scabies are of interest.

The decision to treat the patients with only one application of 20% benzyl benzoate emulsion and to ignore entirely the fomites was taken after consultations with Dr. K. Mellanby, and the reasons for arriving at the decision were: (1) it would afford a practical test of Dr. Mellanby's hypothesis that fomites play only a very minor part in the spread of scabies; (2) the one-treatment method would economize in staff and save many hours of patients' time; (3) if clothing and bedding could be ignored the use of an extra car and driver would be saved.

Reasons 2 and 3 are important in normal times, but in war such economy is vital.

The centre serves the urban districts of Clay Cross, Dronfield, and Staveley, and the rural districts of Chesterfield and Clowne; accommodation consists of waiting-room, examination-room, and two bathrooms. The area covered is some 150 square miles, and the population served is 120,000. The boundaries of the district are 10 to 17 miles distant from the centre as the crow flies, and in the period mentioned the ambulance used for bringing the patients has travelled 8,100 miles.

The building chosen for adaptation was an empty shop with house attached and a large garage. The shop and house had four rooms on the ground floor; these were converted into the two bathrooms, waiting-room, and examination-room; on the first floor a bedroom was converted into a store-room. A sitting-room and a bedroom were kept for the supervisor's use. The premises had a 24-hour supply of hot water from the central heating plant supplying the Poolsbrook housing estate of the Staveley Coal and Iron Co. The water came through at boiling-point, so a thermostatic and a reducing valve were fitted to obviate any chance of scalding patients. Unfortunately it was not practicable to use this water for heating, so a domestic central heating plant was installed.

The following are the capital costs and maintenance expenses to Dec. 31, 1942.

Capital Expenditure

	£	s.	d	£	s.	d.
Adaptation of buildings, decoration, painting, black-out, baths, furnishing, etc.	254	15	5			
Central heating plant	150	0	0			
Towels, overalls, etc.	67	12	3			
Purchase and adaptation of ambulance	327	16	0			
Other initial expenses (medical appliances, typewriter, and sundries)	30	15	7			
				830	19	3

Maintenance Expenses

	£	s.	d.	£	s.	d.	£	s	d.
Rents, rates, hot-water supply (from June 1, 1942) ..				61	14	8			
Light, heat, and cleaning				14	10	5			
Telephone, printing, postages, stationery, advertising ..				22	6	10			
Ambulance running costs:									
Petrol	70	6	2						
Oil	1	7	0						
Insurance	3	1	0						
Repairs	14	9	11						
				89	4	1			
Medical supplies				17	6	5			
Wages, N.H., U.I., and super. contribs. ..				199	7	3			
Maintenance and repair of premises, etc. ..					11	6			
							£405	1	2

The staff employed are a male supervisor, trained at the Sorby Research Institute by Dr. Mellanby, and two female attendants, one of whom acts as driver.

Routine

Patients are notified direct to the centre by the local general practitioners, school medical officers, health visitors, etc. On receipt of the notification a postcard is sent to the home stating that the ambulance will call at a certain time for the patient and all members of the household. On arrival at the home the driver-attendant inquires into the family spread of the disease, and has been most successful in getting whole families to accompany her to the centre. In most instances the adult members, if they should be out working at the time of the visit, can be persuaded to make a subsequent attendance at the centre.

On arrival at the centre the patients go to the waiting-room until called for examination. The history is taken, the hands and wrists are examined by the supervisor, and if possible a live mite is extracted and identified under the microscope. The patient then goes to the bathroom, has a hot bath, dries, and is painted from neck to soles with a 20% benzyl benzoate emulsion (N.W.F.) by an attendant using a 2½-in. paintbrush and paying particular attention to such areas as the gluteal folds. The emulsion is allowed to dry—about 5 to 10 minutes; the patient dresses and goes home. An appointment is made for him to return in a week's time for examination.

At the re-examination a mite is extracted, if possible, and examined under the microscope to see if it is alive or dead. (Live mites become quite active on a heated slide.) Inquiries are made regarding any clinical symptoms, etc., and if the supervisor thinks it necessary another treatment is given. If complaint of dermatitis is made, this condition is treated. In a previously untreated case no dermatitis has been observed after treatment with benzyl benzoate, but dermatitis has occurred in a number of cases which had previously been treated with sulphur and other medicaments. In treatment of dermatitis ung. hydrarg. ammon. dil. has been quite successful. Patients are always instructed to return immediately there is any recurrence of symptoms. Secondary infection is treated by the application of 2% gentian violet, with excellent results.

When school children have no gross secondary infection they are instructed to return to school after treatment. If there is bad secondary infection they are told to remain off school, and if on re-examination the condition has cleared they may return to school. If the secondary infection has not improved, the parents are told to take the case to their own doctor. A note is sent to the head teacher notifying him or her if the child is fit to return to school.

Results

In the following table all percentages have been calculated on the assumption that the 109 contacts had no scabies.

Cases treated (active scabies and household contacts) .	980
Active scabies	871
Relapses	8 (0.92%)
Gross No. of reinfections	20 (2.29%)
No. of reinfections where the whole family treated	10 (1.14%)
" " " " " not treated ..	10 (1.14%)
Total reinfection and relapses	3.32%

The possible causes of relapses and reinfection are: (1) contact with other cases of scabies; (2) reinfection from bedding or clothing; (3) failure of treatment. Reinfection from other cases is by far the most probable cause of relapses and reinfection.

Relapses are those cases which had symptoms persisting or had a live mite removed on re-examination. From an administrative point of view they are not important, as they are treated again. The rate of failure of one treatment with benzyl benzoate emulsion may be taken as 0.92% ; two treatments would almost certainly eliminate those relapses. Incidentally, all the relapses were found to have been in contact with untreated cases. Reinfections are cases which return after a lapse of 6 to 8 weeks with recurrent symptoms. The 10 cases in which the whole family group was treated were made up of 3 families of 3, 3, and 4 persons each. They came from areas where scabies was very prevalent, and one family of 3 members came into close contact with untreated cases. If it could be assumed that this family were reinfected from another case of scabies this would bring the rate of reinfection in whole family groups treated to 0.8%.

Conclusions

One treatment with benzyl benzoate will cure over 99% of cases of scabies if efficiently applied. Disinfection of clothing and bedding is unnecessary. At the most the omission to disinfect will only give an increase of reinfection of just over 1%, assuming the whole family group treated were reinfected from fomites. In the case of the districts served by the Poolsbrook Centre it is estimated "no disinfection" will save £700 per annum in transport charges alone. Disinfection of clothing, etc., at the isolation hospital would probably cost another £300. In time of war the use of man and woman work hours is entirely unjustified for any improvement that might accrue. Dermatitis has never occurred with one treatment of benzyl benzoate 20% emulsion in untreated cases. In many cases treated with sulphur, etc., before coming to the centre dermatitis has been observed. The success of the one treatment depends on having a skilled and competent staff.

Medical Memoranda

Perforated Oesophagus following Burns

A case of extensive burns was admitted recently into St. Mary's Hospital which proved fatal. Necropsy revealed perforation of the oesophagus 2 in. above the cardiac opening, with leakage of oesophageal contents into both pleural cavities.

Case Record

Mrs. A., aged 29, was unconscious when admitted in the early hours of Oct. 3, 1942. She had second-degree burns of the entire back, the back of the shoulders, and both buttocks, with areas of third-degree burning. The backs of the thighs were involved in a first-degree burn. The back of the neck also had a first-degree burn, as had quite a large part of the face. The hair was extensively burnt. Carbon monoxide poisoning coexisted, and the patient was transfused with two pints of blood. On removal to the theatre this was followed by three pints of serum, and the burn was treated by cleansing with saline and applying a tan with a 15% solution of tannic acid.

On the day after admission the patient seemed quite well. She complained, however, of a constant and quite severe pain between the shoulder-blades. In addition she had a persistent non-productive cough. The pulse was fairly steady at 120 and the temperature remained normal. On the second and third days the pain between the shoulder-blades increased and had to be controlled with morphine. She was restless and her cough increased. She began to bring up some frothy sputum. The temperature began to rise, and on the evening of the third day it was 103°. The patient died in the early morning of the fourth day after admission.

At necropsy there was no evidence in the tongue, lips, or pharynx of any corrosive poison having been taken. Two inches above the cardiac opening there was an erosion and perforation of the posterior surface of the oesophagus. The erosion was about 1/4 in. in diameter. The surrounding tissues were partially digested. The stomach contained green fluid and had as many as twenty small erosions on its walls. The duodenum had three similar erosions, but they were smaller. The liver was much enlarged, and weighed 2,500 g. It had undergone excessive fatty change. The lungs showed hypostatic congestion. The postero-lateral surface of the left lung was partially digested. The left pleural cavity contained half a pint of green fluid of the same appearance as the green fluid in the stomach. The right pleural cavity contained about a pint of purulent brown fluid.

I have to thank Prof. Newcomb for the necropsy report, and my chief, Mr. Duncan C L. Fitzwilliams, for asking me to publish the case.

L. C. Robson, M.R.C.S.

Dermatitis after Local Sulphanilamide Treatment of a Wound

The following case is reported as one of clinical interest relating to sulphanilamide sensitivity produced by prolonged local treatment of wounds with the drug in its powder form.

Case Record

An officer recently came under my care for a graze of the left buttock and left elbow, sustained in a severe fall. The wound of the elbow was only a shallow one, and it was considered that acriflavine dressings were all that was necessary. The wound of the buttock, on the other hand, was rather deeper, and 1 in. in diameter. I decided to dress this with sulphanilamide powder. Local application was employed, none of the drug being administered orally. Five grammes of the powder were applied, being left *in situ* for 24 hours. At the end of this time the patient said that his left knee was irritating slightly, and on examination the skin over that joint was found to be somewhat reddened, but nothing more. A further 5 g. of the powder was applied, and 12 hours later he reported a very severe irritation of this knee and that it was discharging. On examination it was found that the skin over the left knee was very red and was covered with numerous small papules which were exuding a thin, sticky mucous fluid. He now volunteered the following history:

Eighteen months previously he had fallen, and suffered a severe graze of the left knee. This was treated with sulphanilamide powder 5 g. daily for 2½ months before it healed. At the time of this treatment there was no dermatitis. Three months later he developed an acute follicular tonsillitis and was admitted to hospital. This was treated with sulphanilamide tablets orally—2 g. immediately, followed by 1 g. every four hours. Within 48 hours of the start of this treatment he noticed an irritation of his left knee, and in 56 hours a rash had developed exactly similar to the one experienced during his treatment under me. The area affected with the dermatitis was in all cases exactly that involved by the original graze of the left knee. In each instance the dermatitis was easily cured by stopping the sulphanilamide and by the local application of calamine lotion.

Here apparently is a case of sensitivity to sulphanilamide persisting for 15 months after prolonged local treatment with the drug in its powder form, without any other form of the drug being administered during the intervening period.

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Reactions to Ephedrine

Severe reactions to ephedrine are uncommon, but reactions in persons who had previously taken the drug without discomfort are most unusual. The following two cases may prove of interest.

Case 1.—This girl, aged 12, developed a chronic maxillary antritis. In the course of treatment she had often used a spray of 2% ephedrine solution and taken up to 3/4 gr. of ephedrine internally in one day. In Oct., 1940, she had had several treatments by suction technique, in which 1 c.cm. of 0.5% ephedrine solution was dropped into the nose while she lay with head extended. No adverse effects were observed. In Nov., 1940, she had a further treatment, in which 1 c.cm of ephedrine solution of 1% strength was used. Half an hour later she felt shivery, and dry in the throat. She complained of her heart beating violently, and grew very restless. When seen she was frightened, flushed, and unable to lie still. Her respiration rate was 42 and her pulse rate 180. With sedatives her condition returned slowly to normal in four hours, and next day she was none the worse.

Case 2.—This patient, a boy aged 6, is an allergic type. He suffers frequently from asthma, hay-fever, and eczema. The family history records allergic conditions on both sides. His mother shows similar reactions to her son's, and his father produces severe reactions to infections of the respiratory passages. The boy has had ephedrine in various forms, taking up to 3/4 gr. a day without ill effect. In April, 1942, he developed a catarrhal infection of the nasopharynx and started to wheeze He was given 3/8 gr. of ephedrine sulphate combined with 3/4 gr. of amytal. (At the age of 4 he had taken half this dose three times in 24 hours without discomfort.) Soon after this administration, however, he became very restless and frightened, and refused to be left. He complained of thirst and drank water copiously. His respirations became very rapid and his pulse uncountable This condition of hyperexcitability slowly subsided, though two hours later his pulse rate was 178 and his respiration rate 40; but after a sedative he went to sleep. Next morning his pulse rate was still faster than normal, but this may have been due to the mild pharyngeal infection.

Such violent reactions to ephedrine in normally tolerant children seem at present to be inexplicable; they are certainly alarming to child, parent, and doctor, and show the necessity for care in the administration of the drug.

R. A. Murray Scott, M.B.

Reviews

HAEMORRHAGIC DISEASES AND HAEMOSTASIS

The Hemorrhagic Diseases and the Physiology of Hemostasis. By Armand J. Quick, Ph.D., M.D. (Pp. 340. $5.00 or 27s. 6d.) Springfield and Baltimore: Charles C. Thomas; London: Baillière, Tindall and Cox. 1942.

Great advances have been made in the last decade in knowledge of the haemorrhagic diseases. Dr. A. J. Quick has himself made notable contributions to this knowledge. He has now written a concise account of the mechanism of haemostasis and the diseases in which a bleeding tendency is the major problem. His monograph is beautifully produced and reasonably priced. The complexity of the subject is shown by the fact that he makes reference to over 1,000 original articles, and this is probably the best simple account of what is assuredly one of the most difficult subjects in medicine. Quick is a vigorous protagonist of the classical hypothesis of blood coagulation—that prothrombin and calcium react with thromboplastin to form thrombin, and that the thrombin then reacts with fibrinogen to form fibrin. This hypothesis has justified itself by such rewards as the discovery of the cause and effects of hypoprothrombinaemia, the introduction of vitamin K and dicoumarin, and the clinical application of powerful haemostatics, such as snake venom and stable thrombin. Quick proceeds in a series of lucid chapters to describe prothrombin, thrombin, fibrinogen, thromboplastin, the platelets, and the anticoagulants. There then follow descriptions of the classical haemorrhagic diseases—purpura haemorrhagica, the hereditary haemorrhagic diathesis, fibrinopenia, haemophilia, and the haemorrhagic diathesis of vitamin K. It would be difficult for anyone to write a better introduction to the subject, and people thinking of carrying out research on blood coagulation or adding to the already voluminous literature would do well to study this book first of all. The uninitiated reader may well think that the problems are simpler than they really are. Experience of the difficulties of storing stable blood products at a transfusion depot and clinical study of unselected cases of haemorrhagic disease will not be long in proving to our beginner that there is still much to learn. He may well begin to doubt whether the effects on the plasma of extrinsic factors, foreign surfaces, filtration, hydrogen-ion concentration, etc., are really explained by the classical theory of blood coagulation. His biochemical colleagues will show themselves a good deal happier about the colloidal chemistry of muscle contraction than that of blood coagulation. He will find that spontaneous haemorrhage is much more commonly due to infection, toxaemia, and avitaminosis than to the classical haemorrhagic diseases, and a good deal more difficult to explain. He will be puzzled to observe that a boy with fibrinopenia and a practically incoagulable blood seems a great deal less inconvenienced than a haemophiliac whose blood clots in 15 minutes. He may even begin to wonder whether we know anything at all about the part played by the capillaries and the tissues in haemostasis. He will then realize the artistic simplicity of Dr. Quick's book, and will be well advised to study it again more carefully. For it is indeed a most able summary of what is known about the mechanism of haemostasis, and its only real fault is that it suggests that we know far more than we do.

MASS MINIATURE RADIOGRAPHY

Mass Miniature Radiography. By R R Trail, M D., F.R C.P., H. J Trenchard, M B., M.R.C P., and J. A. Kennedy, M.B. B S. (Pp. 96; illustrated 8s 6d) London: J. and A. Churchill. 1943.

The publication of *Mass Miniature Radiography*, by R. R. Trail, H. J. Trenchard, and J. A. Kennedy, is very timely. The authors have had a large practical experience of mass examination of the chests of R.A.F. personnel, and the organization and technique for civilian mass radiography that they outline in this book are based on that work. There is a foreword by Lord Dawson—appropriately, in view of his warm advocacy of the adoption of mass radiography as a public health measure. It is pleasant to think that his advocacy has recently had so successful a result. The authors in the preface say that the book is intended as a practical guide to the setting up and running of a mass miniature radiography department. In this they have succeeded admirably.

In the first two chapters administration and central administration are considered. In miniature radiography of the chest the highest technical quality must be maintained. An indifferent miniature radiograph is worse than useless; it is misleading. That the authors appreciate this is indicated by their insistence on central co-ordination to ensure a high standard of work throughout the country. The next three chapters deal with accommodation, apparatus, and staff. A plan of a model department is given, and two types of apparatus are described. The authors prefer an apparatus with as few interlocking safety devices as possible, but, provided that these devices translate silent faults into an obvious failure on the part of the unit to function, they are an advantage and avoid the necessity for recalling subjects for re-examination. The authors point out that a considerable staff (between five and nine) is required to operate these units. This may deter hospitals which contemplate installing a unit merely for its publicity value.

The lay-out of *x*-ray and dark rooms and the processing of films are described, and due stress is laid on the necessity for adequate protection of the staff. A particularly valuable section is that on the routine of working a department, including the system of records and disposal of suspects. The book contains a chapter on interpretation of films, and appendices on classification, record cards, and accessory equipment.

Although there are some points of detail in it that not all will agree with, this book is to be particularly welcomed just now, and is recommended to all interested in the subject. It will be invaluable to those who will shortly have the duty of organizing mass radiography centres throughout the country.

CLINICAL ANAESTHESIA

Recent Advances in Anaesthesia and Analgesia (Including Oxygen Therapy). By C. Langton Hewer, M B., B S., D.A Fourth edition. (Pp. 341; illustrated. 18s.) London: J. and A. Churchill.

Anaesthetists everywhere must be glad that a fourth edition of this book has been published. Dr. Hewer in his preface emphasizes that he has deliberately omitted a special chapter on anaesthesia for the surgery of the battlefield or the bombed town. In this he is wise, since the principles of anaesthesia are the same, and in both peace and war the main short cut to good anaesthesia is an unobstructed airway. As every anaesthetist knows, this volume contains an enormous amount of information on clinical anaesthesia, compressed but readable and easily available for consultation. Dr. Hewer has managed to include his own opinion on most major problems, so that the inexperienced need not flounder in a bog of assorted views when needing guidance. It is, however, apposite, now that we have a diploma in anaesthesia, to point out that this is not a textbook. Elementary facts and commonplace well-tried methods are in fact often deliberately omitted. What might be included in a future edition are descriptions of some of the better-known techniques for regional nerve block, such as brachial and cervical plexus blocks, and paravertebral block for abdominal operations. There seems to be an unnecessary amount of space devoted to listing local anaesthetic drugs, most of which are now of academic interest only. A complete list of references is given at the end of each chapter, and the isolated anaesthetist should not hesitate to employ this guide to wider reading before either using or passing judgment on a method with which he is unfamiliar.

As heretofore, the book is well produced, particularly so for these days.

Notes on Books

Physiological Psychology, by S. R. HATHAWAY (New York and London: D. Appleton-Century Company; 15s.), is a simply written elementary account of the structure and functions of the nervous system, and is intended for psychologists. The presentation, if rather dry, is clear and comprehensive. We are a little surprised to find, however, that so small a space is given to the physiology of the conditioned reflexes. One would suppose that it is the upper levels of the nervous system in which psychologists are most interested, but it is certainly very desirable that they should have some appreciation of the ways in which the lower levels are constituted and how they function, and for such a purpose this book is well designed.

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PSYCHOGENIC FACTORS IN BRONCHIAL ASTHMA

The term "psychosomatic medicine" has become very popular, and there is now at least one journal devoted to this topic. Since psychological medicine is so often accused unjustly of being clogged with esoteric technical terms it behoves us to investigate any neologism carefully to see that its introduction is justified. There is a practical usefulness in the term "psychosomatic" if it calls the attention of doctors to what they have often been unaware of in the past—namely, the effect of personal events in producing symptoms with a physical reference, and even, in the case of individuals with a *locus minoris resistentiae,* in facilitating the occurrence of physical disease. Indeed it has been observed in a search for control material that among a group of individuals with ordinary physical illness the onset of their illness often coincided with a period of personal stress, as if the psychophysical chain had broken at its weakest link. One of the conditions that has been most studied in this connexion has been asthma, which is an interesting disease for a variety of reasons. Its manifestations appear to be invoked not infrequently by mental disturbance, and it is one of the rare examples of a functional disorder which by repetition leads to structural organic damage.

In this *Journal* several years ago R. D. Gillespie enumerated the possible interconnexions of asthma with psychological factors.[1] It was tentatively suggested that in rare instances the asthmatic attack might have a symbolic value, being chosen automatically as a pattern of expression because the asthmatic paroxysm in some way reproduced the unconscious imagery of the underlying conflict. But no satisfactory evidence was produced at the time, and the author confined his examples to cases in which emotional factors played in an unspecific way on a physical predisposition. In a painstaking study French and Alexander[2] have propounded the thesis that the asthmatic attack is the equivalent of a suppressed cry. The asthmatic patient, in their view, is one who has been frustrated in his affections in early life and forbidden to cry, crying being the infant's natural call for sympathy. Unfortunately the evidence for this ingenious theory seems thin indeed and rather too characteristic of some types of psychological speculation: what begins as a hypothesis in one chapter ends as an established fact two chapters further on, without much intervening substantiation.

More in accord with general experience and more in conformity with what most people will find understandable are the observations of Sir Arthur Hurst, whose long experience of the conditions has been subjective as well as objective. An article from his authoritative pen appears at the opening pages of this week's issue. On the one hand, according to Hurst, there is the asthmatic diathesis or constitution, and on the other the numerous precipitating factors, some of them psychological. The factor of constitution, especially if it can be shown to be supported by data on heredity, is one that is more acceptable on general principles than the psycho-analytical notion of asthma itself as an essentially symbolic matter. One point where Hurst finds psychological factors of outstanding importance is in the alleviation of asthma. It is here that a knowledge of medical history shows its value. There would be less tendency to claim results from new nostrums if their pedlars were historically informed. The history of asthma in medicine is the history of one "successful" cure after another; yet asthma remains and "cures" multiply wherever a number of physically diverse remedies are equally effective. The common factor of suggestion is the preponderant one.

The investigations of French and Alexander support and extend the previous findings of Rogerson (who also contributes a note on the subject at p. 406), Hardcastle, and Duguid, by analysing further the influences behind the anxiety and aggressiveness that these observers had noted as characteristic of asthmatic children. Cameron had long ago observed the effect of maternal over-protection in this setting. Asthma is in fact a kind of "experiment of Nature" on the combined effects of physical and psychological causes from a wide diversity of spheres—constitutional, accidental, physical, educational, and emotional. The study of asthma is an admirable antidote to those whose disposition tempts them to accept uncritically the last new thing discussed in the market-place of medicine.

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[1] *British Medical Journal,* 1936, **1**, 1285.
[2] *Psychosomatic Med.,* Monographs I, II, and IV.

INTRAVENOUS ALIMENTATION

The possibility of feeding by complete parenteral alimentation patients who cannot ingest, digest, or absorb foods properly is most attractive. The intravenous administration of glucose solutions to meet the energy requirements of such patients is, of course, an established practice, and some success has also been achieved with the injection of emulsified fats[1]; but only recently have man's nitrogen needs been supplied in this way. Theoretically, intravenous protein alimentation should be quite a straightforward proposition, for, although proteins are the normal nitrogen-containing materials ingested by the individual, the amino acids obtained from these proteins by enzymatic digestion are the fundamental units which his body manipulates in satisfying its needs. Obviously, then, it should be possible to eliminate the processes of protein digestion in and amino-acid absorption from the alimentary canal by the simple expedient of introducing the necessary amino acids directly into the blood stream. Elman and Weiner, who succeeded in doing this in 1939,[2] used an acid hydrolysate of casein supplemented with tryptophane and methionine or cystine. After preliminary successful trials on adult dogs, they administered the supplemented digest intravenously to patients suffering in general from some form of obstruction of the alimentary canal. The large negative nitrogen balances of these patients were corrected and they were able to store nitrogen. These results were promising enough, though the amino-acid mixture used was not particularly ideal, since the supplements were expensive. Elman and a number of other clinicians[3 4 5 6] then experimented with an enzymatic digest of casein—amigen—which retained its full complement of tryptophane. Intravenous injections of solutions of this substance were well utilized and required no further amino-acid supplements, but there were at first a few undesirable reactions. A too rapid rate of injection caused abdominal pain, nausea, and vomiting; these symptoms were not seen when the injections were given more slowly. Chills and fevers were frequently encountered, but Elman and his colleagues[4] found that these could be eliminated, as they were merely associated with pyrogens of bacterial origin present in the distilled water used for making the amigen solutions. Phlebitis was a more constant reaction, but Elman[4] and Landesman and Weinstein[6] consider that amigen solutions are really no more irritant than similar solutions of glucose and of salts. Of some 500 patients, many of them in a critical condition, to whom the solution of amigen was given, only two showed any urticarial response, and of the few deaths recorded none was caused by the amino-acid mixture. On the other hand, the indications were that without the amino-acid injections the death rate would have been higher, though objective proof of this fact was unobtainable. All the evidence shows that the intravenous injection of a sterile 2.5% solution of amigen prepared in freshly distilled water and administered at the rate of 8 to 12 g. of solids per hour is a safe procedure, and a simple and convenient way of supplying large amounts of protein nourishment parenterally. The amino acids so administered are well utilized, pronounced negative nitrogen balances are rapidly reversed, and a general improvement in the patient's clinical condition is observed. It is interesting to note that Clark and Brunschwig[7] have advanced intravenous alimentation a stage further by administering emulsified fat as well as dextrose and amino acids to a human being over a 17-day period, as much as 12 g. of nitrogen and 1,700 calories being given during one 24-hour period.

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[1] *J Pediat.,* 1935, **6**, 151
[2] *J Amer. med. Ass,* 1939, **112**, 796.
[3] *Ann Surg.,* 1940, **112**, 594.
[4] Ibid., 1942, **115**, 1160.
[5] *J Pediat,* 1940, **16**, 679; 1940, **17**, 595.
[6] *Surg Gynec. Obstet.,* 1942, **75**, 300.

The diverse pathological states in which intravenous amino-acid alimentation has been used in America indicate the potentialities of this method. For example, it has been found beneficial in carcinomatous and ulcerative conditions of the alimentary canal, in cases of general peritonitis, in pneumonia and tuberculosis, and for burns. Elman and his co-workers recommend it for improving the nutritional state of undernourished patients before operation and also in the immediate post-operative period. Landesman and Weinstein suggest that the use of amigen is not limited merely to starving patients in whom it is impracticable to give protein by the intestinal tract. On only one point does there appear to be any controversy. Landesman and Weinstein do not consider that intravenous amino acids raise the low plasma protein levels of oedematous patients, while Elman and his colleagues hold the opposite view. Further trials over longer periods will probably settle this point. Shohl and Blackfan[8] have been successful in maintaining positive nitrogen balances in infants by intravenous administration of a mixture of 20 crystalline amino acids instead of protein digests. At the moment, however, this method is far too expensive, and in any case can only become really economical when it has been decided which of the amino acids are "essential" for the human species and which can be safely dispensed with.

VITAMINS AND PHYSICAL FITNESS

Some months ago we wrote in these columns[9] of work done in America on the relation of vitamins to bodily efficiency. To this information from the other side of the Atlantic, which, *inter alia*, underlined the excellence of American Army diets, may now be added experience gained at home by Harper, Mackay, Raper, and Camm, whose results were recently published in this *Journal*.[10] Experiments were carried out at Manchester University on the effect of treatment with vitamins A, D, and C on the fitness of R.A.F. and R.E. cadets. The young men, 69 in all, lived in two university halls and had the ordinary undergraduate diet. A preliminary examination was done, which consisted of collecting the usual anthropometric data and of measurements of the resting and standing heart rate, of the resting and post-exercise vital capacity, and of the R.A.F. breath-holding and endurance tests. The cadets were then divided into two groups, and members of one group received daily a capsule containing 6,000 units of vitamin A and 1,000 units of vitamin D and a 50 mg. tablet of vitamin C, while the remainder were given placebo capsules and tablets. After 10 weeks the men were re-examined and the two groups were changed over for a further experimental period of 11 weeks, ending with a third examination. The results of the tests were statistically examined, and it was found that at each comparison the performance of the men receiving the vitamin additions was in several respects superior to that of the cadets given the sham treatment. Thus the measurements of resting vital capacity, of the breath-holding time, and the endurance tests were in their favour at both re-examinations, and the combined differences taken over the whole period were statistically significant. The effect of the vitamin additions was also reflected in changes in the resting heart rate, but in a rather unexpected fashion in that a slower heart rate popularly taken as a sign of physical fitness was found in whichever group was on the control treatment. No significant differences were found in the standing heart rate, the post-exercise heart rate, the heart rate during the R.A.F. endurance tests, and the post-exercise vital capacity. Neither were the anthropometric measurements different. An interesting feature was the greater incidence among the controls of minor respiratory and gastro-intestinal complaints. The assessment of these differences was naturally more vague than for the physical measurements, as it rested solely on statements of the cadets themselves. These, however, did not know whether they were receiving sham or real treatment, and the differences were large—14.9 days per man of various complaints among the controls and 9.7 days per man in the vitamin-treated cadets—and statistically significant.

Harper and his colleagues have soberly assessed the results of their findings and are well aware of certain possible objections to their tests. It might be well to mention another. In two respects, the breath-holding time and the endurance test, differences between the two groups at the initial examination are rather large and may raise doubts as to the randomness of the original distribution.

In a shot-gun vitamin experiment it is generally impossible and always difficult to separate the effects of the different vitamins. Here, however, one is tempted to speculate that the relatively rapid tailing off of the vitamin group when switched over to control treatment points to an initial shortage of vitamin C, which cannot be stored for long, rather than of vitamins A and D, which would accumulate in sufficient quantity to allow of a longer carry-over during the lean period. Whatever the limitation of the diet of the cadets, it apparently became much less obvious in the second period; the vitamin and control groups were changed over at the end of June, and the treatment differences from then till September were much smaller than during the first round between April and June. This may have been connected with the usual improvement in the diet which takes place in the early summer.

One could wish that this useful experiment had been on a more ambitious scale, that it had included treatment with the vitamin B complex, and that the composition of the cadets' diet and an assessment of their bodily reserves of vitamins had been made available. It is to be hoped that this interesting piece of research at Manchester is a forerunner of more elaborate investigations. It has certainly rendered great service in showing that the diet of young men preparing themselves for most arduous duties is something that can be improved upon.

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[7] *Proc. Soc. exp. Biol.*, N.Y., **40**, 329.
[8] *J. Nutrit.*, 1940, **20**, 305.
[9] *British Medical Journal*, 1942, **2**, 485.
[10] Ibid., 1943, 1, 243

EPIDEMIC KERATOCONJUNCTIVITIS

Ophthalmological literature contains many reports of epidemic outbreaks of conjunctivitis complicated by corneal lesions. These date back to 1889, when von Stellwag recorded an outbreak described as "a peculiar form of corneal inflammation," and designated the appearances as "nummular" because of the multiple coin-like scars in the cornea. Such outbreaks have appeared at irregular intervals until the past few years, when widespread epidemics have been reported with increasing frequency in different countries both on the Continent and in the United States. As the condition is only now being clearly recognized, it was inevitable that the outbreaks should be recorded by different observers under a variety of names—such as superficial punctate keratitis, keratitis subepithelialis, keratitis maculosa, Béal's conjunctivitis, acute follicular conjunctivitis, and various nondescript designations. An excellent survey of this diffuse literature is given by Hogan and Crawford,[1] who include an account of 125 cases which they have studied. It is, of course, possible that not all the epidemics in the literature fall into this group. It is only necessary to recall the old conflict about the unity of trachoma with follicular conjunctivitis to appreciate that epidemic conjunctivitis with corneal lesions may constitute more than one entity. There is, however, strong evidence that a protean affection which has many manifestations must be regarded as a distinct clinical entity. The conjunctiva shows a number of lesions; it may be slightly involved or so severely affected that there is intense chemosis, especially in the lower palpebral area; or there may be mild follicular reaction or pseudo-membrane formation. As for the cornea, the designations of superficial punctate keratitis, macular keratitis, subepithelial keratitis, nummular keratitis, and diskiform keratitis are indicative of the varying conditions seen. What stamps the group as an entity are the cardinal points which are present in all cases: (1) sudden onset with glassy oedema of the caruncle, semilunar fold, lower fornix, and bulbar conjunctiva; (2) the severity of the conjunctival signs in the absence of any marked discharge—a point of considerable importance; (3) enlargement of the pre-auricular and other regional glands; (4) the frequent involvement of the cornea, shown subjectively by a worsening of the symptoms; (5) the absence of causative organisms in smears and cultures; (6) the presence of a lymphocytic type of exudate in smears and scrapings instead of a polymorphonuclear exudate common in other forms of acute conjunctivitis. Different observers have reported a varying incidence of unilateral inflammation even in severe epidemics, and it would appear that at least 50% of the infections are unilateral, while corneal lesions are generally present in about 75% of cases. The affection runs an acute course, but corneal damage may persist for months or permanently.

Aetiologically a large number of organisms have been incriminated but none established. The similarity of the corneal lesions to the herpetic affections of the cornea has led some workers to postulate a virus origin. R. E. Wright,[2] who was the first to recognize that extensive variations appear in superficial punctate keratitis, also brought forward evidence of the virus nature of the infection. Other observers have reported on similar lines, and Sanders[3] has now recorded some preliminary observations on the isolation of a virus agent in the epidemic that recently occurred in the shipyards of San Francisco, accounts of which have been reported by Hogan and Crawford[1] and by Rieke.[4] Most observers agree that treatment has little effect on the course of the disturbance, and reliance must be placed on palliative measures, including atropine when the cornea is involved. Silver nitrate in particular seems to be ineffective.

Some interesting theoretical speculations emerge from the clear recognition of this affection. Should it prove to be a virus disease, one further group of virus infections of the conjunctiva will have to be added to the established entities of trachoma, inclusion conjunctivitis of the newborn, and swimming-bath conjunctivitis. The relation of these different affections to each other and to herpes keratitis is a problem that promises to enlarge our knowledge of a difficult field of study.

TREATMENT OF TETANY IN PREGNANCY

That there is a drain on maternal calcium to meet the requirements of the foetus has long been recognized, and it is perhaps surprising that fully developed tetany is not encountered more often in association with pregnancy. Steinheim[5] in 1830 described a form of tetany associated with pregnancy and lactation, and with the advent of thyroidectomy, first performed by Kocher in 1878, a new aetiological factor for hypoparathyroidism appeared. Kehrer[5] in 1913 reviewed 103 cases in the literature and added 5 of his own. Recently Anderson and Musselman[6] have collected 240 cases, which they divide into four aetiological groups. In the first group were 26 post-operative cases, in some of which tetany developed during pregnancy although the parathyroid deficiency had not been severe enough to cause it in the non-pregnant state. This agrees with the experimental work of Dragstedt, Sudan, and Phillips[7] on bitches from which the thyroid and parathyroids had been removed and which developed tetany when they became pregnant. Those cases in which the mother survived usually resulted in death of the foetuses and abortion. The next two groups, with a total of 154 cases, were less certain in aetiology, and are described as being idiopathic, and having low calcium intake or vitamin D deficiency, respectively. Hyperventilation and blood loss during labour are regarded as possible aetiological factors, and lactation is thought to play a part since 41 of these cases occurred during that period. The fourth group consisted of 60 cases of thyroid disease, but little mention is made of them except that treatment of the thyroid condition was essential.

Although fully developed tetany is unusual in pregnancy, Anderson and Musselman maintain that the paraesthesias and "leg cramps" of many pregnant women are indications of impending tetany, while Ellsworth,[8] studying the blood chemistry of such patients, finds values of serum calcium below 8.5 mg. and serum phosphorus above 4.5 mg., which he regards as criteria of hypoparathyroid insufficiency. Richardson,[9] on the other hand, observed values of serum calcium as low as 5.6 mg. without subsequent symptomatology. Clinically, the diagnosis of subtetany and even of the fully developed disease in pregnant patients is not easy. Chvostek's sign is positive in 75% of all pregnant women in the latter weeks, and the cathode closing contraction in 80%, illustrating an increase of neuromuscular excitability. Brougher[10] believes there may be a relation between pre-eclamptic toxaemia and parathyroid insufficiency, and gives examples suggesting that parathyroid extract is deserving of further trial in the treatment of this condition. In any case the aim of treatment in tetany and subtetany is to raise the blood calcium and lower the serum phosphate. This may be achieved by intravenous or intramuscular calcium gluconate—10 c.cm. to 20 c.cm. of a 10% solution—and parathormone. After the acute stage, 25 g. to 30 g. of calcium lactate dissolved in warm water should be taken daily by mouth. It is also beneficial to place the patient on a low phosphorus diet by limiting the intake of meats, cheese, and egg-yolk. Vitamin D was the most effective agent in increasing the intestinal absorption of calcium until the discovery of dihydrotachysterol (A.T.10) by Holtz.[11] This also increases the phosphorus excretion, but it is not without its dangers, such as calcification in the kidneys, and during its administration the serum calcium must frequently be determined. Finally, Anderson and Musselman consider that tetany is no indication for the induction of abortion, as modern therapeutic measures are capable of saving both mother and child.

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[1] *Amer. J. Ophthal.*, 1942, **25**, 1059.

[2] *Brit. J. Ophthal.*, 1930, 14, 257, 595.

[3] *Arch. Ophthal.*, Chicago, 1942, **28**, 581.

[4] *J. Amer. med. Ass.*, 1942, **119**, 942.

[5] *Arch. Gynak.*, 1913, **99**, 372.

[6] *Amer. J Obstet Gynec.*, 1942, **43**, 547.

[7] *Amer J. Physiol.*, 1924, **69**, 477.

[8] *Internat. Clin.*, 1933, **3**, 27.

[9] *Illinois med. J.*, 1931, **59**, 453.

SILVER NITRATE FOR ASEPTIC OBLITERATIVE PLEURITIS

The production of an artificial obliterative pleuritis is important in the management of certain chest diseases, and in a recent paper Brock[12] describes the use of silver nitrate for this purpose. Adhesions between lung and parietes may be needed: (1) as a preliminary to lobectomy; (2) as a preliminary to suction drainage of a tuberculous cavity—Monaldi's operation; (3) to cure the condition of chronic or recurrent spontaneous pneumothorax; and (4) to relieve the condition of chronic idiopathic pleural effusion. Bethune's "pleural poudrage,"[13] in which iodized talc powder is blown into the chest through a cannula under thoracoscopic control, has been widely used for producing pleural adhesions before lobectomy, but the silver nitrate method has certain advantages over it, not the least being that it is a simple bedside procedure and not even a minor operation. A preliminary injection of morphine is desirable as there is some immediate pain. Then 7.5 to 10 minims of a 10% solution of silver nitrate is injected with an all-glass syringe after induction of a small pneumothorax, and as much air as possible is at once removed. There is usually a low febrile disturbance lasting 3 to 5 days, and some fluid is formed. This and any remaining air must be aspirated so that the pleural surfaces can adhere. After 3 to 4 weeks artificial pneumothorax is again attempted, and if successful (usually incomplete) a second injection is given. Out of 20 cases in which this method was used before lobectomy there was complete pleural obliteration in 15, and partial obliteration in 2 more; 13 of these patients had received one injection, and 4 had had two. The adhesions found at operation are ideal, being soft and avascular but firm enough to prevent collapse of the remaining lobe.

Chronic and recurrent (often bilateral) spontaneous pneumothorax is not at all common and can be very disabling. Brock mentions 32 cases, in 20 of which he used silver nitrate, and all 20 were cured. After preliminary thoracoscopy to exclude any lesion, such as congenital cystic disease, which may require other treatment, the silver nitrate is injected and expansion of the lung aided by subsequent aspiration of fluid and air. In one case the patient had had a chronic pneumothorax for as long as nine years; in all cases the condition had been present for some months. Patients with recurrent pneumothorax had had as many as half a dozen attacks, often on alternating sides and in some cases on both sides simultaneously. Brock also describes two cases of idiopathic massive pleural effusion in which successful pleural obliteration was secured after aspiration of all the fluid under thoracoscopic control and then introduction of silver nitrate. This was followed by repeated aspiration of fluid, the amounts rapidly diminishing until pleural symphysis occurred.

KETOSIS AND GONADOTROPHIN SECRETION

While oestrogens have been extensively used for the suppression of hypophyseal secretion, no therapeutic procedure has yet been developed for the stimulation of the pituitary. Last year, however, Julesz[1] suggested that a ketogenic diet would stimulate the secretion of gonadotrophin and perhaps of other pituitary factors. He was led to make his experiments by observations recorded in the clinical literature suggesting that women on such a diet frequently suffered from amenorrhoea. He accordingly put fourteen patients on a ketogenic diet (ten women and four men), and tested their urine by injection into immature female mice. The patients were sexually normal, with no evidence of endocrine disturbance; they mostly suffered from arthritis or asthma. The urine was injected by the usual Aschheim-Zondek procedure, a total of 3.6 ml. being given in six injections. Follicle stimulation was produced by the urine of twelve of the fourteen patients, this stimulation being very marked in some cases. No such effect was obtained by the urine of the patients before or after the period of treatment. That this excretion of follicle-stimulating gonadotrophin was associated with the ketosis is shown by the fact that two diabetics with ketonuria and one patient with starvation ketosis also excreted the hormone. The amenorrhoea seen in women during ketosis is explained as being due to over-production of follicle-stimulating gonadotrophin and the failure of the cystic follicles so produced to become luteinized, the endometrium remaining in the proliferative phase. The author goes on to suggest that all pituitary functions are stimulated by ketosis; that the capacity of the hypophysis to react when dysfunction is suspected may be tested by placing the patient on a ketogenic diet; and, finally, that the production of follicle-stimulating gonadotrophin on a commercial scale may be accelerated by application of his findings. Though these conclusions are hardly justified by the evidence, the facts are themselves interesting, and, if confirmed, should have wide application. It is, however, perhaps hardly practical to recommend the widespread adoption of ketogenic diets during the war.

The new Fellows elected to the Royal Society include Patrick A. Buxton, director of the Department of Entomology, London School of Hygiene and Tropical Medicine; Ivan de Burgh Daly, professor of physiology, Edinburgh University; A. J. Ewins, director of research, May and Baker, Ltd.; Arthur Felix, bacteriologist, Lister Institute; Alexander Fleming, professor of bacteriology, St. Mary's Hospital; G. A. R. Kon, research professor of chemistry, Royal Cancer Hospital; Wilder Penfield, director of the Montreal Neurological Institute; and S. Zuckerman, professor of anatomy, University of Birmingham.

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[10] *Amer. J. Obstet. Gynec.*, 1942, 43, 710.
[11] *Arch. klin. Chir.*, 1933, 177, 32.
[12] *Guy's Hosp. Rep.*, 1942, 91, 99.
[13] *J. thorac. Surg.*, 1935, 4, 251.

[1] *Schweiz. med. Wschr.*, 1942, 72, 541.

OUT-PATIENT ORGANIZATION

A SUCCESSFUL APPOINTMENTS SYSTEM IN A FRACTURE CLINIC

BY

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The hospital system of this country is undergoing a process of readjustment to enable it to provide a service to the community which when judged by modern standards will be considered efficient. At present several bodies are striving to become the dominant power in our hospital system. All those responsible for the direction of medical opinion should be aware that a system is only likely to succeed, and endure, in practice if it is based on conclusions drawn from the practical experience of the personnel concerned.

The main object of the personnel of the hospitals must be to provide an efficient service. Howarth (1939) is correct in saying that "it has for a long time been a reproach that at the large London hospitals, in which very considerable numbers of out-patients are dealt with each day, the patients may have to wait, and indeed often do wait, many hours before their case is finally attended to." This disregard of the length of time a hospital out-patient is kept waiting is based upon the opinion that those who cannot pay with money must do so with their time. This is a short-sighted policy: the majority of hospitals are to-day dependent to some degree on contributory schemes, personal donations of their patients, and the efforts of their almoners.

Howarth described the appointments system employed in the ear, nose, and throat department of St. Thomas's Hospital. I understand that it worked satisfactorily before the war. Somewhat similar systems have been attempted at University College Hospital, the Royal Hospital, Sheffield, and the Manchester Jewish Hospital. In this article I describe an efficient method of organizing out-patients.

The Method Employed in the Fracture Clinic of Manchester Royal Infirmary

Type of Material.—The average number of fractures treated each year is about 2,500. The Table, which is constructed from the Infirmary Statistical Report for 1938, shows the number of fractures treated (2,573) and their types. In this clinic all fracture cases are treated as out-patients; in-patients are dealt with in another clinic. The clinic is held each morning except Thursday and Sunday. New fractures admitted to the hospital during the morning are radiographed and seen with their films at the end of the clinic. Reductions are not performed until 2 p.m. The majority of fractures do not need reduction, and at present the patients are kept waiting through poor x-ray facilities and a shortage of nurses who can apply plasters. Patients are given appointments for all attendances after their first.

The Basic Factor.—The basic factor in this system, as well as in the other systems mentioned, is the number of patients that can be seen each hour by the medical staff concerned. The staff in this clinic is one surgeon.

Size of the Appointments Groups.—The standard aimed at is to see each patient within half an hour of arrival; therefore the clinic has been divided into half-hourly groups. The optimum size for each group was found to be fifteen, and the maximum number that could be seen in half an hour was twenty. The plastic quality provided by working at a rate well within the maximum is essential. It means that up to five unexpected patients can be seen every half-hour without upsetting the system. A more exact and ambitious system is too brittle to survive in practice. Too much insistence cannot be placed on plasticity as the fundamental quality of success. The first appointment group is arranged for 9.15 a.m. and the others follow at half-hourly intervals.

Method of Giving Appointments.—Of several methods only one was efficient. The clerk must visit each patient with the surgeon and give the appointment under his supervision. The time, day, and date must all be written on the patient's appointments card. The patients' ingenuity destroyed all the other methods Gaps will occur between the appointments groups, wasting the time of the whole staff (surgical, nursing, and massage), unless the rule of filling all the 9.15 appointments before any are given for the later groups is strictly kept. This rule is waived only on the plea of serious transport difficulties—i.e., a patient living more than thirty miles away may be given an appointment for 10.45 even though earlier times are unfilled.

Table showing Fracture Statistics for 1938 (2,573 Cases)

Face and Jaw		24
Clavicle		142
Scapula		20
Body	8	
Neck	3	
Glenoid	4	
Acromion	5	
Humerus:		
1. Upper end		103
2. Shaft		24
3. Lower end: (*a*) Supracondylar		63
(*b*) External condyle		30
(*c*) Internal epicondyle (not in joint)		38
(*d*) Internal condyle		3
Radius:		
1. Upper end		84
2. Shaft: Greenstick		124
Complete		16
3. Lower end. (*a*) Colles's		359
Smith's		1
(*b*) Epiphyseal separation		80
(*c*) Marginal or outer border		19
(*d*) Styloid process		48
Ulna:		
1. Upper end: coronoid		8
2. Shaft		24
3 Lower end		8
Radius and Ulna		
1. Greenstick		132
2 Complete simple		24
3. Monteggia		4
Carpus:		
1. Scaphoid		54
2. Carpal dislocations		3
3. Other carpal injuries		17
Metacarpals and Phalanges:		
Fractures. Simple		316
Bennett		17
Compound		27
Patella		26
Tibia:		
1. Upper end: Tibial spine		6
Epiphysis		9
2 Shaft: Simple		48
Lower end: Malleolus		16
(Post-marginal)		2
(Ant.-marginal)		1
Fibula:		
1. Upper end		5
2. Shaft		19
3. Lower end (malleolus)		95
Tibia and Fibula (Shaft).		
Greenstick		6
Ankle-joint:		
External rotation type		47
Abduction type		8
Adduction type		4
Separation epiphysis		5
Foot:		
1. Astragalus		4
2 Os calcis		35
3. Other tarsal bones		22
4. Metatarsals and phalanges		223
Compound		15
Dislocations		
Temporo-mandibular		4
Upper Limb:		
Shoulder		76
Elbow: (*a*) Complete (i.e., both bones)		40
(*b*) Head of radius		2
Hand: Metacarpo-phalangeal / Interphalangeal Simple		28
Compound		4
Radio-carpal dislocation		1

Documentation of Appointments.—A very simple method is employed. It is exactly the same as that used in a theatre-booking-office. In the appointments book a large square divided into twenty small squares is provided for each group, and when an appointment is made one of the small squares

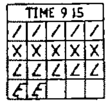
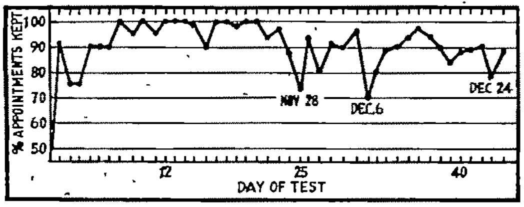


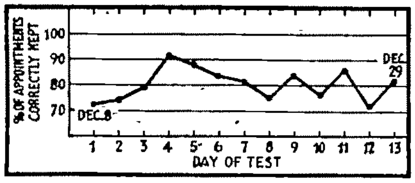
Diagram illustrating specimen from appointments book.

The first row shows the method of recording appointments. The second row shows how they are cross-checked when correctly kept. The third row shows how they are converted into Ls if the patient is late. The fourth row shows how an E is put into one of the five blank squares if the patient attends without an appointment is crossed off. Usually only fifteen of the twenty small squares are crossed off in each group (see above). If the appointment is correctly kept it is cross-checked and the patient complimented. Any arrival more than half an hour after the appointed time is considered as late and the corresponding small square is marked L. Such patients must be reprimanded when necessary. Patients who arrive without an appointment for that date are recorded in one of the five blank squares—i.e., E (extra). The accompanying diagram shows a specimen from the appointments book. In a clinic of this type there is no need to record either the names or the serial numbers of the patients. It wastes both clerks and time. Graph I shows that the great majority of the patients attend regularly if not punctually. The more elaborate system of recording names and numbers, as in the St. Thomas's method, is necessary, however, if the patients are to be followed up efficiently over a period of months after the conclusion of their active treatment.

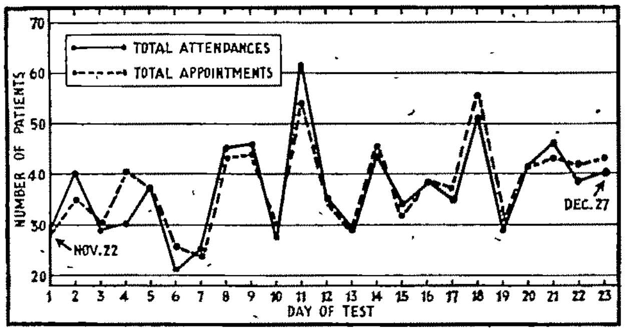


GRAPH I.—Relation of total appointments made to total appointments kept (irrespective of punctuality).

Punctuality of Patients.—Graph I demonstrates that on only five days out of forty-four did the percentage of appointments kept fall below 80%, and it never fell below 70%. Graph II demonstrates that, during fourteen days of testing, the number of appointments correctly kept was between 72% and 91%. Graph III shows in real numbers the close relation between the total number of appointments given and the total number of patients who attended. It shows how the number of patients who attend without appointments or on the wrong day almost exactly equals the number of appointments broken. Therefore the scheme as a whole is undisturbed. To check the patients' punctuality the appointments card is placed on the top of the notes for inspection by the surgeon.



GRAPH II.—Percentage of appointments correctly kept.



GRAPH III.—Relation of total appointments made to total attendances (from *all* sources) in real numbers.

Causes of Failure.—Nothing has been said on this subject in the descriptions of the schemes which I have examined. The problems that have presented themselves in this fracture clinic are grouped under five headings:

1. *No Appointment given to the Patient before leaving the Clinic.*—Due to neglect on the part of the medical and nursing staff; the patients' failing to call at the office to get an appointment on their way out; the office being shut (lunch-time, week-ends, and after 5 p.m. daily).
2. *Appointments given, but the Patients Misunderstanding Instructions.*—Due to deafness and mental deficiency or losing their appointment card.
3. *The Wrong Appointment Time given by Careless Medical Staff or Unauthorized Persons* (massage department, porters, women cleaners, other patients, and outside doctors).
4. *A Fresh Appointment not obtained at Each Attendance.*—This proved to be a real difficulty. The patients thought that once they had been given an appointment they were always to attend at that time on their subsequent visits.
5. A correct appointment given, but the patient arriving more than half an hour late or attending on the wrong day.

Local Facilities.—These vary considerably in each hospital, and it is therefore a waste of space to describe in detail the actual arrangements of this fracture clinic.

Additional Problems

New Patients.—The method which has been described proves that old patients can be organized in a practicable appointments scheme. The inclusion of new patients in the scheme, an attempt which Howarth (1939) did not make, might be achieved through the institution of an appointments office with a special telephone line and number which would be staffed by a clerk from 8 a.m. to 10 p.m.: this system has been put into practice by the Royal Sheffield Infirmary and Hospital and the Jessop Hospital for Women at Sheffield, and also by University College Hospital, London. (I have been unable to discover whether these schemes worked efficiently.) The following figures demonstrate that it is well worth while organizing the old patients alone, as in the last two years 70% of the attendances at the orthopaedic out-patient department of this hospital were those of old patients, and the chief clerk of the general office assures me that 50% of the attendances at the general surgical and medical out-patients clinics are also those of old patients. He showed me the figures for a representative month—i.e., November, 1941—to substantiate his statement.

The Teaching of Students.—The teaching of students must, as Howarth recognized, be carried out by a person not required for the routine work of the clinic. It is impossible to evolve an efficient system based on personnel that might take three-quarters of an hour's teaching on one case and only five minutes on the next one. As urgent cases are not out-patients, the teaching material should be selected the previous week by those carrying out the routine work, and brought up at a pre-arranged time for the teacher to take his class.

Conclusions

It is a short-sighted hospital policy to sustain an inefficient and out-of-date system in regard to out-patients.

An appointments scheme is practicable at least for old patients.

The advantages of an efficient appointments system are obvious so far as the patients are concerned. They are also great for the medical personnel for the following reasons: (*a*) The reputation of the personnel of the hospital is increased by association with an efficient system. (*b*) It enables medical personnel to know almost exactly at what time they will start and finish their work: this enables them to plan their other work accordingly.

The punctuality, and the determination of the medical personnel to succeed, are the corner-stones of the system.

Any system which is to succeed in practice must be plastic enough to absorb the considerable irregularities imposed on it by human nature.

Teaching must be performed by medical personnel not carrying out the routine work of the out-patients.

A practical efficient hospital system will only be evolved through the efforts of the medical and administrative personnel of the hospitals concerned.

I wish to thank Prof. H. Platt and Mr. R. L. Newell for their help in the preparation and presentation of this paper.

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Reports of Societies

WAR STRESS AND THE INCIDENCE OF NEUROSIS

The seventh annual medical conference of the Ex-Service Welfare Society, which was held on March 11 under the chairmanship of Lord HORDER, was attended by psychiatrists from all parts of the country and from the Services. The subject was "The Influence of War Stress on Neurosis and Psychosis in the Armed Forces, in Industry, and in the General Population." Lord Horder testified to the valuable work of the Society in dealing with men suffering from neurasthenia and mental breakdown, and referred to the Society's industrial centre at Leatherhead, where men were employed on a self-supporting basis.

Lieut.-Col. T. TENNENT of St. Andrew's Hospital, Northampton, said his experience did not bear out the common opinion that the incidence of neurosis in the civil population had not increased under war conditions. To judge from the admissions to the hospital of which he had charge, there were three peaks of increase in 1940, coinciding with the collapse of France and Belgium, the beginning of intensified air raids on this country, and at a later period when severe damage was done in areas where these people lived, although they themselves escaped physical injury. His Service experience was limited to women suffering from psychotic illness, over 20% of whom had had a previous history of such illness. Psychotic illness was in some cases manifested when a girl failed to adapt herself to Service conditions. A rather different point of view was put forward by Surg. Capt. DESMOND CURRAN, who said that the thing which had struck him was the small number of people who broke down even under severe strain. At one naval hospital 85% of cases of anxiety states were returned to duty within a few months. Selection for the Navy was largely self-selection, and the major cause of breakdown was regimentation and the restrictions of Service life, actual war action playing only a secondary part.

Fitting the Man to the Job

Brigadier J. R. REES said that in the Army a complete job analysis had been carried out with a view to adjusting the man to his specific task, and, although it was not perfect and was late in starting, it was working extremely satisfactorily, and men who had a neurotic tendency were able to give better service and to become less liable to breakdown. Many of these men were quite stable so long as they went on doing a job which they understood, but showed signs of breakdown when expected to assimilate new ideas or to increase the tempo of their activities. In view of the amount of prophylaxis which was undertaken, he did not believe that the pensions problem at the end of this war would be of anything like the dimensions of that at the end of the last; so many men of inadequate personality would have been previously sorted out from the employment point of view. Some 80% of the men who broke down under the stress of war went back to duty after a very short time; there remained the chronic neurotics, who would be a problem for Government agencies and voluntary societies after the war.

For the Royal Air Force, Air Commodore BURTON said that the larger incidence of such breakdown as there was occurred among the ground staff rather than among the flying crews. His information was that the men were standing up in a remarkable way to the stress to which they were exposed without developing nervous illness—a tribute, of course, to the methods of selection employed, with the elimination of the substandard and the non-adaptable. Of those who did develop neurosis, many had it "ready-made," so to speak, and the effect of service had little bearing on its origin.

Prediction and Prevention

A Canadian medical officer, Col. VAN NOSTRAND, said that the fact that Canada had no conscription for oversea service altered the whole picture of the health of Canadian Forces in England. He also noted that such nervous illness as did occur was less marked during the "blitz" period than during the long monotonous lulls.

Dr. P. R. BOLUS (Ministry of Pensions) said that in persistent cases it was evidently the pre-war make-up which determined the neurosis. He thought that the influence of war was not of itself causative, and this was supported by the fact that during the last war the suicide rate fell appreciably, and his impression was that it had fallen also during the present war. Dr. the Hon. W. MACLAY considered that one of the difficulties of these cases was the provision of incentives and motives for getting well. He described the manner of handling discharged cases under the schemes of the Army and of the Ministry of Labour.

Dr. J. H. MACDONALD said that the amount of neurosis was not anything like what had been expected. During air raids on Glasgow and Clydeside the reports showed almost an absence of civilian psychosis or neurosis. Lady BRISCOE also said that very few cases had occurred among the girls of the Land Army. Dr. C. P. BLACKER spoke of his interviews with a considerable number of medical officers of factories and their diverse opinions, as regards both present conditions and expectations as to what would happen on the transition from war to peace. They were unanimous, however, in the view that war industry was capable of assimilating quite a number of people who were in certain respects inadequate, but when the transition began large numbers might be thrown out of employment and the problem would then assume formidable proportions.

Anxiety States

Col. A. A. W. PETRIE said that war stress precipitated existing tendencies to neurosis and psychosis. The first obvious reaction in war was anxiety, and this largely followed upon family separation. Absence without leave was often traceable to the anxiety of the soldier concerning his home. The morale of the Army largely depended upon soldiers' families, and over-anxious wives were sometimes the cause of anxiety states in their husbands. Another possible cause of neurosis was the sedentary routine to which many A.R.P. workers were condemned. Trouble arose not only from the unwilling but from the over-willing, who suppressed details of their previous history, which would have debarred them from service or from certain service. He pleaded for rehabilitation centres under the Ministry of Health.

Air Commodore R. D. GILLESPIE spoke of the good effects of training, after which people did much better than, from their mentality, one would have expected. Dr. AUBREY LEWIS referred to the effect which a returned neurotic was likely to have upon his family, and urged that doctors and psychiatrists should have much more opportunity of advising with regard to the reintegration of people into social life. Surg. Cmdr. HENDERSON said that men suffering from these conditions should be neither returned to their unit nor discharged from the Services; there was need for some clinic organization capable of dealing with them. A plea for a considerable extension of psychiatric work in general hospitals was made by Dr. SLATER, who said that many neurotics became worse after they returned to civil life because they were unable to get adequate treatment.

At a dinner which concluded the conference Sir WALTER WOMERSLEY, Minister of Pensions, who was the chief guest, said that, while the Ministry was ready to grant pensions to men whose mental state made them totally unfit for employment, it was more concerned, in the men's own interests, with the treatment and after-care of those who could be restored to health, wholly or partially, and placed in employment.

ASTHMA IN CHILDHOOD

At a meeting of the Section for the Study of Disease in Children of the Royal Society of Medicine on Nov. 27 the subject for discussion was "Asthma in Childhood." It was opened by Sir ARTHUR HURST, whose address is printed in the opening pages of this week's *Journal*.

The Management of the Child

Dr. G. W. BRAY said that there were three types of asthma in children: the hereditary type, developing usually between the third and fourth years; the eczema prurigo-asthma syndrome, starting at about four months with eczema of the face; and the lung damage type, to which last the sexes were about equally susceptible, but brown-eyed children were affected more than blue-eyed. Usually adrenaline would relieve the acute attack. If from a careful history it was found that a child had an attack after eating a particular food, and the skin reaction also was significant, the particular protein should be removed from the diet or denatured by prolonged heat. The child should have his meals early in the day, his last meal several hours before retiring, and no food should be given at bedtime except possibly fruit juice. A glass of milk last thing at night was a cause of trouble. Cleaning of the child's room should be done by vacuum, and the child should not wear woollen vests. He had hardly ever seen a case sensitive to one allergen only.

Mr. James Crooks spoke of the part played by naso-pharyngeal infection. He was of opinion that disease in the upper respiratory passages might lead to asthma without the intervention of a second factor. The effect of allergens on the nasal mucosa of a sensitive subject was to cause great swelling of the mucous membrane and a mucoid discharge. If the effect only occurred at intervals the mucosa returned to normal, but if it was prolonged the swelling persisted, the oedematous membrane participated in the allergic response, and blockage of the sinuses took place. Inflammation in the sinuses appeared to be an ideal starting-point for the establishment of high sensitivity, thus preparing the ground for asthma. Infection in the nose and throat was not often the main or primary cause of asthmatic symptoms, though it much aggravated the asthmatic condition. He had not found that surgical treatment of an infected focus in the nose and throat caused an increase of asthmatic symptoms, but it might be wise to avoid an operation in the height of the hay-fever season. He indicated certain local measures for the treatment of allergic rhinitis, including nasal sprays or drops, tampons, and, best of all, the displacement treatment introduced by Proetz. Zinc ionization for hay-fever was also mentioned.

Simple Psychotherapy

Dr. C. H. Rogerson said that it was usual to find in a case in which a psychological basis was prominent that all physical measures had been taken before the patient was sent to the psychiatrist as the last resort. In a large majority of asthmatic cases the psychological treatment ought not to be given by a psychiatrist at all, but by the physician in charge. There was often an unusual quality in the relationship between the child and one or both parents in these cases. The asthmatic child tended to be a special personality, irritable and aggressive, with an intelligence above the average, also over-anxious and lacking self-confidence. An important connecting link between the psychological and the physical condition appeared to be tension. From a psychological point of view the asthmatic stood tension very badly; when free and relaxed he was able to resist far more harmful stimuli without developing an attack. Success in treatment might be due to the feeling of confidence which it gave. Very occasionally it might be necessary to remove the child from home permanently or, in a larger number of cases, for short periods.

In a brief reply Sir Arthur Hurst said that he accepted the three aspects of asthma—the allergic, the nasal (which was largely reflex), and the psychological—but not one was effective without the asthmatic diathesis. The important thing in the management of the child was to encourage it to live a normal life; nothing could be worse than for the child to be made to appear different from everybody else.

Since 1941 over 36,250 children under 15 have been immunized against diphtheria in the county districts of Northamptonshire. During that time only one of those children contracted the disease, and the attack was not fatal. On the other hand, among some 19,400 children in the same county districts who had not been immunized, there were 101 cases of diphtheria and 15 deaths. Out of 8,000 children under 5 who had been protected there was not a single case of diphtheria; while among 9,200 children under 5 who had not been immunized there were 36 cases and 11 deaths. Of children under the age of 5 in the county districts of Northants, including Kettering borough, 46% have been immunized, and 74% of those between 5 and 15. The percentage for all ages up to 15 is 65. The Ministry of Health's campaign aims at securing the immunization of at least 75% of the child population of England and Wales.

Correspondence

Amnioplastin as Absorbable Tissue Isolator

Sir,—When, early in 1940, Chao, Humphreys, and Penfield reported the results of experimental work with prepared amniotic membrane (*Journal*, 1940, **1**, 517) it appeared that at long last a difficult surgical problem had been solved. A substance which, when interposed between a damaged structure and its surroundings, would absorb while the damaged structure was healing and so isolate it by preventing it from adhering to its surroundings had long been desired. So hopeful were the early reports of amnioplastin, as the Toronto workers called the prepared amnion, that in common with others I was not long in testing the claims made for it.

On clinical grounds some success was secured which appeared to justify the publication of experience with it in the treatment of peripheral nerve injuries (*Journal*, 1941, **1**, 587). In several cases, after freeing damaged and adherent nerves, early return of function followed its use, but such improvement may have been dependent upon factors other than the amnioplastin, and the following comment was made: "It remains for the future to determine whether the late results of these peripheral cases are equally good and for an opportunity to occur by which we may ascertain from the condition of the operation field whether neural isolation persists and whether the membrane is absorbed as completely in man as in experimental animals."

Such an opportunity has now occurred on two occasions, in each of which it has been possible to re-examine the operation field, in the one case seven months, in the other five weeks, after the amnioplastin had been introduced. Both patients had gunshot injuries of the median nerve with adherent fusiform swelling of its trunk above the elbow, and because of failure to improve or obtain more than temporary relief from pain following amnioplastin isolation were reoperated upon, the neuromas being excised and end-to-end suture performed. In neither case was there any trace of the membrane to be seen, but in each dense adhesions were present between the nerve trunk and the surrounding tissues, from adhesion to which it had been hoped to isolate the nerve by the interposition of the membrane. The membrane had thus proved ineffective as an "isolator," and these cases would appear to supply a direct answer to the question raised in 1941; but further evidence is afforded by recent experimental work (Hicks, Trethewie, and William, *Austral. New Zeal. J. Surg.*, 1942, **11**, 268) which has also failed to verify the results claimed by the introducers of amnioplastin.

Thus it would appear that the claims made for amnioplastin have not been substantiated, and the highly promising outlook created by the early reports must give place to disappointment. The satisfactory isolating substance which will prevent adhesion and later absorb so as to leave the damaged but healed structure free from its surroundings is still to be found. Search for it is very well worth while. When it is discovered it will be of inestimable value in surgical practice.—I am, etc.,

Lambert Rogers.

Tuberculosis in Wartime

Sir,—The report on tuberculosis in wartime by the Medical Research Council's Committee, reviewed in the *Journal* of Oct. 10, 1942 (p. 436), emphasizes the serious shortage of facilities for the in-patient treatment of pulmonary tuberculosis which exists in Great Britain to-day. The reasons for this shortage are ably analysed in the report, and suggestions are made which may in time, if implemented, go far to remedy an unhappy situation. None the less, consideration of the suggested methods of providing, equipping, and staffing more beds shows that during the war it may well be found to be a difficult and slow process. The need for more facilities, in fact, is likely to persist for some time.

At present many patients, both from the civil population and from the Services, await sanatorium or hospital vacancies in their homes for periods which are quite frequently of several months' duration. During this time they are rarely under adequate medical supervision, a considerable proportion disseminate infection, and their condition often deteriorates, with the consequences that fresh cases are produced, individual prognosis becomes worse, and a longer period of in-patient treatment is subsequently required for efficient therapy.

One method, not discussed in the report mentioned, whereby the available number of beds in special hospitals and sanatoria may in effect be increased lies in a greater use of active therapeutic measures. Thus, if within the various special institutions set aside for the treatment of this disease collapse therapy in all its forms were more extensively undertaken, it would be possible considerably to shorten the duration of the average period of in-patient treatment. For example, patients admitted with relatively early disease might, without undue delay, provided that medical contraindications did not exist, have artificial pneumothorax therapy started, and after a short period return to civil life, continuing to attend for supervision and refills at local hospitals or dispensaries where appropriate facilities existed. In this way the pressure upon the sanatoria would be to some extent relieved, and the work of managing these cases transferred in part to dispensaries, the out-patient departments of hospitals, and occasionally to specially qualified doctors, in all of which instances, as compared with sanatoria, the staff, and particularly the female staff, needed to handle these patients is proportionately much smaller.

The combination of collapse therapy and sanatorium treatment is, of course, essential in many cases and is very desirable in still more. Until we can attain that ideal, however, it is better that selected patients should receive some therapy such as the above and the remainder in-patient treatment according to their needs than that all patients should remain virtually untreated for considerable periods in their own homes. Experience has shown in the U.S.A. and elsewhere that collapse therapy in ambulant patients is practicable and satisfactory from the patient's point of view and from that of public health. Accordingly, it is suggested that as a wartime emergency measure it might be used to a greater extent in this country until the shortage in sanatorium accommodation is made good.—I am, etc.,

W. D. W. BROOKS.

Bacteriophage Treatment of Bacillary Dysentery

SIR,—Surg. Cmdr. D. C. Wilson (July 18, 1942, p. 81) makes certain remarks on my article (June 13, p. 719) which I trust I may be allowed to reply to.

He makes the point that my figures deal only with death rates (which of course was all I set out to deal with) and not with duration of illness; and on the strength of this he states that the aim of all three Services is "to return a fit patient to duty at the earliest possible moment." Many Alexandrian onlookers, who sometimes see more of the game than the players, will be astonished at this gratuitous statement. Actually my theme has always been: there is no need for other than a minimum of Service dysenteries ever reaching hospital. This latter occurs usually when they have passed to the stage named by me "neglected dysentery" (*Journal*, 1941, **2**, 280), with resulting greater incapacity and need for longer sick and convalescent leave than if their dysenteries had never been allowed to develop into full-blown attacks. *Preventive development* of dysentery from pre-dysentery phases like "Gyppy tummy" could, I feel every confidence in asserting from civil experience, be easily achieved by making available adequate supplies of good phage preparations at all advanced Navy, Army, and Air Force units, for administration on the first appearance of intestinal upsets of a pre-dysentery character. Has Cmdr. Wilson not, in his own words, confirmed that "civilians in Alexandria are so 'phage-minded' that to my knowledge they treat themselves with bacteriophage on the slightest suspicion of 'Gyppy tummy'"? Therefore I think I am in a position to set his mind at ease regarding "duration of illness," feeling sure that the adoption of a sound phage policy such as outlined could effect more in the way of improving this aspect of the situation than whatever measures may hitherto have been at work.

Cmdr. Wilson refers to a trial, in which he took part, of phage therapy in a small number of dysentery cases in an Alexandria Service hospital, from which he concludes that there was not enough "variation in hospital time" between the phage-treated and the control groups "to justify the continuation of the bacteriophage treatment." The inference here is, of course, that phage did not live up to what was expected of it, and proved no better than "the then standard treatment of sodium sulphate and fluids." The inference is misleading, in that the experiment, in my estimation, was doomed to failure from the start; and the description given of it deals with no more than the opening act—curtain raiser might be a juster term—since, Cmdr. Wilson will recall, the performance was stopped by superior military orders before it had got properly under way. This helps to explain the challenge of my letter in the *Journal*, which challenge still remains open.

Finally, Cmdr. Wilson reports that by the introduction of sulphaguanidine in the spring of 1941 a reduction in the duration of illness to 11 days from the onset was achieved, which result "appeared to make the further trial of bacteriophage superfluous." I hope Cmdr. Wilson will forgive me disillusioning him, but the facts are that statistical analysis of the recent authoritative Army figures of Cols. N. Hamilton Fairley and J. S. K. Boyd (*Lancet*, 1942, **1**, 20) and of my own figures of 13 years ago (*Lancet*, 1929, **2**, 273) reveals that sulphaguanidine presents no advantage whatsoever over phage in its rate of cure of the acute disease. Moreover, can the sulphonamides be administered with impunity to provide like "preventive development" of full-blown dysentery that phage can? If so, why then as to-day's "favourite" are they not made available at once, and used, where they are most needed—the front line of all three fighting Services?—I am, etc.,

ARTHUR COMPTON.
Director of Laboratory Service, Alexandria Municipality

Prescription of Lenses

SIR,—The attention of the Council of British Ophthalmologists has been drawn to the difficulty which the Services and the Ministry of Health are experiencing in obtaining spectacle lenses to supply their urgent needs, and it has been suggested that the situation could be helped by a simplification of the prescriptions supplied by civilian ophthalmic surgeons. The Council has considered the question and makes the following recommendations:

1. That the prescribing of lens powers in steps less than 0.25 D (which is to say, lens powers commonly referred to as "eighth sights"—e.g., 0.87 D) be discontinued.
2. That the prescribing of prisms be reduced to a minimum.
3. That in the higher ranges, say above 4 dioptres, the prescribing of lens powers in steps less than 0.5 D be reduced to a minimum.

The above recommendations were adopted by the Army some time ago, and the Council is assured that their wide adoption in civilian practice would materially aid the situation.—I am, etc.,

FRANK W. LAW,
London, W.1 Honorary Secretary, Council of British Ophthalmologists

Weil's Disease

SIR,—Dr. J. C. Broom's letter (March 6, p. 300) deals adequately with points raised by Dr. K. Blum in a previous issue, but I feel that further comment may not be out of place.

Just as poliomyelitis without or before the onset of paralysis is unlikely to be diagnosed except during an epidemic, so is Weil's disease without jaundice unlikely to be recognized except under special circumstances, as when illness follows immersion in water known to be infected with the causative leptospira. Under these circumstances it is clear that there is little scope for serum therapy, which, to be effective, must be instituted before the onset of jaundice. On the other hand, Weil's disease with jaundice presents a characteristic picture, so that diagnosis can usually be made on clinical grounds, serological investigation later producing the necessary confirmation. There have already been several adequate descriptions of this clinical picture, but it may be of help to summarize the outstanding features on which diagnosis rests: (1) History of partial or complete immersion in water which may be contaminated with rat urine. (2) Sudden onset of illness, with shivering, vomiting, muscular pains, and persistent headache. (3) Onset of jaundice on or near the fifth day of the illness. (4) Polymorphonuclear leucocytosis; this differentiates Weil's disease from infective hepatitis (catarrhal jaundice). (5) Uraemia with low blood pressure early in the illness; the association of renal with hepatic damage renders Weil's disease one of the few conditions in which intense jaundice is associated with a high blood urea.

Since the outbreak of war I have seen many soldiers with jaundice, but in only one has the clinical picture suggested Weil's disease. This case was so typical as to leave little room for doubt, and serological investigation by Dr. Broom confirmed the diagnosis.—I am, etc.,

GEORGE DAVISON.

SIR,—The diagnosis between Weil's disease and infective hepatitis is often difficult, and it is true, as Dr. J. C. Broom points out (March 6, p. 300), that the leucocyte count may help in assessing the evidence. Probably consideration for space caused him to be rather more dogmatic than the facts warrant. Middleton and McFadzean (*Glasg. med. J.*, 1938, **130,** 173) pointed out that in the leptospiral infection the alleged leucocytosis is inconstant in different patients, and in the same patient at different times.

As an instance of the difficulties, may I quote the case of a farmer in this neighbourhood who, during an epidemic of infective hepatitis, died of leptospiral jaundice, the diagnosis being posthumously established serologically, although he had a leucopenia. Twelve months later his son on the same farm fell severely ill with jaundice from which he recovered, and which, in the absence of leucocytosis and with a negative result from his serum, one assumes to have been infective hepatitis.—I am, etc.,

Beaminster R. E. HOPE SIMPSON.

Abortus Fever

SIR,—The recent references to abortus fever have particularly interested me as I have within the last six months had two cases of *Br. abortus* infection in my private practice. The incidence of abortus fever, as Dr. J. Landess Horne (March 6, p. 299) remarks, is not only probably much higher than is generally believed but—and here is the important point—is almost certain to increase as a result of the policy of the Ministry of Agriculture of vaccinating non-pregnant cattle with living cultures of *Br. abortus.* Cattle so treated are given increased protection against the risk of abortion although at the same time their milk is rendered more dangerous for human consumption in the raw state. Apparently the Ministry of Agriculture is only concerned with the quantity and not with the quality of the milk produced, the latter being the concern of the Ministry of Food.

That this anomalous position should exist is an example of departmentalism at its worst. The policy of the Ministry of Agriculture can be justified *only* by the Ministry of Food coming promptly into line and introducing compulsory pasteurization.—I am, etc.,

Birmingham. ALASDAIR McI. SMITH.

The Outbreak of Small-pox in Swindon

SIR,—With regard to the article by Dr. C. Killick Millard (March 6, p. 288) it might be of interest to state what happened in Swindon during a small outbreak of small-pox connected with the infected ship which produced the Glasgow cases.

A child from the infected ship arrived in Swindon on June 1, 1942. His vaccination, performed on May 29, was unsuccessful. He was kept under daily supervision, developed small-pox on June 12, and was removed to hospital the same day. (Case 1.) A known contact of Case 1 developed mild small-pox on June 26, despite successful vaccination which was performed on June 14. (Case 2.)

On June 26 I was asked to see a man who lived in the same street as Case 1, but who, even after the most exhaustive investigations, did not show any contact with the first case. He was suffering from severe small-pox and the rash was well out when I saw him. (Case 3.) This man had travelled about the town on June 24, visiting shops and a doctor's surgery. He had also worked in a large factory five days before I saw him, when he must have been well in the incubation period of the disease. It would have been impossible to trace and supervise all the contacts of this man, and so the following steps were taken: (*a*) All known contacts, direct and indirect, were kept under supervision and vaccinated. (*b*) As it was not known who else in the community had been contacts of this man, and as it seemed likely that further cases would occur following contact with him, all the public were considered as "contacts," and were exhorted to be vaccinated. About 30,000 vaccinations were performed. There were no further cases.

My experience of small-pox is limited, but when it was found that this disease could strike at a distance, I did not see what else I could do, except take every possible means at my command to combat the spread. Dr. Killick Millard himself suggests that aerial spread is possible. It seemed to me that one should supervise and vaccinate all known contacts, and also try to build up a cordon round the case. "Mass vaccination" in Swindon only commenced after the three cases had been in contact with many persons, and if vaccination of the contacts, known and unknown, was not the effective means of preventing the spread, I should like to know what was, unless—and here I make a suggestion with some diffidence—there are some outbreaks of small-pox which are self-limiting and die out of their own accord.

Finally, after very serious consideration, I must say that given a similar situation again I would feel obliged to act in the same way.—I am, etc.,

LLYWELYN ROBERTS,
Medical Officer of Health, Borough of Swindon.

Generalized Vaccinia and Vaccination

SIR,—I was very interested in the article on generalized vaccinia by Dr. A. A. Jubb (Jan. 23, p. 91), and was not aware that it was of such rare occurrence. On Nov. 6 last year I did a primary vaccination on a soldier 18 years old which resulted in a normal vaccination. On Nov. 29 he reported sick on account of a rash, and on examination he was found to have a papular and vesicular rash on his neck, body, and limbs; there were also vesicles on the soft palate and mucous membrane of the mouth. He stated that he had had the rash for three days and that he felt quite well apart from a certain amount of irritation. He was put to bed and observed for a week, and the vesicles gradually turned into pustules, which subsequently dried up and disappeared. He never felt ill at any time, and his temperature only once rose above normal. The picture resembled that of the illustration in Malcolm Morris's *Diseases of the Skin,* 1903, except that the lesions were not so large. The case was seen by several medical officers, including two consultants, and none of them had seen a case before.

In the last seven years some 20,000 vaccinations have been performed in this station, and with the exception of the case referred to above the results have been entirely free from any but the most trivial complications. The method adopted, which has produced from 90 to 99% successful results and which can be done at the rate of 500 to 600 per hour with a good team, is as follows. The arm is cleaned with spirit on cotton-wool and is not rubbed, as rubbing causes irritation of the skin and is liable to spread the vaccination. A domestic bodkin is dipped in the ampoule of lymph and with the thick end a thin line, about half an inch long, is painted on the upper deltoid. An ordinary sewing needle about two and a half inches long is then drawn through the lymph with a light stroke. The stroke should just leave a thin white line where the epithelium has been disturbed, and there should be no bleeding. A piece of elastoplast about the size of a postage stamp is then fixed over the vaccination, and is left on until it drops off. The bodkin is sterilized by flaming before commencing and the needle is passed through the flame between each vaccination. There is no necessity to wait for the spirit to dry before applying the lymph, and the plaster can be fixed to the arm before the lymph has dried, thereby saving much time.—I am, etc.,

C. SCAIFE,
Home Forces Lieut.-Col., R.P. (Temp. Major, R.A.M.C.).

Subclinical Vitamin A Deficiency

SIR,—If I do not waste too much of your valuable space, may I be permitted to make a few comments in connexion with the article by Major R. E. Wright (Dec. 19, 1942, p. 723).

The cutaneous manifestations of vitamin A deficiencies are well-known alterations of the skin, and there is no need to enter into further discussion. There appears to be, however, a good deal of controversy as to what constitutes a subclinical vitamin A deficiency, or, as I have referred to this syndrome, hypovitaminosis A (*Chin. med. J.*, 1936, **50,** 945), and what is the associated earliest sign. Referring briefly, "the earliest and most common sign, the smokiness of the conjunctiva," is emphasized by Wright. I would like to remark that in our cases observed we were unable to make a similar statement. Moreover, in a series of cases followed up for a long period (six to eight months), "none developed xerophthalmia, keratomalacia, or pigmentation of the conjunctiva." On the other hand, a slate-coloured, dry, easily scaly integument was almost a uniform stigma. It should undoubtedly be considered that deficient intake or utilization of vitamin A does not follow a strict pattern in its clinical manifestations, more especially in relation to ocular symptoms.—I am, etc.,

FREDERICK REISS,
Department of Dermatology, Society of the New York Hospital.

War Neuroses

SIR,—I have read with much pleasure the letter by Sir Arthur Hurst (March 6, p. 299), especially as I had the privilege through the hospitality of Sir Arthur and Lady Hurst to spend a few days at the Seale Hayne Military Hospital in the war of 1914-18. There I was greatly impressed by the rapid cures obtained in many of the functional nervous disorders by simple psychotherapy in the form of explanation, persuasion, and re-education. At the present time there seems to be a tendency to the revival of psycho-analysis, but I trust that those who practise such analysis will keep alive to the dangers of over self-inspection and of living in the world of feelings and fancies. We may admit that the study of the instincts and their unconscious role is necessary and valuable, but we must not forget to emphasize the importance of the education of the will in the conscious life.

Meanwhile, I wish to congratulate Sir Arthur Hurst on his able investigations extending over many years in the causes and treatment of the neuroses, both those occurring in civilians and in those who have been exposed to the perils of this agonizing war.—I am, etc.,

Chinley JUDSON S. BURY.

Surgery of Tendons

SIR,—On reading over your interesting annotation (March 13, p. 325) I was surprised to notice your statement that "very satisfactory results follow the repair of most tendons." After the extensive experience in traumatic surgery which I have had in Stoke-on-Trent for the last eleven years, I should be inclined to say the exact opposite. I seldom obtain a perfect result after the suture of a divided tendon, whether primary or secondary. Bad results are common after suture of both flexors and extensors, though, admittedly, they are worse in the case of the former. In the case of the latter, although good union can be obtained, this is almost always accompanied by shortening, causing permanent limitation of flexion.

I should like to make it clear that I am not speaking of the results obtained by house-surgeons, but of those obtained by myself after the most careful suture under what I believe to be the best conditions. I should very much like to know what results obtained by house-surgeons, but of those obtained by ence of tendon suture.—I am, etc.,

Stoke-on-Trent PAUL BERNARD ROTH.

Coarctation

SIR,—I was interested in Dr. C. W. Walker's account (Feb. 13, p. 190) of labour in a case of congenital coarctation of the aorta in a woman of 31, but would like to know a little more definitely on what he bases his diagnosis of coarctation. He merely states that "she was diagnosed at the age of 20 as a case of congenital coarctation." If coarctation is congenital the child usually dies at or soon after birth; if acquired it is due to infiltration into the vessel wall of ductus arteriosus fibres. This case, if really one of coarctation, may have been either, as the girl apparently enjoyed good health till the age of 8. If it was congenital she ought to have shown some signs and symptoms before that age, and if it was acquired she would have to have an enormous and extensive scheme of collateral circulation to supply the aorta with blood beyond the constriction, via a network including the internal mammary, posterior intercostal, phrenic, superior and inferior epigastric, inferior thyroid, posterior intercostal, transverse cervical, and other arteries. It would be interesting to know how all this could be ascertained without a necropsy, happily not needed in this case.

The ductus arteriosus in foetal life connects the descending aortic arch with the left pulmonary artery, and acts as a blood carrier between the two. After birth it should become obliterated, and is called the ligamentum arteriosum. The left subclavian artery comes off the aorta lower down the vessel, and, of course, persists. The short space between these two is slightly narrowed, and is called the "isthmus," and it is in this space that the rare stenotic condition known as "coarctation" is met with. In support of the diagnosis we have given us in the article that: (1) she had fainting fits at and from the age of 8; (2) she was incapable of exertion; and the following at the age of 31: (3) the heart was very much enlarged to the left; (4) a harsh systolic murmur in 2nd and 3rd intercostal spaces; (5) the blood pressure was 210/100; (6) marked arterial pulsation noted above the clavicles. Of these one would say that (4) is the only item in favour of the diagnosis. Common sense would seem to dictate that the blood pressure distal to the constriction would be low, whereas a hyperpiesis is present. As to (6), I have more than once noted largish pulsating lumps in the supraclavicular areas of hyperpietics, generally on the right side, due to the raising of the aortic arch in this condition.

It would be interesting if Dr. Walker could allow himself time to elucidate further the evidence on which he erects so rare and formidable a superstructure as "coarctation."—I am, etc.,

Stowmarket. H. S. GASKELL.

Sterilization of Dry Powders

SIR,—In recent numbers of the *Journal* which have reached this country I notice there has been some considerable correspondence upon the most satisfactory method of sterilizing such powders as sulphathiazole for use in controlling or preventing sepsis in surgical wounds. It appears to be generally admitted that moist heat solidifies these powders and renders them unfit for insufflation into a wound. During the last year I have made a practice of powdering each of my thoracoplasty wounds with 5 grammes of sulphathiazole, which is spread liberally over all the exposed tissues before suture of the wound is undertaken.

The sulphathiazole is weighed out into small glass bottles, which are closed with metal screw caps. Each of these screw caps is lined with a circle of waxed paper, which fits tightly over the mouth of the bottle and efficiently prevents the entrance of steam. The bottles are sterilized in a steam disinfector at a temperature of about 245° F. for one hour. During the last year the 85 consecutive thoracoplasty operations in which this technique was employed all healed by primary intention, there being no secondary infection in any wound with the exception of one case, where one skin stitch had to be removed on about the fourth day because of a little stickiness.

Before sulphathiazole was used approximately 8% of wounds showed gross infection, while another 15% showed some measure of minor infection requiring the removal of one or more stitches and the use of antiseptic dressings. It would appear that the method of sterilizing outlined above is entirely satisfactory for sulphathiazole, but I am not prepared to speak for the other drugs of the series, as I have not so far used any of them in this manner.—I am, etc.,

RICHARD A. S. CORY,
Senior Medical Officer.
King George V Jubilee Memorial Sanatorium, Jamaica.

Histamine and Insulin in Erythematous Eczema

SIR,—A woman aged 42 has been under my care suffering from melancholia, for which she has been treated with subcutaneous injections of histamine 1 mg. and insulin 5 units three times weekly for several months. She also suffered from erythematous eczema for more than ten years, her face, neck, forearms, and hands becoming red, swollen, and oedematous. From time to time cracks and fissures appeared on her mouth, neck, wrists, and fingers, and much care was necessary to promote their healing. During all these years she was never quite free from this condition; her life was a burden to herself and her appearance repulsive to others. Since histamine produces dilatation of the cutaneous blood vessels, and particularly those of the face and hands, each injection caused a temporary increase in the blood supply to the affected areas, and after a few weeks' treatment they began to improve. In three months the patient was clear of eczema, but the injections were continued for psychiatric reasons for another nine months before they were gradually discontinued. Since then any tendency towards recrudescence of the cutaneous lesion has been controlled by a short course of injections. Unfortunately, histamine produces constitutional effects which make it advisable to keep the patient under supervision for three-quarters of an hour after each injection. Nevertheless, eczema may be so intractable and intolerable that this rather difficult and prolonged method of treatment may be justified in special cases.—I am, etc.,

Crowthorne, Berks JOHN STUART KNOX.

Freedom to Practise

SIR,—Dr. Lindsey Batten's outspoken letter (March 13, p. 328) was much needed. There must be many who share his views but who keep silence from dislike of controversy. This is perhaps not surprising in view of the intolerant attitude adopted by the supporters of a complete State Medical Service towards any criticism. To be unwilling to swallow the scheme entire is regarded as opposing "social security" and to be "mentally if not physically dead." However, having become inured to such retorts, I would suggest that if Dr. Batten's admirable plea is not supported by those who agree with him there is a real danger of judgment going by default. I was recently at a meeting of non-medical "planners," and was appalled at the fate they were preparing for us. They were, for example, anxious to limit our right to practise to "licensed premises"—i.e., health centres. To resent this limitation is not to deny that such centres can have a useful function. But some patients still belong to the tribe of Nicodemus and prefer to seek counsel and healing in secret. To prevent their obtaining this from a qualified doctor simply plays into the hands of the quack. I once heard Mr. Bernard Shaw lecture on the advantages of not being on the *Medical Register*, to which it seems likely that he may be able to add a convincing addendum.

If we allow the organization of the profession to pass out of our hands we shall meet with short shrift from such planners. But even a medical hierarchy has its dangers, as you, Sir, have pointed out. Any extension of the rule against publication of a paper without permission of the officer in control of the service, which is already widely enforced, may be as disastrous to medical progress here as it has proved to be in Germany. Already some of my younger "Leftish" friends have been considerably disillusioned by autocratic medical superintendents.

I quite realize the attraction of a pensionable service in these days of excessive taxation and low rate of interest, because it is unlikely that doctors in the future will be able to save as much for their old age as a pension would yield. That changes are called for and are indeed inevitable is clear, but it is doubtful whether making us all civil servants will remedy all the defects in the present system, many of which are inherent in human nature. Gradual evolution is better than revolutionary changes in a profession which has been steadily advancing. Indeed, some changes must be gradual; thus I am told there is a serious and increasing shortage in the supply of dentists. Yet the planners call for an immediate extension of dental service. Do they realize it takes four years to train a dentist?

I wonder what sort of man will be attracted to the medical profession if and when it is cabined and confined in the ways suggested. In the long run a country gets the doctors it deserves. Having enjoyed the inestimable privilege of practising medicine under freer conditions, I do hope my successors will think not once but many times before selling their birthright for what may well prove to be a veritable mess of pottage.—I am, etc.,

London, W.1 W. LANGDON-BROWN.

SIR,—Writing, as I am, from a sick-bed, one seems to have a longer vision, and so I feel constrained to write a few lines once again upon this important subject. Every one of us must sympathize with all my friend, Dr. Lindsey W. Batten, said in his letter (March 13, p. 328). But we have to prepare for a future that we hope will be happier and better than the past, and think not in terms of the doctor but in those of the community. It is stated with authority that 95% of the public after the war will earn incomes that cannot provide adequately for private practice fees, with all its modern accessories, and they must be catered for under some such scheme as the Beveridge plan suggests. Well, why shouldn't they, and yet all the amenities Dr. Batten mentions be retained?

Certain provisos seem to be imperative. First, that the entire profession should place itself under the B.M.A. so that we can speak with one voice. Secondly, that the control of the medical side of the scheme shall be under medical and not lay supervision, while recognizing that, being a Government scheme, some control of the financial side by them is unavoidable. Thirdly, that the insurance is of such a nature that plenty of funds are available for adequate remuneration, instead of the huge profits being converted to the friendly societies, as at present in the panel system. Fourthly, that no obstacles shall be put in the way of ordinary practice being carried on for the 5% remainder of the population. Fifthly, that the salaries shall be adequate and in relation to each doctor's experience, qualifications, and standing.

In this way there is no reason why we should not retain our own patients, have complete freedom in our work, and we would also have access to all modern improvements, and have more freedom for study and recreation, thus becoming better doctors. For the sake of brevity I am leaving out all details which are controversial. Given good will on the part of Parliament, the public, and the profession, which last should, as I have pointed out in a previous letter, contain only the right type of man, some such scheme can and must be made workable if the public are all to get the full benefits of modern medicine.—I am, etc.,

Hampstead, N.W. HAROLD VAN PRAAGH

Scientific Freedom and Social Medicine

SIR,—Dr. Geoffrey Bourne (Feb. 20, p. 331) has put forward with vigour some of the pitfalls surrounding State Medical Service in so far as its contact with hospitals is concerned. Equally important are problems arising out of State control of the general practitioner, for it is clear that either a salaried service or extension of the panel system will engulf him in some system of control.

Within the past few years I have been told by three consultants, each from different London teaching hospitals, that the standard of the general practitioner in Britain to-day is extraordinarily high. It is my belief that this high standard is due to the sense of responsibility which his complete professional freedom enjoins upon him. To those who think that the absence of competition which a salaried service involves would tend to lower our standard, one may point to the modern tendency toward the union of practices into "firms," which removes the competitive element; yet the standard of such "firms" is, by common consent, above rather than below the average. Indeed, I would go so far as to say that competition is actually harmful in that it absorbs energy which could and should be more usefully spent.

If control there has to be, let those in control be not medical politicians but practical medical men answerable to the profession and to public opinion rather than to a Minister of State and Government Department. If the choice before the profession lies between a salaried service and extension of the panel system, I feel that the selection should be made by those who are coming rather than by we who are going. For my part, as one of the older men, so far from "preparing to sell the pass," as one of your correspondents expressed it, I can only say that the prospects of a salary, a pension, and a holiday with pay sound too good to be true.

If the medical provisions of the Beveridge report are to become a reality it is clear that the public are to receive not less but more medical attention than heretofore. On the other hand, it would seem certain that after this war the public will have less rather than more to spend upon doctors. I have long felt that much of the doctor's time is taken up in work which could as well be done by a more highly qualified nurse than exists to-day. I would suggest that if a higher diploma were instituted for nurses, including a primary examination in chemistry, physiology, and anatomy, conferring on the so qualified nurse a greater measure of responsibility and proportionately higher emoluments, then by this expedient a fuller use could be made of the doctor's time. Without entering into detail it is clear that the practice of such nurses could be ancillary to and co-operative with the practice of the doctor, who would then be freed to give his entire time to the more highly skilled work for which his long training has fitted him. By thus economizing the time of the doctor the increased medical facilities envisaged in the Beveridge report might be brought nearer to attainment without adding so much to the financial burden of the public.—I am, etc.,

Rye. MARTIN BUTTON.

SIR,—We have read with great interest and approval the article by Dr. Geoffrey Bourne. We have now had considerable experience, in the shape of Service medicine, of an autocratic medical system such as he describes. We agree that reorganization of the present medical system is essential in order that it may cope adequately with the increasing complexity of modern problems, but we feel most strongly that such reorganization ought to take place in accordance with the democratic principles so well outlined by Dr. Bourne.—We are, etc.,

C. J. ROOKE,
G. H. DAGLISH,
J. H. GRAVES,
Surg. Lieuts., R.N.V.R.

The B.M.A. and the Beveridge Report

SIR,—The proposals of the Beveridge report on medical services "is the ideal plan" (para. 437), but as an ideal plan needs ideal patients, doctors, and administration Sir William wisely says later in the same paragraph that "these proposals are provisional only." To write, as some of your correspondents do, as if the medical provisions of the Beveridge plan are sacrosanct is to fall into the errors of the supporters of the "idealist" League of Nations (of which I was one), which landed us in this present chaos. The report clearly realizes that patients are not yet ideal and suggests various checks on their ideal freedom. Health administration shows no sign of becoming ideal, or the Minister of Health—to take one instance—would be regarded as the natural champion of the rights and facilities of doctors instead of, as at present, more like their taskmaster because he is also their paymaster. Doctors cannot claim to be ideal either, and so most of them work better in an atmosphere of freedom instead of regulations.

It should surely be the business of the special Beveridge conference on March 31 to emphasize that great modifications of the ideal plan are necessary if it is to function satisfactorily in this imperfect world. Many points may be raised, but at least let us be practical and not carried away by a desire for doctrinaire consistency. And may I suggest that your numerous correspondents who seek to condemn the retention of private practice because it will "divide the loyalties" of doctors are really running away from life? Every doctor has multiple loyalties—to his patients, his profession, his family, his own health, and many others. Until a doctor has learned to put his patients first and to get the rest of his responsibilities into some sort of control he is not really fitted to advise his patients, who are little less distracted. To say that a doctor should only have one class of patient is a sad (and false) slur on the profession, for, in fact, panel patients are usually best treated by those doctors who have sufficient private patients to give them that sense of freedom without which their best work will never be done. And patients wish to be "private patients" mainly because they wish to be free of regulations too. Those who wish for State medicine can get it at the price of freedom or regimentation, but there is every reason why as many as possible should be encouraged to keep what freedom they have got.—I am, etc.,

Winsford, Cheshire. W. N. LEAK.

SIR,—Dr. J. Shackleton Bailey (Feb. 27, p. 266) asks, "If the whole resources of modern medicine are at the disposal of every man, woman, and child in the country, what else will the medical profession have to offer anyone at any price?" and then suggests that proviso (*b*) hangs on that question. Surely Dr. Shackleton Bailey confuses a standard of medical service with a standard of medical practice. To take a simple example, let us consider the case of a mother who wishes to have her child immunized against diphtheria. The child is immunized while otherwise in good health; therefore there is no reason why it should not be taken to the doctor's surgery. On the other hand, the mother may prefer to have the child immunized at home. Is the mother to be compelled to take the child to the doctor's surgery if she is willing to pay to have her child treated at home? Parallel instances of one standard of service with varying standards of practice could be multiplied a thousandfold.

Irrespective of the standard of service the standard of practice must be determined by the remuneration of the doctor. If the experience of the scale of remuneration under the Maternity Service (Scotland) Act, 1937, can be taken as a guide, the standard of practice in the future will not be comparable with the highest standard existing to-day. I would suggest that proviso (*b*) gives scope for a varying standard of practice without in any way necessitating varying standards of service. I would further suggest that the existing demand for varying standards of practice will not be eliminated by a national medical service.—I am, etc.,

Milngavie. DONALD MACDONALD.

Consultation between Government and Profession

SIR,—I have read with alarm amounting to consternation the letter on this subject from the Secretary of the Ministry of Health (March 20, p. 359). At the moment I am not concerned with the merits or demerits of a State Medical Service: that is a matter which must be decided by earnest and unbiased consultation between the profession and the Government and, I hope, representatives of the sick public. But I am concerned with the form of attack with which the liberty of the public and the profession has been assailed. For lack of a better expression it might be called "psychological infiltration," of which tactics I thought until to-day that Goebbels was the acknowledged master.

The sentence to which I take the greatest exception in the letter is: "I need not tell you that the establishment of a health service on the lines envisaged by the Government would constitute the greatest single step forward in public health in the history of this country," etc. By this sentence the Ministry has committed itself to a view and has endeavoured to "force" its view on the public by blandly presenting as an axiom, and therefore not open to argument, what is indeed only a hypothesis; and it has presented this—the whole crux of the matter—as an assumed fact without one iota of evidence having been taken on the subject. This sentence should have read: "I need not tell you that the establishment of a health service on the lines envisaged by the Government *might* constitute the greatest single step forward, *or backward*, in public health in the history of this country." The problem for investigation would then have become clear, as in fairness to the public it should be made clear.

If we are to arrive at the truth we must have facts; and no preconceived ideas or theories must be allowed to interfere with a diligent search for all the evidence of fact. The first question to settle, then, is: Would the population of Great Britain get better treatment through a State Medical Service than it could get without it? Many of those who, like myself, have studied on the spot problems of health in many countries will agree that the average man gets better medical and surgical treatment in this country than anywhere else in the world. That does not mean that a far better medical service than the present one might not be envisaged; but at least we already have one of the best if not the best. Until the problem has been settled by a study of *facts* no attempt should be made to discuss ways and means. The principle having been established it would become our duty to implement it; but our first duty is to establish the principle.—I am, etc.,

London, W 1. H. E. GRIFFITHS.

Future of Women in Medicine

SIR,—Young medical men and women students have much to gain by working together. War conditions have forced men and women to work together in the Services, in the factories, and in business and professional life as never before in the history of the British people. By so doing they are learning a new comradeship and a fresh appreciation of each other's points of view. It is a vast experiment, and as in all times of high testing some of the weaker ones will fall. It is curious that Dr. Calder (March 13, p 329) should at this time feel so strongly that medical men and women students should be strictly segregated. She seems sadly out of date in her views. Fifty years ago, when women had to fight pugnaciously for admission to the medical schools, they had to wear a masculine aggressive air or they would never have achieved recognition. They still must struggle hard to deserve important positions and high appointments, and so far with many notable exceptions they have not done so.

When women do specialize more and take the trouble to work for higher qualifications, I feel sure that, by common accord of men and women, medical work for which by virtue of their being women they are best fitted will be open to their particular talents. It is not by any means accepted "that women are the best people to administer to women and children." Children happen to be born both male and female in about equal proportions. It is true that some unsuitable women become medical students, but that applies equally to men, and both tend to be weeded out by the rigours of the long course of training.

Dr. Calder's objection to the teaching of birth control seems irrelevant to the main subject of her letter. She must look at past and prevailing social and economic conditions in order to discover the causes of the declining birth rate. If she knew anything about the work of birth control clinics she would appreciate that the reason for their establishment is to ennoble motherhood, not to degrade it. There is nothing dignified in a diseased woman bringing a sickly child into a poverty-stricken household. Dr. Calder would also discover at the clinic, if she could bring herself to enter the portals of such a woeful place, that there are a great many women to-day of child-bearing age who are longing for children, and who are, for reasons little understood or studied, apparently unfertile. Birth control clinics throughout the country have considerable evidence of this. Gloomy prophecy of racial extinction need not cause alarm and despondency if thoughtful men and women worked together to create a better world for the young people of the future.—I am, etc.,

Newcastle-upon-Tyne. DOROTHEA W. SINTON.

SIR,—I cannot let Dr. Jane Scott Calder's letter (March 13, p. 329) go by unchallenged. Fortunately, I do not believe there are many medical women or men who share her views. The only point on which I agree with her is that men and women are not identical. I would add that they are complementary to each other, and their work should also be complementary. To achieve this ideal the more men and women work together from their training onwards the better.

For my own part I was trained in a women's medical school, and at that time it probably offered the best all-round training in medicine for a woman, but I welcome the possibility of women being admitted to other medical schools previously open exclusively to men. It is more than a courteous gesture of recognition and encouragement; it is necessary progression. Since qualifying I have worked continuously with men doing similar work under the same conditions. I have found it stimulating and enjoyable. I have rarely found it necessary to fight for my rights as a woman, certainly not in the last ten years. I have learnt much from my male colleagues, and I hope I have had something to give in return.

I trust no one will ever seriously consider suggesting that medical women should revert to such a narrow-minded medieval status as that mapped out by Dr. Scott Calder. That women, in contradistinction to men, should adopt a uniform policy on such a subject as birth control seems to me to be ludicrous. Surely it is a subject of equal importance and interest to men as to women, and our policy must be that of the combined profession. Let us discuss these problems together, not from opposite camps.—I am, etc.,

Leicester. JOAN WALKER.

SIR,—The principles suggested in Dr. Jane Calder's letter for the future of women in medicine seem rather retrogressive in character, perhaps good for Dr. Garrett Anderson's day but not for 1943, when the realities of the profession as a whole are much more complicated. Were her salient "points" adopted we should "evermore come out by that same door wherein we went." In fact I think we would gradually be ejected by the back door. A woman doctor should simply walk forward hand in hand with her male colleagues, and her footsteps should be felt and not much heard. The fact that they are sometimes noisy and subversive is due to the admitted survival of the feminist type among us, and it is an acknowledged fact that this type is generally a product of the non-coeducational schools.

Women doctors do not *need* to "pine after the privileges of men"; they have them all, except, perhaps, adequate representation on important committees, and this is a difficult problem. The medical woman who gets to committee status is too often, unfortunately, the wrong type. She is generally a feminist who has concentrated solely on her own life and work and progress, and not on the world beyond—a bad mixer and diplomatist, not *persona grata* to her male committee colleagues, and thus not useful.

I do not ask space to challenge Dr. Calder's various suggestions, because other readers must, I am sure, be disposing of them in this correspondence.

The fault of 50% of medical women lies in that they allow themselves to become totally absorbed in the materialism of the job of being a doctor. They become introspective and introverted in outlook by their sheer enthusiasm. We should all make time to throw off the trammels of the medical mind occasionally—to go into the world beyond and experience relaxation and enjoyment. By so doing one understands one's patients—their psychological and physical reactions, and, above all, *their* point of view. The present medical education of women is all right, but it is within herself to become a good doctor.—I am, etc.,

London, W.1. LILIAN MURRAY.

Absenteeism in Industry

SIR,—As a general practitioner who, until the appointment of a whole-time medical officer, was part-time medical officer at a large factory may I endorse Dr. A. G. Eddison's plea (March 6, p. 303) for a schedule of terms to be used on certificates: in particular, one for that group of patients—and one is seeing an increasing number—where the trouble is due to prolonged periods of long hours of work often in artificial light, difficult transport to and from work, little or no chance of mental and physical recreation, and possibly domestic difficulties due to both husband and wife being in employment. These patients are not suffering from organic disease, and it is difficult to label them concisely on the usual certificate form without using terms such as "nervous debility." A letter to the industrial medical officer would no doubt solve the problem, but, unfortunately, we have little time to write letters nowadays.

Another type that is a difficult problem for the G.P. is the "round peg in the square hole"—the man or woman who for some reason cannot cope with the work that he or she is given. Unless some adjustment is made they will inevitably become absentees on some pretext or other. Here I am sure co-operation between G.P. and the industrial medical officer is essential, but this must be backed by sympathetic understanding on the part of the management. Certification is undoubtedly a major problem in general practice to-day, and I am sure that a schedule of terms would strengthen the hand of the G.P. and ease the difficulties of the industrial medical officer.—I am, etc.,

G. THOMPSON.

SIR,—Absenteeism is certainly a problem, as all will agree But quite apart from the ambiguous certificates to which Dr. A. G. Eddison (March 6, p. 303) refers, there are a large number of genuine but largely preventable cases about which something could and should be done. What about women called up and allotted to factories ten or fifteen miles from their homes, some of whom can only get to work by cycling there because there is no other means of transport? Others travel partly by cycle and partly by train. I know of some who have to leave home shortly after six o'clock to be in time for work at eight, and have been surprised at the number of these who do so without breakfast, taking a few sandwiches for midday and having nothing more until they reach home between 7 and 9 o'clock. They are usually too tired to eat after 10½ hours' work.

An obvious question is, "Why don't they use the canteens?" I have asked them many times, and the reply is nearly always the same: they "can't eat the food because it gives them indigestion." It is a common complaint that they cannot drink the tea provided "because it tastes so strong of soda" and upsets their stomachs, and they do not like to complain. Small wonder that after a few months of this some of them collapse from fatigue and are anaemic and undernourished. Their complaints may be justified or not; but there seems to be a certain unanimity about them. Absenteeism of this kind should be preventable. Such things do not occur in the Services or in commercial undertakings where welfare officers are in intimate relation with individual workers. The remedy would seem to lie in the closer liaison between an adequate welfare staff and the factory medical officer.

Factory inspectors should not be too lenient as regards working conditions merely because it is wartime. I have seen patients ill through working in a small shop where dope is used—which is not a dope shop although dope is used regularly all day long—without any enforcement of the customary regulations applying to such shops as regards ventilating fans. Only workers actually working with dope were issued with milk, while those engaged on other work within a few feet of them were issued with none. Is there any pretext for an inspector overlooking such a state of affairs? If welfare officers only knew the hardships which some women bear uncomplainingly before their day's work begins—and after it ends—but which prejudices their physical efficiency and consequent output, they might be able to advise and improve the conditions. It is equally important to ensure that meals served in canteens are well cooked and served in an appetizing manner at a reasonable price.

Getting down to "brass tacks," welfare officers and factory medical officers are employed as "money-savers," and by preventing or abolishing conditions which lead to absenteeism they should more than pay for themselves by keeping workers happy and efficient.—I am, etc.,

Brookwood, Surrey. H. M. STANLEY TURNER.

Private Fees of Salaried Medical Officers

SIR,—I believe that the majority of the medical profession would support Mr. T. W. Mimpriss in his contention (Feb. 20, p. 234) that medical officers should be allowed to retain fees for insurance reports, etc. It appears, however, that he is wrong in assuming that the Ministry of Health would also support this contention. On inquiry I am told that there is a Ministry regulation which forbids the acceptance of such fees by whole-time salaried officers. This is particularly interesting in view of the fact that whole-time salaried officers who are examiners are permitted to retain their examining fees, whereas the lower-salaried junior medical officers may not officially retain their fees for insurance reports. It is difficult to see that this arrangement is a fair one.

The circumstances in the two cases seem to be the same; each is doing work outside his routine medical duties, but in one case he may retain his fees, in the other case he may not. The only difference between the two is that, whereas junior medical officers do not take time off to produce their insurance reports, the senior medical officers take up to a week off for their examining duties. Perhaps there is a rational explanation for this rather confusing situation, but in any case, here surely is a situation which might be investigated by the B.M.A. with some hopes of an equitable conclusion.—I am, etc.,

Chertsey. J. H. PENROSE.

Venereal Diseases

SIR,—The constantly reiterated slogan, "This is an entirely medical matter," has perhaps more than anything else hindered the campaign against V.D. Let me give one example. At the end of the last war, in one of our Armies of Occupation, in spite of all medical measures the V.D. rate was so high that the military authorities at last agreed to allow the direct "moral" approach to be tried. The effect was remarkable. There was a dramatic decline in the number of infections, and within a few weeks the whole situation had changed. (The exact figures are on record, and I would gladly furnish Mr. Chartres with a copy of them.) This was brought about by a great Christian man, himself a V.D. specialist, who talked to the troops not as a doctor but as the best sort of father would talk to his sons.

Unfortunately, evidence—and I stress the fact that it is *evidence,* not pious opinion or wishful thinking—of this kind appears to be ignored by the authorities. At the very beginning of the present war a deputation, which included some of the most distinguished medical men in the country, went to the War Office to urge that in dealing with the problem of V.D. the lessons learnt at the cost of so much disability and waste of man-power should be given full weight and value. The deputation was coldly received, and its proposals were rejected. I was told that "this was an entirely medical matter" and that recent advances in prophylaxis and treatment would prevent the recurrence of the serious situation of 1914-18. Now, in the fourth year of the war, the authorities are appealing to the Churches and other voluntary bodies to deal with the matter as a great social evil—not, that is, as "an entirely medical matter." This is an advance in the right direction, and it is to be hoped that Mr. Chartres's obscurantist views are too little shared to hinder it.—I am, etc.,

Guildford. G. L. RUSSELL.

SIR,—Mr. E. A. Chartres after fifty years' active practice in many parts of the world among many peoples insists (March 13, p. 331) that venereal disease is entirely a medical matter, and that the sexual is the most important human function we possess. Of course he has some biological backing for his first contention, for, after all, sexually promiscuous lower animals do get sexually transmitted diseases of their own, and sexually promiscuous man does get, in *his* turn, sexually transmitted diseases of *his* own; and no one doubts but that those lower animal infections are entirely a matter for veterinary medicine. So, I take it, let us go in with the beasts!

Possibly now, only a minority of our profession think that we are first of all humans and that the sexual is not the most important human function. I find myself on their side, and, after the opportunities and material for consideration of the problem given me by twenty-three years in medical charge of a treatment centre for venereal diseases, can protest with conviction that prevention of these diseases is primarily a moral, and only secondarily and incidentally a medical, problem.—I am, etc.,

H. M. HANSCHELL,
Albert Dock Hospital, E 16 Director, V.D. Clinic.

Obituary

The death of Dr. S. M. BROWN, hon. consulting surgeon, Southport Infirmary, severs another link with Owens College, where he was prosector and assistant demonstrator of anatomy. Stanley Mewburn Brown qualified M.R.C.S., L.R.C.P. in 1892, M.B. in 1893, and took his M.D.Lond. in 1896. The house appointments he held included those of house-surgeon at the Salford Royal Hospital and at Manchester Royal Infirmary. He went to Southport some 45 years ago, and established a considerable practice there. His membership of the B.M.A. extended over 49 years, and he was chairman of the Southport Division in 1913. He had also been president of the Southport Medical Society and examiner for the St. John Ambulance Association. W. A. M. writes: Appointed assistant medical officer to the Southport Infirmary, Brown passed through the varying ranks, becoming honorary surgeon, chairman of the medical board, and eventually chairman of the infirmary, a position which, with characteristic honesty, he resigned three years ago when he found that his health prevented him from giving it the attention it required. During his chairmanship the infirmary services were considerably extended, and in appreciation of his work a new ward was named after him. I was associated with him for most of his infirmary career, an association which may be taken as characteristic of his influence on his colleagues, for it began with respect, deepened to esteem, and then to affection. Quiet in manner, of sound judgment and knowledge, he influenced by character rather than brilliance; a man diligent in business, upright in conduct, steadfast, and charitable.

We regret to announce the death on Feb. 25 of Dr. JAMES MARR at his home in Greenlaw, Berwickshire. He was born in 1860, the son of the late Mr. William Smith Marr of Tarves, Aberdeenshire, a noted farmer and breeder of Aberdeenshire cattle. James Marr received his early schooling in Aberdeen and went on to study medicine at the University there. He suffered a breakdown in health and travelled to Australia; but on his return he completed his studies, graduating M.B., C.M. in 1892. In the following year he started practice in Greenlaw and devoted himself conscientiously to that work until he retired in 1923. His was a lovable nature, and during his retirement many friends gathered round him to hear of the days when he faced all weathers on horseback and of his early experiences with a motor car. In his latter years his activity was greatly curtailed by crippling osteo-arthritis. In his home there was a large and varied collection of paintings which he had acquired. By his death the poor of the district have lost a good and generous friend. He had been a member of the B.M.A. for 50 years.

Dr. T. B. **Adam**, who died at Harrow on Feb. 27, was one of the pioneers of medicine in Nigeria. Born in Glasgow, Thomas Blane Adam studied medicine at the Royal Infirmary there, qualifying L.R.C.P.&S. in 1900. He took his D.P.H. in 1910. After house appointments at the Royal Infirmary, he entered the Nigerian Medical Service, and was responsible for setting up the first leper colony in that country. Keenly interested in medical missions, he was well known to all the missionaries in Nigeria. His work was arduous, and included the planning of many of the hospitals in use there to-day. When he retired from the service in 1928, after 26 years with it, he became Deputy Director of Medical and Sanitary Services, West African Medical Staff. He did not, however, retire from active participation in the mission cause in Africa; for five years he worked for the Baptist Missionary Society, visiting the Congo and choosing a site for the new hospital at Pimu. Dr. Adam served in the R.A.M.C. in the last war with the rank of major and took part in the Cameroons Expedition.

We regret to announce the death at Liverpool on Feb. 28 at the age of 68 of Mr. **Theodore** R. W. **Armour**, orthopaedic surgeon, Royal Southern Hospital, Liverpool. His health had failed noticeably in the last few months, but he carried on until almost the day of his death.

Theodore Robert William Armour studied medicine at Edinburgh, taking his M.B., Ch.B. there in 1897. Shortly afterwards he was appointed house-surgeon to the late Sir Robert Jones at the Royal Southern Hospital, Liverpool, and during the years he spent under that great teacher he gradually saw orthopaedics develop into a recognized specialty. Among a number of appointments he held were those of surgeon to the Leasowe Hospital for Children, Wirral, the Ministry of Pensions and the Smithdown Road Hospitals, Liverpool. From the outset he entered into orthopaedics with enthusiasm and showed exceptional ability in operative technique; many of his own students have remarked on his manipulative facility. Since his purpose was to obtain the best result for his patient, he grudged neither trouble nor time to that end. His patients, indeed, were quick to perceive this, and their gratitude was a source of happiness to him. For many years he was the senior member of the hospital staff. Here again he always gave his time freely for the discussion of hospital problems and difficulties. A few years before he was due to retire he was made chairman of the appeal committee which had been formed to save the financial position of the hospital. Under his guidance the large sum of money required was successfully raised, and he enjoyed this work, although it involved considerable labour. In the last war he served with the R.A.M.C. with the rank of major. He will be remembered as one who devoted himself to his profession, which he served faithfully and well.

Father **John McAleer**, who died on March 8 at the age of 80, was a medical man, having qualified M.D., M.Ch. at the Royal University of Ireland in 1885. He practised medicine for some years before joining the Society of Jesus at Roehampton over 50 years ago. Since 1900 he had been at Burton Hill, Petworth, Sussex, where he had looked after the sick and aged of the Society.

Supplementing the obituary notice of Mr. I. N. **Blusger** printed on March 20 Mr. R. H. Dale writes: I was a fellow student of Blusger's at St. Bartholomew's, and he held the post of senior house-surgeon while I held the junior appointment. During that time I got to know him really well, and to appreciate to the full his kind and generous character. He was the ideal companion "on the house," and was always ready to help out his inexperienced junior. At that time he was in the hospital rugger fifteen as a fast and fearless centre three-quarter; his fellow South African J. G. Nel played on the wing. I shall always remember Blusger as a true friend and I know he will be greatly missed by all.

The Services

Temp. Surg. Lieut. N. A. Douglas, R.N.V.R., has been appointed M.B.E. (Military Division) for skill and devotion to duty in tending wounded survivors from torpedoed merchantmen.

Surg. Cmdr. C. A. Downward, R.A.N., has been awarded the D.S.C. and Surg. Lieut. D. A. Warden, R.A.N.R., has been mentioned in dispatches for skill, resolution, and coolness while serving in H.M. Australian ships during operations in the Solomon Islands.

The King has conferred the Efficiency Decoration of the Territorial Army on Major (temp. Lieut.-Col.) A. M. Hughes, M.C., Majors W. Bowater, M.C., H. A. Eccles, C. W. F. Greenhill, F. N. N. Roberts, and C. J. Fox, R.A.M.C.

CASUALTIES IN THE MEDICAL SERVICES

Temp. Surg. Lieut. J. de L. Bourgeois, R.C.N.V.R., is included as "missing, presumed killed," in an Admiralty Casualty List published on March 23.

1st Class Assistant Surgeon W. T. J. Monisse, Indian Medical Department, is included as "died" in an India Office Casualty List published on March 19.

Died.—Capt. K. Teevan, R.A.M C.

Prisoners of War.—Lieut.-Col. K. F. Alford, I.M.S, Major B. M. Wheeler, I.M.S.

Missing.—Capt. A. Farquhar, R.A.M.C.

DEATHS IN THE SERVICES

Lieut.-Colonel **Manekshaw Jamshedji Kelawala** died at Ealing on March 20, aged 86. He was a Parsee, who live to greater ages than most Indians. He was educated at the Grant Medical College, Bombay, where he qualified with the L.M.S. in 1879. In the following year he passed the L.R.C.S.Ed. and the L.S.A. and entered the Indian Medical Service. His military service was performed in the Madras Presidency and he saw active service in Burma in 1886-8 with medal and two clasps, and in 1890-2 served with the Tlang-Tlang column with another clasp to his medal. His civil work included the important post of surgical registrar and second surgeon to the J. J. Hospital, Bombay, which is that of the Grant Medical College. He retired in 1909 with the rank of lieut.-col. on the selected list. His widow survives him.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

The next Final M.B. Examination will begin on Monday, June 14, a day earlier than is prescribed by Ordinance.

The Committee for Medical Radiology and Electrology in its report for the year 1941–2 recalls that the first examination for the Diploma (Part I) was held in July, 1920, and that the regulations for the Diplomas were rescinded on Oct. 31, 1942. The total number of Diplomas granted has been 526 by examination and 34 by thesis only.

UNIVERSITY OF LONDON

The following candidates at the Third M.B., B.S. examination held in Oct., 1942, were approved:

[1,3,4] R. Barer, [1,2,3] Gwendoline R. Briggs, [1,3] S. G. Tuffill, [1,4] D. R. Urquhart, [1,4] B. A. Ward, P. Arnold, Dorothy J. Ball, N. E. Bennett, H. H. Bentall, N. N. Blaxland, A. Bloom, N. R. Carlson, Joyce L. Chamberlain, A. S. Clark, P. J. Collard, G. H. R. Curnock, M. Curwen, I. S. Dalton, Joan M. Daniel, O. Daniel, M. J. G. Davies, V. M. K. Davies, Audrey M. Dealler, Ethel L. Deas, J. L. D'Silva, J. W. L. Doust, Mary E. Egerton, P. D. Fergusson, M. B. Fox, A. H. Galley, B. F. Gans, R. A. Gill, J. F. Goodwin, Mary B. Graham, T. A. W. Green, R. D. M. I-K. Harkness, Mary M. Harrop, H. A. Hasheman, Angela B. G. Hefferman, J. C. Hesketh, W. L. P. Hewerdine, G. Howells, H. Isenberg, D. G. C. Jones, S. L. Kaye, D. H. King, R. King-Brown, A. Kildjian, D'A. Kok, R. U. F. Kynaston, D. G. Lambley, E. Levy, G. H. T. Lloyd, W. C. D. Lovett, Stella M. Luty, Mary K. McCarthy, J. C. Macaulay, P. B. Maling, S. A. Mason, A. H. Michael-Phillips, J. P. Mitchell, R. G. Moore, Joan V. Muller-Rowland, Barbara D. Owens, F. C. R. Picton, D. Reckless, R. G. Rees, H. A. Ripman, Dorothy H. Robertson, J. A. Robertson, Millicent M. Rogerson, Olga B. Ryland, S. C. Sandifer, Irene M. Sarner, B. A. Sellick, J. Sharkey, C. H. Shaw, J. J. Shipman, L. M. Shorvon, J. S. Staffurth, P. B. Stones, P. Stradling, C. G. Stringer, W. V. Taylor, I. F. Thomson, P. A. Thorn, Eileen D. Trafford, P. R. Travers, J. Vahrman, A. A. Vickers, G. G. Wallis, K. W. W. H. Walton, J. F. N. C. Ward McQuaid, Kathleen M. Watson, M. H. West, H. G. Whitworth, K. W. Wilkinson, D. O. Williams, H. G. Williams, H. B. Wright, Mary Young.

The following candidates at the Third M.B., B.S. examination held in Feb., 1943, were approved:

[1,5] C. Campion, [1,4] S. D. Gun-Munro, P. B. Adamson, Margaret E. R. Balfour, G. A. Bedwell, J. Bellamy, Rosemary P. Biggs, J. B. Blacklay, J. J. A. Blakely, D. H. Bodger, J. P. Bound, J. R. Briggs, E. W. C. Buckell, F. H.

Budden, W. F. Cavenagh, D. P. Choyce, S. M. Chris, A. L. M. Christie, Rosemary I. Cook, A. H. C. Couch, Mary H. Cutting, H. Davis, A. J. Duggan, J. G Dumoulin, V. Edmunds, N. R. E. Fendall, J. C. Firth, A. J. Glazebrook, F. T. Graves, W. A. Hamer, G. F. T. W. Henson, H. D. G. Hetherington, Hazel B. Hill, D G Ismay, G. Jarratt, D. B. Jelliffe, A. E. Jones, P. G. Keates, Anna R. Kemp, Monica K. Mack, H B. McLaughlin, B. P. Marmion, P. L. Masters, Jessica Mestel, R. G. W. Moore, T. Parkes, R. T. Parkin, V G. Patel, E. H. Paterson, D. J. H. Payne, S D. Purcell, A. J. H. Rains, J. P. Raw, T. L. Reeves, Edith M. Robson, S. C. Rogers, A. Roth, H. T. N. Sears, J. Shah, H. V-o-M. Shaibany, A. Sherwood, G. R. MacK Sichel, B. Smallhorn, Audrey U. Smith, Edna H Stern, R. J. Stout, F. R. Sutton, M. N. Teubes, D. J. Thomas, H. E. Thomas, L. B. Thomas, D. J. Tibbs, A. B. Tompkins, Edith M. M. Toye, K. O. A. Vickery, R L. Ward, B. G. Wells, W. V. C Wiley, G. F. Wilson, A. W. O Young, H. J. Young.

[1] With honours. [2] Distinguished in pathology. [3] Distinguished in hygiene and forensic medicine. [4] Distinguished in surgery. [5] Distinguished in obstetrics and gynaecology.

UNIVERSITY OF DUBLIN

The following candidates have been approved at the examinations indicated:

M D.—H H. Balch.

M B., B Ch., B A O.—D. M. Bamber, G. H. A. Chamberlain, R H C. Conyngham, A. W. D Cowan, J D. O'Neill Donnellon, A. C. V. Maltby, Mary D Moriarty, O. D. Nightingale, B Novis, T. F. Roche, P. H Seaton, C. Watson, B. A. T. Welsh.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

The following Hunterian Lectures will be delivered at the College, Lincoln's Inn Fields, W.C.: "A Study of the Aetiology of Appendicitis," by Mr. W. H. Bowen, on April 5; "Premaxillary Cysts," by Mr. H. T. Roper-Hall, on April 7; "The Surgery of Non-magnetic Intraocular Foreign Bodies," by Mr. L. H. Savin, on April 9; "Injuries of the Urinary Bladder," by Mr. J. C. Ross, on April 12; "Frost-bite and Kindred Conditions," by Mr. C. R. Greene, on April 14; "Traumatic Arterial Spasm," by Dr. S. M. Cohen, on April 16; "The Vascular Factor in Intracranial Pressure and the Circulation of the Cerebrospinal Fluid," by Prof. J. E. A. O'Connell, on April 19; "The Effect of Ligation on Infection of the Patent Ductus Arteriosus," by Mr. O. S. Tubbs, on April 28; "Cutaneous Innervation," by Dr. G. Weddell, on April 30 and May 3; and "The Treatment of the Injured Workman," by Mr. H. E. Griffiths, on May 5. Prof. H. A. Harris will deliver the Arris and Gale Lectures on "The Anatomy of Posture in Industry" on May 10, "The Clinical Anatomy of the Veins" on May 14, and "The Relationship of the Lymphatic System to the Arterial and Venous Systems" on May 17. Prof. J. Beattie will deliver the Bernhard Baron Research Lectures on "Changes in the Peripheral Vascular System after Haemorrhage" on May 19, and "The Value of Sulphydryl Compounds as Detoxicating Agents" on May 21. All the above lectures will be given at 4 p.m. The Hunterian Oration on "The Forces behind Specialism in Surgery" will be delivered by Mr. Victor Bonney on May 26 at 3.30 p.m. Fellows and Members of the College are invited to attend. Other practitioners and students will be admitted to the lectures on presentation of visiting card.

Medical Notes in Parliament

Nurses Bill

On March 17 Mr. Ernest Brown presented a Nurses Bill, which proposes: (1) The "assistant nurse" (for whom hitherto there has been no accepted definition) shall be given a recognized status and placed on a roll under the control of the General Nursing Council. (2) Employment agencies for the supply of nurses, commonly known as "Nurses' Co-operations," shall be controlled by a system of licensing and inspection. (3) Use of the title of "nurse" shall be restricted to registered nurses and enrolled assistant nurses with certain exceptions.

The first two proposals are in accordance with recommendations of the Athlone Committee, which reported in 1939, and are broadly in line with those of the Nursing Reconstruction Committee of the Royal College of Nursing, which is sitting under Lord Horder's chairmanship. As well as forming a roll of assistant nurses the General Nursing Council will make rules, as they do for State-registered nurses, prescribing the training required, the duration of the training and the institutions at which it may be given, the conduct of examinations, and the conditions of removal of an assistant nurse from the roll. As a transitional step, provision is to be made for the admission to the roll, within two years of the making of the rules, of persons who are at present in bona-fide nursing practice. There will be no examination in these cases, but enrolment will be subject to evidence of good character and satisfactory knowledge and experience of nursing. The Bill provides for a committee of the General Nursing Council, on which assistant nurses will be represented, which will decide questions of removal from or restoration to the roll, and will report to the Council on other questions wholly or mainly affecting assistant nurses.

The Bill prohibits a nursing agency from supplying persons other than registered nurses, enrolled assistant nurses, certified midwives, and other classes to be prescribed by the Minister, and provides for licensing and inspection by the county or county borough council. An agency supplying a nurse, midwife, or other person must state in writing the qualifications of the person supplied, and the agencies must be carried on under the supervision of a doctor or State-registered nurse. Penalties are laid down for breaches of these provisions up to a fine of £100 or three months' imprisonment, or both.

Any person not a State-registered nurse or an enrolled assistant nurse who "takes or uses the name or title of nurse, either alone or in combination with any other words or letters," shall be liable on summary conviction to a fine up to £10, or, in the case of a second or subsequent offence, up to £50. An exception is made in favour of children's nurses.

The Bill also empowers the General Nursing Council to make rules governing the training and qualifications of "sister tutors" employed for the training of student nurses. This follows a recommendation of the Rushcliffe Committee on Nurses' Salaries, in its first report published in February.

The Bill was read a first time.

Mr. Ernest Brown, on March 24, moved the second reading of the Bill. Mr. Hugh Linstead said it went a long way towards closing the nursing profession. He hoped that if Mr. Brown found that prohibition of the use of titles was not sufficient he would come to the House later with additional suggestions. Opposition seemed to be based mainly upon fears of dilution which had not come out into the open. The probability of a universal medical service would increase the demand for nurses and assistant nurses and dilution need not be greatly feared. Sir Francis Fremantle also foresaw an increased demand for the services of nurses. The proposed 96-hour fortnight for nurses in hospitals meant an increase of 20 to 30% in the establishment of many institutions and 20,000 entrants into the profession instead of 12,000 as at present. In order to fill the gap they must make use of the assistant nurses. He believed that the public would realize the difference, and when applying for a nurse would ask for either an enrolled nurse or a registered nurse. He mentioned that Lord Keyes had suggested that sick-berth stewards in the Navy and corresponding men in the Army should be admitted to the full role of State-registered nurses. These men who came from the Services at the age of 45 could do useful work in civil life. He understood that negotiations on this subject had not terminated.

The Bill was read a second time.

Pasteurization of Milk

Asked on March 18 by Mr. Purbrick to prohibit pasteurized milk being fed to babies without notification, Mr. Brown said he would not do so. He was advised that the keeping quality of milk was much improved by pasteurization and that there was no scientific evidence for the statement that pathogenic organisms grew better in pasteurized milk than in clean raw milk.

In reply on the same date to Mr. Ness Edwards Mr. Brown said he had seen the latest report of the Caerphilly medical officer of health, which stated that the supply of heat-treated, not pasteurized, Carmarthen milk to schools would lead to a grave increase in bovine tuberculosis in the next few years. He did not know on what evidence it was said that the heat treatment of the milk in question had been insufficient to destroy tubercle bacilli. He would make further inquiry. He was consulting with the Minister of Food on the general question of providing the practicable maximum supply of adequately heat-treated milk. In the meantime the milk referred to could be made safe by boiling it.

Tuberculosis Mortality

On March 23 Mr. Douglas asked the number of deaths from pulmonary and non-pulmonary tuberculosis, respectively, which occurred in 1938 in classified areas of England and Wales. Mr. Ernest Brown furnished the following table:

	Respiratory	Other Forms
London Administrative County	2,590	347
Croydon County Borough	117	20
East Ham County Borough	81	8
West Ham County Borough	172	19
The rest of Greater London	1,777	318
Outside Greater London:		
County Boroughs	8,474	1,492
Other Urban Areas	5,968	1,375
Rural Districts	2,751	667

Notes in Brief

The proportion of men invalided from the Army suffering from neurosis was in 1942 about 17% of the number invalided out of the Army in that year on account of all diseases.

Medical News

The Therapeutic Requirements Committee of the Medical Research Council draws attention to the need for strict economy in the use of desoxycorticosterone acetate. This is an essential drug for the treatment of Addison's disease, and the supplies available are only sufficient for this purpose. There is no evidence that desoxycorticosterone acetate is essential in any other condition. Practitioners are therefore again urged not to prescribe desoxycorticosterone acetate for any patients except those suffering from Addison's disease. If it is desired to use adrenal cortical therapy in conditions other than Addison's disease, practitioners should prescribe the natural extract of adrenal cortex, of which adequate supplies are available from glands collected in this country.

The annual meeting of the Medical Superintendents' Society will be held at B.M.A. House, Tavistock Square, W.C., on Saturday, April 17, at 2 p.m.

The Society of Thoracic Surgeons of Great Britain and Ireland will hold a meeting at the Royal Society of Medicine, 1, Wimpole Street, W., on Wednesday and Thursday, April 14 and 15. The subjects for Wednesday at 2 p.m. are the first-aid treatment of chest wounds and injuries, and the early and late treatment of retained foreign bodies. On Thursday at 9.30 a.m. the society will discuss the role of the general surgeon in the treatment of chest wounds in forward areas, and at 2 p.m. the treatment of pleural empyema. Officers of the British, Dominions, and Allied medical services and general surgeons of the E.M.S. will be welcome, after obtaining permission from their own higher authorities.

The Ministry of Supply (Rubber Control) has a quantity of rubber gloves of a good household quality which it is prepared to sell in reasonable numbers and for essential purposes for use in hospitals, clinics, and mortuaries. They are suitable for many uses for which surgical gloves are normally required in these institutions. Application should be made to the Secretary, Ministry of Supply (Rubber Control), Empire House, St. Martin's-le-Grand, London, E.C.1, who will give the names of firms from which the gloves may be obtained.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* during the week there was a rise of 599 in the number of notifications of measles and a fall of 135 in the number of cases of pneumonia. Small decreases were recorded for scarlet fever 21, whooping-cough 12, and diphtheria 33, while there was an increase of 10 in cases of dysentery. Scarlet fever and diphtheria showed only small fluctuations locally, and the largest variation in the incidence of whooping-cough was a fall of 59 in London. There were big differences within the counties in the incidence of measles. After seven weeks of rising notifications the returns for London showed a fall of 57. Other large decreases were those of Middlesex 263, Gloucestershire 129, Essex 129, Wiltshire 73, Cheshire 66, and Kent 62. The largest rises were those of Glamorganshire 188, Devonshire 171, Lancashire 169, Somersetshire 150, Yorks West Riding 127, and Surrey 125. No new outbreak of dysentery was reported during the week, and the rise was due to sporadic cases. The 78 cases were reported from 25 counties.

In *Scotland* the chief features of the returns were increases in the incidence of measles 52, scarlet fever 41, and whooping-cough 38. The number of cases of measles has increased steadily during the past four weeks, and the total is now 60% higher than at the beginning of this period. During the week reviewed there was a small rise in all areas except the western, where a slight decline from 352 to 344 cases was recorded. The largest increases were those of Zetland County 26, and the city of Edinburgh 17. A small rise in the notifications of scarlet fever was fairly general throughout the country. The increase in the cases of whooping-cough was due to the experience of Glasgow, where the number of cases rose from 109 to 155.

In *Eire* the large rise in cases of whooping-cough was due to the outbreak in Waterford C.B. 36 cases, and to the inclusion of 30 cases from a Dublin institution which have occurred since the beginning of the year. A further 36 cases of diphtheria were reported from the outbreak in Dublin.

The Week Ending March 20

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 2,160, whooping-cough 2,007, diphtheria 798, measles 19,409, acute pneumonia 1,304, cerebrospinal fever 95, dysentery 66, paratyphoid 8, typhoid 13. In the great towns there were 52 deaths attributed to influenza.

No. 10

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended March 13.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever* ..	86	7	31	1	4	230	12	45	2	10
Deaths		1	1				1	3		
Diphtheria	794	36	199	99	34	842	39	198	51	26
Deaths	24	—	4	3	—	18	—	3	2	—
Dysentery	78	8	41		—	131	15	35		2
Deaths		—		—	—		2	—	—	—
Encephalitis lethargica, acute	2	—	—	—	—	1	1	2	1	—
Deaths		—	—				—	—		
Erysipelas			47	10	3			42	7	5
Deaths		—	—				—	—		
Infective enteritis or diarrhoea under 2 years				13						
Deaths	57	9	9	17	4	26	1	9	7	3
Measles	19,799	1,364	529	11	93	2,706	198	318	97	22
Deaths	20	1	1	—	1	3	—	—	1	—
Ophthalmia neonatorum	88	5	26	—	—	71	4	25	1	—
Deaths										
Paratyphoid fever ..	4	—	—	—	1	6	—	1	—	—
Deaths		—	—	—	—		—	—	—	—
Pneumonia, influenzal*	1,315	90	23	2	13	1,403	81	19	8	9
Deaths (from influenza)	69	7	7	4	3	81	10	7	2	4
Pneumonia, primary ..			428	30				308	34	
Deaths		—		20	12	—	51		19	12
Polio-encephalitis, acute	1	—				2	—			
Deaths		—					—			
Poliomyelitis, acute ..	5	—	—	3	—	3	—	—	—	1
Deaths		—	—				—	—		—
Puerperal fever ..	—	1	15	2	—	3	3	24	4	1
Deaths		—					—			
Puerperal pyrexia ..	160	12	14		1	191	6	23		—
Deaths										
Relapsing fever ..	—	—			—	—	—			—
Deaths										
Scarlet fever	1,907	126	309	55	46	1,260	52	189	46	20
Deaths	1	—	—	—	—	—	—	—	—	—
Small-pox	—	—	—		—	—	—	—		—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever† ..	4	1	4	5	—	16	3	5	7	3
Deaths	—	—	—	—	—	—	—	1	1	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths			—	—	—			—	—	—
Whooping-cough ..	1,864	138	214	88	24	1,324	162	54	12	37
Deaths	18	7	2	1	—	9	2	—	—	—
Deaths (0–1 year) ..	438	57	94	56	30	391	27	76	32	23
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	5,053	800	682	239	158	5,823	825	789	266	170
Annual death rate (per 1,000 persons living)			15·4	15·7	‡			17·8	17·8	‡
Live births	6,369	741	934	375	294	5,961	622	958	328	266
Annual rate per 1,000 persons living ..			19·1	24·7	‡			19·8	21·9	‡
Stillbirths	241	21	32			254	23	41		
Rate per 1,000 total births (including stillborn)			33					41		

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes paratyphoid A and B for Northern Ireland.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1

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B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

Pain in Hernial Scar

Q.—*I should be grateful for advice concerning treatment of severe pain in the region of bilateral inguinal hernia repair scars. A male patient aged 50 had in 1941 a bilateral Bassini operation. Fourteen months later he had to have a repair for a recurrence of the right hernia (suturing conjoined tendon to Poupart's ligament behind the cord and suturing a strip of external oblique aponeurosis to the conjoined tendon). He has been advised a further operation, but is neither willing nor fit enough to undergo this. Both cords are very tender. A suspensory bandage helps a little, but he has to have large doses of an analgesic to get any real ease.*

A.—The most frequent cause of pain in the hernial region such as the patient complains of is the inclusion of the ilio-inguinal nerve in a suture. Only an operation for dividing the nerve is likely to bring relief. An alternative suggestion to explain the pain would be the too tight closure of the internal abdominal ring round the cord. In any case relief is only to be secured by operation by someone who knows some anatomy.

Sulphonamides for Gonorrhoea

Q.—*Is there a consensus of opinion regarding the treatment of gonorrhoea by sulphonamides? When should treatment begin? Which of the sulphonamides gives the best results? What is the duration of treatment? What is the standard of cure?*

A.—The answer to the first question is, Yes. A smear should be taken and treatment started at once. Sulphathiazole (or sulphadiazine) 6 g. a day in divided doses should be given for two to four days; plenty of fluids should be taken at the same time. The standard of cure is absence of discharge and clear urine containing no heavy threads. Examine for above daily for a few days after cessation of treatment, then once weekly for three weeks. The final test of cure is made at the end of three months; this includes bacteriological examination of the urine and of prostatic and vesicular secretions, urethroscopy, and passage of curved sounds. A Wassermann reaction is taken to exclude concomitant syphilitic infection. A gonococcal complement-fixation test is useful, especially if there have been any complications.

Treatment of Diphtheria Carriers

Q.—*A boy of eleven was immunized at school one or two years ago. In January of this year he got a sore throat and pyrexia. Throat swab showed diphtheria bacillus and haemolytic streptococcus The latter disappeared under the influence of sulphapyridine, but the throat continues to be positive for diphtheria bacillus; the nose is negative. Clinically there was no evidence of diphtheria, but I kept him in bed for four or five weeks, fearing the systemic manifestations of diphtheria. For a month both nose and throat were sprayed with equal parts of sulphapyridine and sulphathiazole powder, but I have not been able to get more than two negative throat swabs in succession. An old country doctor says that the best treatment for these carriers is carbolic. I should be grateful for a summary, in order of merit, of the methods of treating diphtheria carriers.*

A.—It is very probable that this was a case of haemolytic streptococcal throat infection in a diphtheria carrier—i.e., diphtheria bacilli not only were present in the throat during and after the attack but had been there before without at any time causing ill effects, the boy being immune. This could have been verified at the time of the attack by doing a Schick test. A persistent throat carrier usually has hypertrophied tonsils, in the crypts of which diphtheria bacilli are inaccessible to local applications. It is chiefly for this reason that treatment with antiseptics is disappointing, and carbolic acid is no more likely to be successful than others. The proper treatment for such cases is tonsillectomy: the condition of the tonsils is usually an indication for this, apart altogether from the carrier state which accompanies it. Nasal carriers fortunately respond better to antiseptic treatment, the organism being more superficially situated, and the flow of mucus so comparatively slow that applications are not rapidly washed away as from the throat by swallowing. Good results have been reported from the use of sulphathiazole snuff (1 part of sulphathiazole to 2 parts of magnesium carbonate taken as snuff 6 times daily).

Oestrogens and Cancer

Q.—*Is it safe to continue giving stilboestrol to a patient over several years? Is there any likelihood of cancer developing as a result of its use?*

A.—Prolonged administration of oestrogens, of which stilboestrol is one, may undoubtedly be injurious. Stilboestrol in normal dosage causes proliferation of the tissues of the female secondary sex organs —tubes, uterus, vagina, and vulva. If given in large doses, however, it produces pathological hyperplasia of the endometrium and consequent profuse uterine haemorrhage. This occurs even in post-menopausal women. In still more prolonged oestrogen therapy an inhibitory effect on the pituitary and ovary becomes manifest, and the ultimate result is atrophy of the uterus and allied structures. Thus if a patient is being treated with stilboestrol for uterine hypoplasia the duration of treatment should be strictly limited; otherwise the final result is exactly opposite to the one desired. In the male, pituitary depression, injury to testicular function, and atrophy of the secondary sex organs likewise result. Other ill effects of prolonged treatment which have been postulated but not proved clinically are liver damage and, under certain conditions, the development of uterine fibroids and pelvic endometriosis.

Available evidence does not permit a definite conclusion as to whether stilboestrol can initiate cancer. All oestrogens are powerful epithelial stimulants, affecting chiefly the tissues of the breast, uterus, vagina, and vulva. The withholding of oestrogens or ovarian stimulus inhibits the growth of mammary carcinoma in mice, whereas the administration of oestrogen encourages it. A considerable body of experimental evidence of this type in relation to carcinoma, not only of the breast but of the uterus and other organs, is supported by the less convincing clinical observations that cancer, particularly of the secondary sex organs, usually develops rapidly when the organism is flooded with oestrogen (as in pregnancy), whereas removal of the ovaries tends to inhibit the growth of uterine and mammary cancer. Also, carcinoma is not infrequently seen in uteri already the seat of innocent endometrial hyperplasia, and this latter is undoubtedly the result of an oestrogen stimulus. Moreover, many cases of genital carcinoma arising in women under treatment with stilboestrol have been recorded, but the association has not yet been proved to be other than coincidental. In view of such considerations, and until the contrary is proved, it must be admitted that there is a possibility that long-continued administration of stilboestrol will determine the onset of carcinoma, at least in the female secondary sex organs, in *some* circumstances. According to animal experiments these circumstances are an inherited predisposition, or local injury, or chronic infection. Stilboestrol, therefore, should be given with great caution to any patient known to have a "pre-cancerous" lesion in the breast or genital organs—such as chronic cervicitis or leukoplakia vulvae.

LETTERS, NOTES, ETC.

Age and Perforation of Peptic Ulcer

Mr. W. M. BEATTIE, F.R.C.S. (Liverpool) writes: I was interested in Dr. David Kyle's case of a perforated gastric ulcer at the age of 19 (March 20, p. 370). I have not met perforation of a gastric ulcer at such an early age, but I recently operated upon two patients, a boy aged 16 and a girl aged 18, for perforated acute duodenal ulcer. Incidentally, about the same time I sutured a perforation of a duodenal ulcer in a man aged 74. It would seem that we are safe from this abdominal catastrophe only during the first decade of life.

Waste Paper

Paper has to be found for the wrapping of surgical dressings, waddings, medicines, diet and temperature charts, and for a multitude of other medical purposes. For example, the wallboard of some hospital huts is produced from pulped waste paper and cardboard. Medical chests for use in the Tropics are made from laminated plastic material consisting of layers of paper impregnated with a synthetic resin. Doctors are therefore urged to do what they can, in company with everyone else, to turn out their waste paper. May we suggest that some of the magazines in the waiting-rooms are now sufficiently out of date?

Correction

The references to footnotes in the text of the annotation on surgery of communicating hydrocephalus (March 20, p. 357) should have read: Scarff[1] [2]; Putnam,[3] and Dandy.[4]

BRITISH MEDICAL JOURNAL

LONDON SATURDAY APRIL 10 1943

EXPERIENCES WITH TYPING OF TYPHOID BACILLI BY MEANS OF Vi BACTERIOPHAGE*

BY

A. FELIX, D.Sc., F.R.S.

(From the Emergency Public Health Laboratory Service)

The latest development in the study of the epidemiology of typhoid fever is the discovery made by Craigie and Yen (1938a, 1938b) of type-specific typhoid Vi bacteriophages. Until then the typhoid bacillus had been regarded as a single species without varietal subdivision. By the use of the new technique devised by Craigie and Yen it is now possible to divide typhoid bacilli into a number of well-defined types. The story of this discovery may be briefly summarized here.

Hadley (1925-6), Burnet (1927, 1929), and Levine and Frisch (1934) were the first to show that the action of bacteriophages on the various Salmonella species is closely related to the presence of certain heat-stable "O" antigens in the bacterial cell. Later studies on dysentery bacilli (Burnet and McKie, 1930), the cholera vibrio (Bruce White, 1936), and other pathogenic organisms also showed a close relationship between antigenic structure and phage susceptibility. As soon as the special importance of the so-called "Vi" antigen of the typhoid bacillus was recognized (Felix and Pitt, 1934) a number of authors, working independently of each other in different countries, established the existence of bacteriophages that were specific for the Vi form of the typhoid bacillus (Sertic and Boulgakov, 1936; Scholtens, 1936; Craigie and Brandon, 1936). These phages attacked typhoid strains irrespective of their origin, provided the cultures contained an adequate quantity of the Vi antigen. By propagating a particular anti-Vi phage on typhoid strains isolated from different sources Craigie and Yen (1938a) obtained bacteriophages which had developed a high degree of specificity for the particular strain on which they were grown. When such adapted phage preparations were tested against a great number of typhoid strains from different localities it was found that the strains could be divided according to their response to the different phage preparations and that strains that were related epidemiologically belonged to the same phage type. On this basis Craigie and Yen identified a number of distinct types of *Bact. typhosum*. A small proportion of Vi cultures cannot be typed in this way, for reasons that are not yet understood. Such cultures are referred to as "imperfect" Vi forms.

The phage type of a strain is for all practical purposes a permanent character, and typing of the typhoid bacillus by this means gives results as reliable as those obtained in streptococcal or pneumococcal infections by the use of serological tests. It may be stated in passing that the Vi antigen of typhoid strains belonging to different phage types cannot be differentiated by any of the customary serological methods (Felix and Pitt, unpublished results). The few reports on the application of the new method that have been published so far from Canada (Brandon, 1940), the United States of America (Lazarus, 1941), and China (Yen, 1939) have all corroborated the observations of Craigie and Yen. In this country Boyd (1939) drew attention to the potential value of this discovery.

The method of phage typing has been employed in the Emergency Public Health Laboratory Service since 1940. Cultures of *Bact. typhosum* isolated in the constituent laboratories of the E.P.H.L. Service and in some other public health or clinical laboratories in England, Wales, and Scotland have been submitted to a reference laboratory for typing by the bacteriophage technique. The object of this paper is to give an account of the results so far obtained from this material.

Technique

The technique of the test followed as closely as possible that described in the original paper by Craigie and Yen (1938a), and need not be discussed here in detail. Early in 1940 Dr. J. Craigie of the Connaught Laboratories, Toronto, very kindly supplied the complete collection of his standard phage preparations and standard type cultures, together with a copy of his "Notes on the Typing of *B. typhosus* with Vi Phage," dated March, 1940, and embodying further technical details. The number of standard phage preparations recommended at that time by Craigie for use in routine typing was 18, representing the following types and subtypes: A, B1, B2, B3, B4, C, D1, D2, D3, E1, E2, F1, F2, G, H, J, L, and M. All the cultures examined in the course of the present investigation have been tested against these 18 type and subtype phages. For reasons of economy only the phages corresponding to the more common types were employed singly; the others were used in appropriately pooled mixtures.

Cultures of *Bact. typhosum* isolated in the course of the routine examination of typhoid patients or carriers were submitted for typing as soon as the organism had been identified by the customary cultural and serological methods. Some of the laboratories sent the subcultures on Dorset egg medium, others on plain agar slants or in plain agar stabs. The cultures were sent by post, and usually reached our laboratory within 4 or 5 days from the date of isolation. In many instances much older cultures were received, and these, too, were usually found to be suitable for typing. The only precaution taken was that the bacteriologists in charge of the various laboratories were asked to prepare the subcultures not from a single colony but, whenever possible, from about half a dozen selected "smooth" colonies which were seeded together on a slant of Dorset egg medium or plain agar. The pooling of a number of colonies is a useful safeguard against the chance selection of a single colony, which, though smooth-looking (Arkwright, 1930), may be composed of bacteria that are deficient in the Vi antigen or do not contain any Vi antigen ("O" forms).

The great majority of typhoid strains handled in this way gave a clear-cut result in the phage typing when the subculture required for the test was prepared directly from the original culture tube received. The result of the typing could thus be reported within 24 or 36 hours. If the phage tests on the original culture failed to give a clear-cut result, or if the strain was found to be an untypable "imperfect" Vi form, the tests were repeated. The culture was plated out on plain agar, and a number of single-colony cultures or a pooled culture that had been derived from at least half a dozen carefully selected "smooth" colonies were retested against the type phages. If the strain still remained untypable another culture was, when possible, obtained from the patient or carrier, and some of these repeat cultures, especially those from chronic carriers of long standing, were found to be typable.

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* A report to the Medical Research Council.

Typhoid Vi-phage Types Prevalent in England, Wales, and Scotland during 1940–2

The total number of cultures submitted to the phage typing test was 643. The number of typhoid patients and carriers from whom the strains had been derived was 440. In 87 cases the cultures were isolated from the blood; in a few instances from the urine or from post-mortem material; and the majority were obtained from faecal specimens. Thirty-five cultures had been isolated from samples of polluted water and sewage effluents. The remaining 168 cultures were obtained in the course of repeated examinations of the excreta of some of the patients and carriers. These repeat tests were carried out with a view to collecting further evidence regarding stability of the types, or as part of certain special investigations which are to be reported elsewhere. Table I shows the number of types and subtypes of the typhoid bacillus that have been met with in this country, and indicates their prevalence during the past three years.

Table I.—*Showing the Vi-phage Types of Bact. typhosum found in England, Wales, and Scotland during 1940–2*

Craigie's Original Vi-phage Types	Number of Patients and Carriers from whom Typhoid Strains belonging to the Various Vi-phage Types have been Isolated					
	England and Wales			Scotland		Total 1940–2
	1940	1941	1942	1941	1942	
	Part I					
A	15	18	50	3	7	93
B2			5			5
C	2	2	39		1	44
D1	1	4	10	1		16
D2	1	16				17
E1	17	19	57		16	109
F1	4	3	9			16
F2	2	1		2	7	12
J		2				2
"Imperfect" Vi forms ..	30	30	57	1		118
"O" form (Vi-negative variant)	1		6		1	8
Total	73	95	233	7	32	440
	Part II					
New Vi-phage Types	Some of the "Imperfect" Vi Forms recorded in Part I were Successfully Typed by Means of Four New Vi-type Phages					
D4		11	8			19
D5			1			1
L2	5			1		6
No. 91	2	10	11			23
Total	7	21	20	1		49

Part I of the table shows that 9 of the 18 types and subtypes of Craigie's original schema were found among the strains isolated in the United Kingdom. Type J has been included in the list for the sake of completeness, although that type is not prevalent in this country. One of the two Type J cases recorded in the table was a faecal carrier who had contracted typhoid fever in Egypt during 1940 and returned here in 1941. Six weeks later he passed on the infection to his brother-in-law, who died from his attack of typhoid fever. The remaining 8 types and subtypes, however, must all be considered as indigenous to this country. These 8 types were also represented among the late W. M. Scott's collection of English strains that had been examined by Craigie and Yen (1938b). Scott's collection comprised 74 cultures isolated from most of the major outbreaks of typhoid fever that occurred in England and Wales during the period 1932 to 1938.

It is too early to draw any conclusion on the relative frequency of the various types, because the figures shown in Table I represent only a fraction of the total number of typhoid cases notified during the three years under review. Most of the strains recorded in Table I were isolated from patients belonging to small groups of cases or from sporadic cases scattered throughout the country; but a few somewhat larger outbreaks also occurred, and some of these resulted in 10 or 20 cultures from the same outbreak being typed and included in the list. Finally, some of the laboratories that were supplying the cultures were able to examine most of the typhoid cases that occurred in their area, whereas other laboratories elsewhere were not in a similar position. The figures shown in Table I therefore afford no more than a rough indication of the distribution of foci due to typhoid strains of the various Vi-phage types.

It is seen from Part I of the table that the strains isolated from 126 patients or carriers could not be typed with the original type phages of Craigie. Only 8 of these strains were "O" forms, which did not contain any Vi antigen. The remaining 118 strains, or 26.8% of the total number examined, were "imperfect" Vi forms—that is to say, the strains were resistant to the action of the 18 specific type phages in spite of the fact that the cultures contained the Vi antigen and were readily lysed by the concentrated non-specific Vi phages that are employed as control reagents in the test.

Part II of Table I shows that 49 strains, or 41.5% of the "imperfect" Vi forms, were later successfully typed by means of four new Vi-type phages. The new phage preparations were obtained by a process of adaptation similar to that employed by Craigie and Yen (1938a). The new types were provisionally labelled D4, D5, L2, and No. 91. Type D5 has been encountered on only one occasion, and may possibly have been introduced from abroad. The patient was an Indian soldier who suffered from an attack of typhoid fever a few months after he had arrived in this country. The other new Vi types are firmly established here. Type L2 was found in Scotland as well as in England. Type 91 has already been identified in eight different counties, widely separated from each other, and a strain belonging to this type has been isolated from a chronic carrier of long standing—a woman aged 70 A strain of Type D4 has also been found in a chronic carrier —a man aged 66 who has never lived abroad.

From a practical point of view the result of the typing of this series of cases is very satisfactory. If the 8 strains that were available only in the "O" form are disregarded, it is seen that the number of "imperfect" Vi forms which could not be typed was 69, or 15.9% of the total number of Vi forms examined. More than half were strains derived from three outbreaks, and these might have been typed successfully had special efforts been made at the time the outbreaks occurred. Thus the number of separate foci of infection in which the phage type remained unidentified was very small indeed.

A few typhoid strains from patients and carriers who contracted the infection abroad were also examined in the course of this investigation, and it may be of interest to record these cases here. The carrier of Type J bacilli of Egyptian origin has been already mentioned. The other cases belonged to the following types: Type A—from Chile and Russia; Type D1 —from Eire and the Faroe Islands; Type E1—from Belgium and Malta.

It is obvious that workers in different countries who are employing the bacteriophage typing method should maintain close contact and exchange cultures and phage preparations before new types or subtypes are recognized and added to the original schema of Craigie and Yen. At the present time it is rather difficult to adhere to this rule, and some confusion concerning nomenclature is likely to arise. So far only Type D4 cultures and the corresponding phage preparations have been sent to Dr. Craigie, who reported that in his opinion D4 was a new Vi-phage type. The designations chosen for the four new types must necessarily be provisional, pending revision after the war, when co-operation between workers in different countries will again be possible. Craigie (1942) suggested a revised and simplified typing schema, but his investigations regarding the required phage preparations have apparently not yet been completed.

Epidemiological Significance of Typhoid Vi-phage Types

The observations of Craigie and Yen on the epidemiological significance of Vi-phage types of typhoid bacilli have been amply corroborated in the course of the present investigation. Patients from any given outbreak of typhoid fever yielded cultures belonging to the same Vi-phage type. Strains from chronic carriers, when repeatedly isolated over long periods, did not show any change from one type to another. Carrier strains do, however, often show antigenic degradation leading to the appearance of "imperfect" Vi forms and of "O" forms, neither of which can be typed. Of the 8 strains recorded in Table I as "O" forms, 6 had been isolated from chronic carriers of many years' standing and only 2 from typhoid patients.

It is not proposed to state here in detail the number of outbreaks investigated or the number of patients examined during each outbreak. The cases summarized in Table I include a considerable number of small outbreaks, each affecting from 3 to 6 members of a family or household; cases of direct contact infection of nurses attending typhoid patients; outbreaks in mental hospitals, hostels, and camps, affecting groups of about 20 patients, from whom typhoid cultures have been examined. It is noteworthy that the results of the typing were in accord with the epidemiological observations; that is to say, all cases infected from the same source were found to have been caused by the same Vi-phage type of typhoid bacillus. Similarly each of the chronic carriers tested, who according to epidemiological evidence appeared to be responsible for an outbreak, was harbouring typhoid bacilli of the same Vi type as that isolated from the patients.

There were in this series two apparent exceptions to this rule, one of which, however, proved to confirm it. The first concerned an outbreak in a mental hospital, which was investigated by Dr. R. M. Fry of the E.P.H. Laboratory, Carmarthen. In this case most of the convalescent patients were excreting Type E1 bacilli, but a few yielded Type C. Dr. Fry succeeded in detecting among the mental patients chronic carriers of the two different strains, thus proving the presence of the separate sources of infection. The other instance of apparent disharmony between epidemiological data and laboratory findings concerned an outbreak in a large industrial city. All the patients had evidently contracted the infection from the same source, a butcher's shop, yet the cultures belonged to two bacteriophage types. The patients had been treated in a number of hospitals, and the cultures were received for typing from three different laboratories several weeks after the outbreak had occurred. Two of the laboratories sent only cultures of Type E1, and the third laboratory only cultures of Type F2. It was unfortunately not possible to obtain repeat specimens, as all the patients had been discharged from hospital by the time the cultures were typed. In view of the existing evidence as to stability of Vi types it seems justifiable to assume that this quite exceptional finding was due to an accident during the handling of the cultures.

The Practical Value of the Typing Method

Some of the cases recorded in Table I have been the object of special epidemiological investigations conducted by the Ministry of Health, in co-operation with the E.P.H.L. Service. The story of one of these investigations is told by Dr. W. H. Bradley at page 438. This fascinating story ended with the unmasking of the chronic carrier who was responsible for a score of typhoid cases of Type D4 that occurred over a wide area during a period of nearly two years. Bradley's report and my own related experiences in the course of a number of similar inquiries indicate clearly that the value of the typhoid typing method cannot be emphasized too strongly. Without this new laboratory aid there can be little hope of determining the source of infection of many of the sporadic cases, and small groups of cases, that occur throughout the country.

To illustrate this point Table II has been compiled, showing the sequence of typhoid cases that were examined in one single county during a period of 16 months. The list has been arranged in chronological order, though in abridged form. Most of the cultures were isolated by Dr. J. C. Cruickshank of the E.P.H. Laboratory, Exeter.

The table shows that cases belonging to at least six typhoid Vi types occurred in Devonshire during the period under review. The cases therefore originated from at least six different sources of infection. The topographical distribution makes it very likely that the number of active foci was considerably greater. It is clear that the medical officers of health who are called on to investigate sporadic cases in these circumstances are at present faced with an almost impossible task. The epidemiological investigations cannot lead in the right direction unless the infections that arise concurrently from a number of different sources are first separated one from another. The bacteriophage test is at present the only laboratory method that makes this separation possible.

TABLE II.—*List of Typed Typhoid Cases from Devonshire, Sept., 1941, to Dec., 1942**

Date of Isolation of Bact. typhosum	Locality	Number of Cases	Vi-phage Type
Sept., 1941 ..	Honiton Clyst	2	E1
	Ottery St. Mary	1	F1
	Woodbury	1	C
Oct., 1941 ..	Sidmouth	1	F1
	Torrington R.D.	1	F1
	Shaldon, nr. Teignmouth	4 (1 fatal)	No. 91
Nov., 1941 ..	Ipplepen, nr. Newton Abbot	1	A
	Honiton Clyst	1	No. 91
	Tavistock	1 (carrier)	No. 91
Dec., 1941 ..	Exeter	2	No. 91
	Sampford Peverell	1	No. 91
	Brixham	2	D1
Jan., 1942 ..	Exeter	1	No. 91
	Exminster	24 (1 fatal 1 carrier)	C
	Bideford	1	Imperf. Vi form
	Honiton Clyst	1	E1
	Dunsford	1	C
Feb., 1942 ..	Bideford	1	Imperf. Vi form
March, 1942 ..	Exeter	1 (fatal)	E1
April, 1942 ..	Sampford Peverell	1	No. 91
	Honiton Clyst	1 (fatal)	E1
June, 1942 ..	Exminster	1	F1
July, 1942 ..	Honiton Clyst	1	E1
Aug., 1942 ..	Sampford Peverell	1	No. 91
	Okehampton	1	D1
Sept., 1942 ..	Exeter	1	E1
	Tavistock	1	A
Dec., 1942 ..	Exeter	1 (fatal)	A
	Sidmouth	4	E1
	Sampford Peverell	1	No. 91
Total ..		62	

* Typhoid cases or carriers among mental patients are not included in the list.

Typhoid fever is now an uncommon disease in this country, but it would be wrong to assume that it is already in process of extinction, as some recent writings suggest. Endemic foci of the infection, maintained by chronic carriers, still exist in many parts of the country, and the case of Devonshire may serve as an example. How numerous these foci are can only be guessed at the present time. The diagnosis of the enteric fevers has not been satisfactory in rural districts, and it is still not uncommon for typhoid cases to be missed, the diagnosis having been made only at the post-mortem examination or not at all. Since the outbreak of the present war some of these areas have been provided with facilities for diagnosing enteric fevers by means of adequate laboratory methods. If these facilities could be made available throughout country districts generally, the number of enteric cases that remain undiagnosed would soon decrease very considerably.

Although bacteriological differentiation into typhoid and paratyphoid fever has been possible in some areas for many years, the enteric fevers have, for purposes of notification, been regarded as a single entity until recently. In July, 1941, it became practicable to separate the two diseases in the weekly returns of the General Register Office. The following table has been reconstructed from this source.

Notified Cases of Enteric Fevers in England and Wales

	1938	1939	1940	1941		1942
				Jan.–June	July–Dec.	
Typhoid fever ..					677	464
Paratyphoid fever ..					2,941	404
Total typhoid and paratyphoid fevers	1,322	1,479	2,833	1,145	3,618	868

In 1940 and 1941 numerous outbreaks of paratyphoid B fever occurred, and the table shows that during the last six months of 1941 the number of notified cases of paratyphoid was four times that of typhoid. In 1942, on the other hand, there were no large outbreaks of either of the two diseases, and the total number of cases was the lowest ever recorded in England and Wales. The interesting point is that during this rather exceptional "non-epidemic" year the numbers of notified cases of typhoid and paratyphoid were about equal, and this year probably indicates the relative numbers of endemic foci of the two diseases more accurately than does a year in which larger outbreaks occurred. It would be premature, however, to draw any conclusion from the figures so far available.

The control of typhoid fever depends ultimately on the control of the chronic carrier. The detection of a chronic carrier who is responsible for the infection of sporadic cases or of small groups of cases is usually a very difficult task. The introduction of refined culture media, particularly the bismuth sulphite medium of Wilson and Blair (1931), and of the Vi agglutination test, has made the problem less formidable than it was in earlier days. The new typing method devised by Craigie and Yen (1938a) has provided another weapon of great efficacy. It now seems possible to organize the fight against the chronic typhoid carrier in a manner that promises to lead far towards the ultimate goal, the eradication of the disease.

Summary

During 1940–2 440 strains of typhoid bacilli isolated in England, Wales, and Scotland were examined by the Vi bacteriophage method of Craigie and Yen. Of 432 strains that were Vi forms 363 (84.1%) were successfully typed, while 69 (15.9%) were untypable, or "imperfect" Vi forms. The remaining 8 strains, including 6 from chronic carriers, could not be typed because the cultures were "O" forms.

Most of the strains belonged to 8 of Craigie's original phage types. In addition 4 new Vi-phage types were identified.

The bacteriophage test is a reliable guide to the epidemiological investigation of outbreaks or sporadic cases of typhoid fever. Its application greatly facilitates the detection of chronic carriers, especially those responsible for sporadic cases in endemic areas.

Unquestionably the new method will soon be recognized as an indispensable laboratory aid to the control of typhoid fever.

This investigation was made possible by the co-operation of many pathologists, medical officers of health, and superintendents of fever hospitals, and by the constant aid of Dr. J. R. Hutchinson and Dr. W. H. Bradley of the Ministry of Health. I wish to thank all of them for their help. My thanks are also due to Miss B. R. Callow for help in maintaining the cultures.

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AN ENDEMIOLOGICAL STUDY OF BACT. TYPHOSUM TYPE D4

BY

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During the period 1871-5 enteric fever killed annually 371 persons per million living in England and Wales. The "complex armour of modern sanitation" now protects us from the major epidemics of 70 years ago; but, even so, the mortality rate during the past 10 years has remained constant at about 6 per million living, and this residuum appears to be due to causes resistant to existing preventive measures. The final extinction of enteric fever may be possible when these resistant causes are better understood; for this reason studies of endemicity as distinct from epidemicity are of special interest, and the detailed investigation of a series of apparently solitary cases, although all too disappointing, may on occasion prove unexpectedly fertile.

The importance of sporadic cases and the frequency with which they occur are not always recognized. For instance, approximately one-half of the total number of towns in which enteric fever appeared in the first six months of 1940 had only one case apiece. We may, with some justification, attempt to measure the efficacy of the "complex armour" by counting the number of sporadic cases which fail to initiate outbreaks, but at the same time it is well to remember that each such case—and they are for the most part of unknown origin—is a warning that chinks in the armour exist. Nowadays an explosive outbreak, particularly of paratyphoid fever, can generally be attributed to the undetected sporadic case which, by virtue of opportunities presented by the subject's employment, infects a widely consumed aliment (Savage, 1942). Presumably the chronic carrier is always somewhere in the background, but his relation to a series of cases may be remote, and he all too frequently evades detection.

The late W. M. Scott (1941) had written in this vein a short while before his death in April, 1941. Scott realized the epidemiological significance of the discovery by Craigie and Yen (1938) that typhoid bacilli could be typed according to their sensitiveness to certain Vi bacteriophages.

Phage Typing of Bact. typhosum

During 1940 the Emergency Public Health Laboratory Service began to concentrate investigations of typhoid cultures in a special laboratory, where Felix (see p. 435 of this issue) was able to build up a representative collection of the various phage types of *Bact. typhosum*. Up to the present 12 types have been recognized as giving rise to disease in this country, including four types or subtypes not previously described. The original strain of one of these, D4, was recovered from the blood of Case 1 in the series here described. This case was solitary, sporadic, and entirely unexplained at the time: it is distinguished as Case 1 only because it gave the first strain of Type D4 *Bact. typhosum*. We know nothing concerning the ancestry of D4 beyond the fact that it was apparently not represented in Scott's collection of 70 strains found in the country during the previous decade nor by Felix among 80 strains freshly isolated during 1940. Presumably uncommon, it promised to be a suitable subject for a sustained attempt to exploit phage typing in a field investigation; and subsequently, wherever and whenever Type D4 was recovered from a patient or a carrier exhaustive epidemiological investigations were made personally. Prof. G. S. Wilson collaborated throughout the inquiries, and a note on the preliminary observations appeared in the *Bulletin of the Emergency Public Health Laboratory Service* (March, 1941).

Chronology of Cases of Type D4 Typhoid identified in England and Wales, 1941-2

Nineteen D4 excreters have been detected, and all are listed in the accompanying table, which also includes five persons believed to have been infected with this organism but from whom no cultures were submitted to typing. It is significant that this list contains every case of typhoid fever notified in Buckinghamshire during 1941 and most of those occurring in the county during 1942, although in this year another type also appeared.

Cases in 1941

Case 1.—An itinerant merchant, living in Hertfordshire, who disliked milk was in bed intermittently from Jan. 4 to Jan. 10, 1941, when his doctor diagnosed pneumonia. By Jan. 17 he was able to take solid food. On Jan. 20 his temperature began to rise again, and reached 104.0° by Jan. 27, when he was admitted to hospital in coma. A petechial rash appeared; septicaemia was diagnosed, and blood was taken for culture on Jan. 28 and Jan. 31. Death occurred on Feb. 4. Enteric fever did not enter the minds of the medical officers performing the necropsy, but it was subsequently reported that typhoid bacilli were recovered from his blood. When this man first took to his bed he was put on a diet of raw milk purchased from retailer "A"; it is conjectured, for reasons which will appear subsequently, that this milk contained Type D4 *Bact. typhosum* on or about Jan. 8.

Cases 2 to 9.—Between Feb. 10 and Feb. 23 typhoid fever attacked 8 persons residing in seven households scattered over a wide area covering perhaps 100 square miles of Buckinghamshire and representing entirely different social and economic groups. There was an interval of 8 days between the onset of illness in the two cases in one house—father (Case 4) and son (Case 9)—and it is possible that the one was secondary to the other. Case 3 was an employee in a textile factory owned by Case 4, and Case 9 also worked in the factory. An attempt to recover *Bact. typhosum* from Case 3 (which was confirmed by Widal reaction) failed and she has not been proved

D4, but her close association in time and place with Cases 4 and 9 leaves little doubt that she and they were infected with D4 organisms from a common source. They had all consumed milk from retailer "C." The remaining 5 cases were notified in four different sanitary districts. There was no obvious common factor, and ordinarily they would have been looked upon as sporadic. However, the approximation of dates of onset in all 8 cases appeared to have some significance, and when it was learnt that 6 of them were excreting Type D4 *Bact. typhosum* it became apparent that they in all probability had a common origin. Before they could be typed the cultures from Case 6 were discarded in the clinical laboratory in which they had been isolated; they had nevertheless left their mark, for a laboratory technician who within a material time handled the cultures from Case 6, and from no other patient, developed typhoid (Case 14) due to Type D4.

Cases 13 and 10.—Case 13 was notified in a London borough, and D4 organisms were recovered. A month before this patient became ill she was nursing her nephew, who was an overlooked case of typhoid. This man, although living in London, had worked in Buckinghamshire and had habitually consumed milk from the retailer who supplied Case 8.

Cases 11 and 12.—These cases started simultaneously in the same sanitary district as, but at least 40 days after, Cases 4, 5, and 9. Their homes and places of employment were near together, and although they were unknown to each other they shared a common circle of acquaintances. Apart from "mains" water, no aliment was common to them: one disliked milk, but may have taken a little, uncooked, on her cereal; the other denied drinking milk unboiled, and it could not be established that the milk available to these cases, which came from different retailers, originated in the same remote source. Like Cases 4, 5, and 9, they were both infected with Type D4, and unless we postulate a comparatively wide distribution of this organism, which is improbable, it seems most likely that they were secondary, through some unrecognized intermediary, to the earlier cases in the town.

Case 14.—This patient was the technician who contracted a laboratory infection.

Cases in 1942

Case 15.—This case occurred in Kent a year or more after the events already described, and is included for the sake of completeness. This was another solitary case whose infection is at present unexplained.

Case 16.—This patient lived in Highworth Rural District, Wiltshire. On or about June 20 he began to be ill in his father's cottage, near Swindon. All persons resident in this and the neighbouring cottages gave no serological or cultural evidence of typhoid infection. Later, Case 16 was found to be excreting D4, and it then transpired that until June 8 he had worked daily and had had meals at one of a number of farms in Wiltshire the grouped milk from which had been suspected of being responsible for Cases 2 to 9, in Buckinghamshire, 16 months before. Moreover, apparently sporadic, Case 16, in Wiltshire, began to sicken at the same time as Cases 17 to 21, in Buckinghamshire, and the sole aliment common to all was a particular milk.

Cases 17, 18, 19, and 21.—These occurred almost simultaneously with Case 16, but in an urban district in Buckinghamshire which, so far as is known, had not previously been invaded. These patients included a mother and her daughter; 44 days later a son (Case 22) of this household contracted the disease. The vehicle of his infection was not established, but since D4 organisms were recovered from him it is assumed that the infection survived in the house after the original cases had been removed to hospital. The remaining members of the household showed no serological or bacteriological evidence of infection.

Case 23.—This patient lived within 200 yards of Cases 17 and 19 and developed D4 typhoid 15 weeks after them. Her family consisted of her parents and one brother, and on first inquiry these gave no history of alimentary infection, although the mother was found to be excreting D4 *Bact. typhosum*. The mother's Widal reaction suggested that her infection had preceded the daughter's, and on further inquiry it was found that on June 29 she contracted an illness which is now thought to have been subclinical typhoid. She is therefore included as Case 20, and, like the remaining cases in group 17–21, she had consumed raw milk from retailer "J" at a material time.

Case No.	Sex	Age	Date of Onset	Bact. typhosum Recovered	Administrative County in which Case Occurred	Administrative Area in which Notified	Milk Retailer receiving Milk from Herts Depot
			1941				
1	M	45	20/1	D4	Herts	Not notified	A
2	F	14	10/2	D4	Bucks	Amersham R.D.	B
3	F	35	11/2	—	"	Aylesbury M.B.	C
4	M	61	15/2	D4	"	Chesham U.D.	C
5	M	8	15/2	D4	"	" "	D
6	M	33	16/2	+	"	Aylesbury R.D.	E
7	M	30	16/2	D4	"	Wycombe R.D.	F
8	F	15	19/2	D4	"	Amersham R.D.	G
(? Secondary) 9	M	19	23/2	D4	"	Chesham U.D.	C
10	M	24	4/3	—	London	Not notified	G
11	F	16	31/3	D4	Bucks	Chesham U.D.	Not significant
12	F	22	1/4	D4	"	Aylesbury M.B.	H
(Secondary) 13	F	48	2/4	D4	London	Paddington M.B.	Not significant
(") 14	M	24	3/4	D4	Bucks	Watford C.B.	"
			1942				
15	F	29	6/4	D4	Kent	E. Ashford R.D.	"
16	M	19	20/6	D4	Wiltshire	Highworth R.D.	Farm labourer
17	F	38	23/6	—	Bucks	Wycombe M.B.	J
18	F	31	25/6	D4	"	" "	J
19	F	10	27/6	D4	"	" "	J
20	F	43	29/6	D4	"	Not notified	J
21	F	54	1/7	—	"	Wycombe M.B.	J
(Secondary) 22	M	5	6/8	—	"	" "	J
—	M	66	Carrier	D4	Wiltshire		Farmer-producer
(Secondary) 23	F	12	19/10	D4	Bucks	" "	J

The Vehicle of Infection—Milk

It is believed that this story, covering a period of two years, has now been brought to an end as the result of careful investigation of Case 16 at Swindon. The only tangible and continuous thread running throughout the story is the Type D4 organisms in most of the patients. The earlier investigation of Cases 2 to 9 pointed to milk as the vehicle. All 8 patients had been infected simultaneously; they were raw-milk drinkers, and although they obtained their milk from six different retailers, these retailers were all in the habit of receiving supplies from a depot in Hertfordshire, which also provided milk to retailer "A," who supplied Case 1.

There were other considerations which strengthened the suspicion that milk was the vehicle. Case 7 was a tuberculous subject with a pleural effusion and a duodenal ulcer; his diet at a material time was almost exclusively raw milk obtained from retailer "F." Case 6, a member of a large R.A.F. camp, was the only typhoid patient in it. He was peculiar in that he was one of a few men who supplemented their rations by each purchasing a half-pint bottle of milk daily from a milk roundsman, "E." He drank from the bottle.

The Source of Infection

The milk-distributing depot in Hertfordshire supplied about 100 retailers, and in Feb., 1941, received milk from:

Source 1: a large pasteurizing combine depot in London.

Source 2: another large wholesale pasteurizing depot in London, with a subsidiary plant at Swindon. Between Feb. 3 and 13, 1941, milk came direct from the latter plant and was either unpasteurized or flash-pasteurized only. At other times it was satisfactorily pasteurized at the London depot.

Source 3: a group of 20 farms in Buckinghamshire. Some of this milk was delivered raw direct from producer to retailers in the original churns; the remainder passed through the Hertfordshire depot, and may or may not have been bulked and pasteurized there.

Source 4: a group of 13 farms in Wiltshire dispatching raw milk once a day direct by road. The morning's milk of the day of delivery and the previous evening's milk arrived together, but unmixed, in the same consignment at 3 p.m. At material times for the infection of the 1941 cases the evening's milk may or may not have been pasteurized at the depot, but the morning's milk was certainly distributed unpasteurized in the original churns.

The daily turnover of the depot was 2,750 gallons, and the possibility of specific infection having been introduced here was, so far as was practicable, excluded by bacteriological examination of the staff. On first inquiry there appeared to be no way of deciding which of the four contributory sources should be suspected, except on the assumption that pasteurized milk was less likely to be the vehicle than raw milk. Later, during observation of the routine of the retailers, it was noticed that "G," the retailer supplying Case 8, unlike the others implicated during Feb., 1941, called at the depot to collect his supply at 4 p.m. daily and was careful to take churns containing unpasteurized milk recently arrived from Source 4. Retailer "A," supplying Case 1, also collected milk from the depot in his own van; but he was less particular, and might take churns from Sources 1 and 2, but more probably received milk from Source 4, either raw or pasteurized.

Case 2 (retailer "B") presented a serious difficulty in that both the depot and the retailer believed that pasteurized milk from Sources 1 and 2 only had been supplied on this round. The daily quantity at a material time was small—from 10 to 24 gallons; when this amount was 12 or 24 gallons it was convenient that one or two churns of milk from Sources 1 and 2 should be dispatched, but on Jan. 27 and 31 the amounts sent were 10 and 20 gallons respectively, and on these days climatic conditions were such that the milk supplied was in fact unpasteurized and came from Source 4.

The total daily consignment from Source 4 was 900 gallons. In May, 1941, all 13 farms were inspected by the county milk inspector, and four were chosen for special investigation without result. The source of D4 typhoid remained a mystery until Case 16 appeared quite fortuitously, and it was discovered that at the time of his infection he had been working at one of the 13 Wiltshire farms which constituted Source 4. Samples of blood from all seven persons on this farm were examined at the E.P.H. Laboratory, Oxford: five gave negative Widal reactions; that of an inoculated man agglutinated *Bact. typhosum* "H" 1:25 and *Bact. paratyphosum* B "H" 1:25; but the farmer's blood was found to agglutinate standard suspensions of *Bact. typhosum* "Vi" to 1:20, and *Bact. typhosum* "H" to 1:100, and failed to agglutinate the "O" suspensions of *Bact. typhosum* and the "H" suspensions of *Bact. paratyphosum* A and B. He had not been inoculated with T.A.B. vaccine, and these serum reactions suggested a carrier state. Later, Type D4 organisms were repeatedly recovered from his stools over a period of three months, when examination was discontinued. He gave no history of illness simulating enteric fever, and it is not known when he first began to excrete *Bact. typhosum* or whether he had done so continuously or intermittently. In June, 1940, he had developed a cold abscess about his elbow-joint after an injury which did not break the skin. On Feb. 14 and 21, 1941, his doctor attended him in bed for bronchitis and high fever, and on Feb. 19 all the other members of the household had bilious attacks without diarrhoea. A daughter, the dairymaid at the farm, had a cough on Feb. 15, and visited her doctor on Feb. 21, March 8, and March 28. There was undoubtedly sickness in this farmhouse at the time Cases 2 to 9 were appearing in Buckinghamshire, but, since the conjectured date of infection of Case 1 anticipated this period by a month, the probability that the farmer's cold abscess was a manifestation of typhoid cannot be excluded. In an outbreak in Liverpool the carrier responsible suffered from osteitis of the elbow three years before he was identified as the cause of an outbreak (Frazer *et al.*, 1937).

Except when ill the farmer had milked regularly until Aug., 1942, when he was found to be excreting *Bact. typhosum* and action was taken by the local authority which forbade him from participating in the production, distribution, or storage of milk.

Discussion

The preceding account tells how milk from a Wiltshire farm, on which a milker was a persistent carrier of *Bact. typhosum*, gave rise sometimes to a single case and sometimes to small groups of cases of typhoid scattered throughout a wide area of Buckinghamshire and the fringe of Hertfordshire, and how, with one exception, this series included all persons from whom Type D4 *Bact. typhosum* was recovered in England and Wales during 1941 and 1942. Although the organism was not cultured from the milk (which was not examined at the time), neither can it be proved that this particular milk was consumed by the patients; it was undoubtedly available for delivery at material times to the various retailers whose customers developed typhoid. The path for infection was open, although the evidence that infection travelled along this path is no more than circumstantial. All cases arising in Buckinghamshire were investigated. As new cases occurred and were identified and typed as D4 their places in the series became apparent, and the evidence was thereby strengthened. When Case 16 emerged in Wiltshire and led direct to a persistent carrier of D4 organisms with access through milk to consumers 100 miles away, he fitted so closely into a preconceived picture that only by the most unusual chance could his association have been a coincidence.

This story belies the customary conception of a milk-borne outbreak. There was no dramatic explosion of considerable magnitude and with few exceptions the cases appeared to be sporadic. The output of the carrier's farm was 16 to 18 churns a day, all of which had passed through the Hertfordshire depot since April, 1940. Until May, 1941, the milk may have been distributed raw, but subsequently it was reputed to have been pasteurized. The procedure at the depot did not exclude the possibility that an occasional churn escaped pasteurization, but the unusual epidemiological picture suggests another explanation. The events are consistent with the milk having been contaminated sufficiently to cause infection on as few as 4 days in two years, although this number may have been 5, 6, or 7 days, and on one only of these days is there evidence that more than one churn of milk was infected sufficiently to give rise to disease. Such intermittency is more conveniently explained on the assumption that the infection was not introduced direct into the milk during the process of milking by a carrier continuously employed, but that occasional churns were contaminated by polluted well-water used to swill down the farm dairy.

One of the minor lessons to be learnt from this study emerges when Cases 11, 12, 13, and 14 are considered as a group. They were contemporary in onset, and since they were the only detected cases of D4 in the country at the time it might have been conjectured that they were infected simultaneously by a common aliment. In truth they arose from three or even four separate immediate sources linked together by tenuous circumstances to a remote common origin. The fact that at least two of them (Nos. 13 and 14) were secondary cases was established only after prolonged inquiry.

Comment

This paper records one of a number of similar investigations which are in progress, and is by no means a unique example of the way in which phage typing provides links between a series of apparently sporadic cases subsequently proved by circumstances to be associated with a common focus.

The most fundamental objective of epidemiology is to define and render ineffective reservoirs of infection. In the control of an outbreak of enteric fever it is reasonable to give this objective second place and to concentrate in the first instance on the application of those principles of sanitary engineering which have served so faithfully in the limitation of the disease during the present century. The final objective—the elimination of the usual reservoir, the undetected persistent human carrier—must, however, be pursued no less vigorously, but with the deliberation and patience necessary in a process of attrition. The chase should never end with the termination of an outbreak or the implication of a subclinical case conveniently labelled "the carrier."

The true chronic carrier has special qualifications and can almost invariably be recognized by the so-called "Vi agglutination test" (Felix, 1938). Now, by the application of phage typing, he can be identified no less precisely than can the criminal by his finger-print. Moreover, like the criminal, he is apt to leave this "finger-print" at the scene of his crimes, where it may provide a specific clue leading to his detection. It is therefore important that the criminal's "finger-print"—the phage type of the infecting organism—should be obtained from every sporadic patient with typhoid and from a few representative patients in every outbreak. From the preventive point of view, the diagnosis of enteric is incomplete if it rests on a positive Widal reaction only.

In the case of Type D4 the carrier's activities were far from parochial, and his influence was detected in four counties and ten administrative areas during the course of two years. Since infection, like the criminal, does not respect administrative boundaries, there is clearly a need for the equivalent of the Central Criminal Investigation Department. In the matter of enteric infections the way to the finger-print bureau is through the Emergency Public Health Laboratory Service. But finger-prints and phage typing are no more than valuable clues, and the apprehension of the miscreant still depends on the observations and deductions of the field investigators. Without determined field work and the help of what may be a large team of practitioners and medical officers of health mysteries like "D4" are not easily solved.

Summary

The first sustained attempt to apply typing with Vi bacteriophages to a field study of endemic typhoid fever in England is described.

Apparently sporadic cases occurring over a period of two years were traced to a persistent carrier on a farm 100 miles away.

Milk which had passed through a wholesale depot and numerous retail dairies was the vehicle.

I wish to thank team, patients, and carrier for their co-operation, including more particularly Dr. A. Felix and Prof. G. S. Wilson, Emergency Public Health Laboratory Service; and Drs. R. C. Gubbins, W. B. Moore, L. Roberts, and C. E. Tangye, medical officers of health. Dr. J. R. Hutchinson, Senior Medical Officer of the Ministry of Health, directed the field operations. This paper is published with the consent of the Chief Medical Officer, Ministry of Health.

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SURGICAL TREATMENT OF OSTEOMYELITIS DUE TO A PENETRATING WOUND*

BY

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An almost inevitable sequel to a penetrating wound associated with a fracture is infection of the bone. The inflammation is unlike that caused by a blood-borne organism in that local symptoms and general toxaemia are both less, the probable reason being that from the very beginning there is free drainage from the broken bone. The osteomyelitis pursues one of five courses: (*a*) The inflammation may die down within a reasonable time and never again trouble the patient. (*b*) The inflammation may continue for a long time; let us call this *persistent acute osteomyelitis.* (*c*) The acute inflammation may subside, leaving behind a *sinus*, which extends down into the interior of the bone. (*d*) The inflammation may die down and the wound heal; but later, after an interval of months or years, the acute inflammation recurs. We express this by saying that *the wound has flared.* (*e*) The patient may have a chronic sinus and also be subject to recurrent attacks of acute inflammation in the bone. The problem therefore resolves itself into treating one of four conditions—namely: (1) persistent acute osteomyelitis; (2) a sinus; (3) recurrent acute osteomyelitis (a flare); (4) a sinus with flares.

Persistent Acute Osteomyelitis

In the treatment of persistent acute osteomyelitis we have little to offer surgically. The closed-plaster technique has shown clearly that surgery is not essential to the cure of inflammation. It is true that surgery is of use in acute inflammation—in affording an exit to pent-up pus, as in the opening of an abscess, and in excising *in toto* an inflamed area, as in appendicectomy. And these successes have tended to make the surgeon forget his limitations. In osteomyelitis due to a penetrating wound there is nearly always adequate drainage, and surgery is not required to give an exit to pus. Nor can we hope to excise the whole of the acutely inflamed bone without grossly infecting the surrounding tissues. We are therefore forced to the conclusion that there is no surgical treatment for persistent acute inflammation of bone.

However, although the inflammation does die down at last, it may by its prolongation endanger the life of the patient. Moreover, other disabilities may be present that would render the limb of little use even when the osteomyelitis had subsided: for example, an ununited fracture, an unsuturable nerve lesion, stiff deformed joints, damage to main vessels, wide destruction of skin. In persistent acute osteomyelitis amputation of the limb is therefore often advisable, either to save life or because an artificial limb will be of more use to the patient than his own crippled leg.

A Sinus

The active inflammation of the bone may subside, leaving behind a sinus. A sinus is a nuisance because it condemns the patient to wear a dressing to protect his clothing, and also because the smell from the discharge (particularly if the wound has become secondarily infected by *Bacillus proteus*) is offensive. And patients often clamour for treatment in the belief that a surgeon can easily get a sinus to heal. Sometimes he can; more often he cannot. A sinus indicates either (*a*) the presence of a foreign body or a sequestrum, which the patient is endeavouring to wash out of the wound, or (*b*) the continuation of a mild chronic infection of the bone. And it is often difficult for the surgeon to decide which of these two conditions confronts him. A radiograph gives valuable information because it reveals metallic foreign bodies and often sequestra. It is not decisive, however, for the foreign body may not be opaque (an unabsorbable suture, for example), and not all sequestra are dense.

As a rule a sinus heals after the removal of a foreign body or a sequestrum; and whenever the radiograph shows either, the surgeon should operate. When the radiograph reveals neither, it is justifiable to operate once and once only; for if the sinus recurs, as often happens, further operations are unlikely to be successful. It is important, however, to realize that the type of operation differs in the two cases.

Operation when a Sequestrum or a Foreign Body is Present

The aim of the operation is the removal of the sequestrum or foreign body. A probe is inserted into the sinus and the surgeon cuts straight down (anatomy permitting) on to the point of the probe. If this has entered the bone a small coffin-shaped piece of cortex is removed and discarded, revealing a cavity within which the foreign body or sequestrum is lying. The sequestrum is picked out and the wound is lightly sewn up without drainage. No attempt is made to excise the track or to obliterate the bone cavity. Should the wound later show signs of inflammation the stitches are removed and the wound is allowed to gape. The object of the operation is to remove the cause of the irritation, and if this is achieved the sinus closes.

The question arises—At what time after the onset of the osteomyelitis should one remove sequestra? I believe this should be determined not by the length of time that has elapsed but by the cessation of acute inflammation in the bone. But how are we to know whether the bone is still acutely inflamed? There are so few signs of active inflammation in bone. The radiograph does not help, and providing the products of inflammation are not under tension there is little pain. In fact, the only clinical sign is tenderness of the bone.

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However, with osteomyelitis due to a penetrating wound there is always infection of the soft tissues as well as infection of the bone; and inflammation of skin, cellular tissues, and muscles can be detected clinically. And we may assume that when the defences of the body have overcome the infection of the soft tissues they have simultaneously overcome the active infection in the bone. If the soft tissues are still inflamed, so is the bone; if the soft tissues are no longer inflamed we may assume that active inflammation has also subsided in the bone. And so, in my judgment, sequestrectomy should be deferred until the soft tissues around the sinus are free of heat, redness, swelling, and tenderness. As soon as the inflammation of the soft parts has subsided sequestrectomy can be safely undertaken. One need have no fear that the sequestrum will not be loose, because, in my experience, sequestra are already detached by the time they are disclosed by radiographs.

Operation when there is no Sequestrum or Foreign Body

In this case the object of the operation is the removal of all infected bone, the assumption being that the sinus exists to give an exit to the products of the continuing inflammation. The plan of operation is entirely different from that of sequestrectomy.

The sinus track is excised and as much of the surrounding fibrous tissue removed as is safe, having regard to the presence of main nerves and vessels. A large extent of bone is exposed subperiosteally, and up to a half of the circumference of the cortex is chiselled away piecemeal until healthy bone is reached. Sometimes the whole diameter of the bone is permeated with chronic inflammatory tissue; if this is so the operation will probably fail, since the aim of the operation—the complete removal of all infected bone—cannot be attained. Care must be taken not to fracture the bone, and the limb should be well supported on sandbags during the operation to minimize the risk. The walls of any cavity should be removed, for unless the soft tissues can fall in and obliterate all dead spaces the operation is unlikely to succeed. The operation entails hard work and much chiselling.

The immediate sequel to the operation is an acute inflammation of the bone that is left, and in order to prevent further necrosis there must be free drainage from the bone. The wound is therefore lightly packed with gauze soaked in paraffin, and this is renewed every few days. The first dressings are painful and should be done under nitrous oxide or intravenous anaesthesia. It is erroneously supposed that the object of packing the wound is to induce it to heal from the bottom, and accordingly the packing is often continued long after it is necessary. The packing is intended to act as a safety-valve so that the tension in the bone does not rise high enough to cut off the bone's blood supply.

The acute inflammation in the bone soon subsides and the safety-valve is no longer required; the packing should then be discontinued. If the packing is continued for too long the soft tissues form a tunnel with fibrous incollapsible walls, and the bone at the bottom remains exposed and is covered with a thin fibrous layer that is always ulcerating.

It sometimes happens that the radiograph shows a foreign body in the soft parts and old osteomyelitis, and the surgeon is not sure whether the sinus is caused by the foreign body or by smouldering inflammation in the bone, and in consequence is undecided which type of operation to perform—whether a simple removal of the foreign body or a resection of the diseased bone. In these circumstances useful information is sometimes obtained by *x*-raying the area after the injection of lipiodol into the sinus: when the opaque track leads to the foreign body it is a safe assumption that the foreign body is the cause of the sinus, and the simple operation is indicated; when the track leads into the bone the bone should be resected.

Recurrent Acute Osteomyelitis (a Flare)

These flares, although associated with local signs of inflammation and often with intense pain, are peculiar in that they are not accompanied by severe or lasting toxaemia. The patient's temperature is raised and he may feel ill; but this phase passes off quickly, and within a few days his health is restored. In this respect a flare is not unlike a bout of malaria.

There is no explanation for these flares and no known method of avoiding them. A patient may not have had any symptoms for years—perhaps 20—then, after a blow or excessive muscular exertion, or sometimes for no obvious reason, the wound flares. The rapidity and ease with which these are overcome show that the body has a strong defence, but seemingly the defence is not strong enough to prevent an attack although capable of smothering it when it occurs. Immunizing the patient with vaccines has not met with any success; indeed, an interesting fact is that once the patient starts having flares he may have several in quick succession in spite of not having had any trouble for years previously.

The inflammation may or may not be confined to the bone. Clinically, the skin, the deep tissues around the bone, or the bone itself may appear to be the principal (or sole) site of the inflammation. Of particular interest is the subcuticular inflammation that spreads far up and down the limb and resembles an erysipelas.

Treatment consists of rest, and the patient should be kept in bed. Locally, hot poultices such as antiphlogistine are soothing. Surgery is not indicated unless an abscess forms. An abscess should of course be opened, but there is no urgency. The longer the abscess can be left the nearer it approaches the surface and the smaller need be the opening. It is sufficient to give an exit to the pus and to leave the wound open; it is not necessary to establish prolonged drainage. As a rule within a few weeks the wound heals, and the patient's condition is then much what it was before the flare. Even when an abscess arises within the bone the bone rarely needs to be touched, because cloacae allow the pus to escape. Only exceptionally, when a high temperature and severe pain persist, is exploration of the bone advisable.

A Sinus with Recurrent Flares

These cases as a rule defy treatment. The sinus indicates a continuous grumbling inflammation, and the flares indicate that the bone is riddled with organisms that are potentially active. Operation rarely does any good, particularly when the ends of the shafts are involved, in which case for anatomical reasons an adequate removal of diseased bone is not feasible.

Most of these patients have undergone many extensive bone operations without any benefit, each one invaliding them for many months. Excluding an operation on the bone, there are two courses open to the patient: one, to accept his lot and to be resigned to periodic flares which will keep him from work for several weeks once or twice a year; and the other, to lose his limb. Luckily the leg is more often the seat of the trouble than the arm, since with a well-fitting artificial leg a man is but slightly handicapped. Many a pensioner of the last war is to-day thankful that he was at last persuaded to have his leg amputated.

When amputation is decided upon it is wise to proceed in two stages. The first amputation is done through the extreme lower limit of the healthy bone, and the skin flaps are lightly held together by two or three stitches. Should the wound become inflamed the stitches are removed and the wound allowed to granulate. Then, when all sepsis has been eliminated, the final amputation is done at the site of election.

The treatment described above is summarized in the following table:

	Bone Surgery	Other Surgery
1. Persistent acute osteomyelitis	None	Amputate if life is in danger or if limb is crippled
2. Sinus	Remove sequestra or excise infected bone	None
3. Flare	(Rarely) drain bone	Open superficial abscess
4. Sinus and flares ..	None	Amputate if a nuisance

J. Schwartzman (*Arch. Pediat.*, 1942, **59**, 466) studied the relation between pallor and anaemia in 943 adolescents with the following results: (1) Of 106 cases of pallor only 22 had true anaemia, while 84 had pseudo-anaemia. (2) 84 cases of true anaemia had no clinical pallor and would not have been detected without the blood count. (3) There was a total of 106 cases of anaemia, or a percentage of 11.3. The male incidence was 2.1% and the female incidence 20.7%. (4) The haemoglobin estimate corresponded to the anaemic state in 98.1%. Schwartzman concludes that routine haemoglobin determinations should be made in all cases regardless of appearance.

TREATMENT OF SCABIES BY T.E.T.M.S.

BY

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Gordon and Seaton (1942) drew attention to a new preparation (tetraethylthiuram monosulphide—T.E.T.M.S.) which they suggested was worthy of clinical trial, and their experiments on rats infested with itch-mites of the genus *Notoëdres* gave reasonable grounds for assuming that this sarcopticide may give even better results in the treatment of human scabies than either dimethylthianthrene or benzyl benzoate preparations. Percival (1942) has demonstrated that a 5% solution was curative in 50 consecutive hospitalized or ambulatory cases, but that in 0.25% strength the results were much less satisfactory.

The preparation used in the following series of cases was one kindly supplied by Messrs. Imperial Chemical Industries Ltd., and had the following formula: T.E.T.M.S., 25%; polyglycerol ricinoleate, 10%; industrial methylated spirit, 65%. The solution was of a dark yellowish-brown colour and at temperatures below that of the body there was a tendency for crystals of a distinctive yellow colour to form, which, however, were easily redissolved with moderate increase in temperature. The makers recommend that one part of the preparation be added to four parts of water immediately before use and applied twice daily for three days. Force of circumstances, however, compelled deviation from this advice in my original series of cases, so that the 25% emulsion was used in concentrated form, but the results of treatment lead me to assume that a useful purpose was served. About one ounce of the emulsion was sufficient to cover the body surface of an average-sized adult, and it was easy of application, not unpleasant to handle, and without objectionable odour.

Since, at this time, no records were available as to the propensity of the preparation to produce a dermatitis it was considered an advisable preliminary to test the solution, in full strength (25%), on 15 volunteers and as follows:

> The flexor surface of a forearm in each volunteer was vigorously rubbed with warm water and soft soap for three minutes, dried with a towel, and the solution rubbed into the prepared area for a further three minutes and then allowed to dry under atmospheric conditions. This procedure was repeated on three consecutive days, and the volunteers were asked to record any immediate or remote observations. In 2 cases out of 15 a moderate degree of frictional erythema was noted (one a female particularly liable to severe dermatitis on the application of iodine); but this gradually disappeared, and in no case was there the remotest sign of a localized dermatitis during several days' observation—nor was there anything detrimental except that the solution stained the clothing. The stain, however, was easily removed.

After a preliminary test on 4 scabietic patients it was decided to proceed to full-scale treatment of a series of cases with the 25% solution, and in order to give the preparation a stringent trial, patients with severe scabies or severe complicated scabies were chosen. In each case the entire body, with the exception of head and upper neck, was subjected to a uniform method of washing with soft soap and warm water, while a loofah was used for friction in preference to a scrubbing-brush. (The fact that scrubbing-brushes are used in the treatment of scabies seems, in my experience, to deter many of the public from accepting treatment, and I agree with Morris (1908) that "vigour must not be pushed to the length of violence" and am satisfied that such drastic measures are unnecessary in the majority of cases.) The patient was then quickly dried and the monosulphide solution was rubbed thoroughly over the body, particular attention being reserved for the sites most severely affected. In addition, raw or grossly septic areas were dressed with white lint wrung out of the solution. The treatments were for convenience carried out at three- and four-daily intervals by a specially instructed staff of volunteers derived from the personnel attached to a first-aid post where decontamination facilities were available. The patients were requested to bring a clean change of underclothing for use after the final treatment and were advised to sterilize their "cast-offs" and bed-linen by suitable methods. (My experience, however, leads me to the conclusion, like Hebra (1868), Dixon (1941), Mellanby (1941, 1942), and Monro (1942), and unlike Lydon (1941) and MacCormac and Small (1917), that clothing is of decidedly minor importance in the transmission of scabies as opposed to actual and prolonged bodily contact.)

In all cases so treated the results were most heartening, and in some, indeed, remarkable. On presenting themselves for the second treatment several patients or parents made such spontaneous remarks as: "The treatment is marvellous," or "She had the first good night's sleep in weeks." Itching was relieved at once, and the general well-being of the patients improved almost immediately.

TABLE I.—*Details of 14 Patients treated with 25% T.E.T.M.S.*

Case	Sex	Age (years)	Severity of Scabies	Severity of Septic Concomitants	Sites of Maximum Severity	No. of Applications of 25% T.E.T.M.S.	Date of Last Application	Date of Follow-up	No. of Occupants in House	No. of Occupants Affected	No. of Cases Concealed in House	Remarks
1	F	17	++	Nil	Back and buttocks	3	July 6	Aug. 27	6	4	3	Recurrence; probable familial reinfection
2	F	13	+	++	Buttocks	3	„ 8	„ 24	10	6	—	Cure
3	F	23	+++	+	Abdomen	3	„ 8	„ 24	3	2	—	„
4	F	3	++	+	Abdomen and buttocks	3	„ 8	„ 24	7	6	—	„
5	M	5	++	++	Generalized (usual sites)	3	„ 8	„ 24	7	6	—	„
6	F	12	++	+	Hands	3	„ 13	„ 24	2	1	—	„
7	M	5/12	++	++++	Right arm, back, palms, legs, and feet	4	„ 28	„ 24	4	4	—	„
8	F	16	++	+++	Legs and feet, elbows	4	„ 28	„ 24	4	4	—	„
9	F	16	+++	++++	Arms and hands, legs and feet	5	„ 28	„ 24	4	4	3	„ (Later mid-October recurrence)
10	F	4	++	+++	Lumbar region and buttocks	3	„ 27	„ 18	6	4	—	Recurrence; probable reinfection from neighbours
11	M	8	++	+	Generalized (usual sites)	3	„ 27	„ 18	6	4	—	„ „
12	F	6	+++	+++	Arms and hands, legs and feet	4	„ 28	„ 24	3	3	—	Cure
13	M	4	++	+++	Feet	3	„ 17	„ 24	3	3	—	„
14	F	5	++	++	Generalized (usual sites)	3	Aug. 11	„ 31	3	3	2	„ (Early October recurrence)

+ Slight. ++ Moderately severe. +++ Severe. ++++ Very severe.

In the limited series of 14 cases detailed in Table I it will be noticed that younger patients predominate, yet, in spite of several applications, no sign of dermatitis developed on these supposedly tender skins. Moreover, it was apparent that some of the secondary pyodermatitic concomitants of scabies appeared to be very favourably influenced by the monosulphide dressings. It was also noted that there was a tendency for the preparation to sting on contact with some of the more exposed lesions.

A follow-up of patients in from three to six and a half weeks after treatment showed three cases of apparent reinfection, since in Case 1 there was deliberate concealment of infestation in

Table II.—*Details of 93 Patients treated with 5% T.E.T.M.S.*

	Sex	Age (years)	No. of Applications of 5% T.E.T.M.S.	Date of Last Application of Monosulphide	Date of First Follow-up	Date of Second Follow-up	Re-infection	No. of Occupants in House	No. Affected in House	B.P.=Affected Bed-partner S=Sleeps by Self	Cases Concealed in House	No. of Rooms in House	Bath-room in House	Remarks	
1	F	4	1	1/10/42	27/11/42	5/1/42	—	7	3	B.P.	—	5	+	Cure	
2	F	4	1	„	„	„	—	7	3	B.P.	—	5	+	Cure	
3	F	10	3	5/10/42	14/12/42	1/1/43	—	4	1	S.	—	3	+	Cure	
4	F	7	2	„	27/11/42	5/1/43	—	8	7	B.P.	—	4	+	Cure	
5	F	4	2	„	„	„	—	8	7	B.P.	—	4	+	Cure	
6	M	10	3	„	14/12/42	4/1/43	—	3	1	S.	—	4	+	Cure	
7	F	6	3	„	27/11/42	5/1/43	—	7	3	B.P.	—	5	+	Cure	
8	F	7	3	„	„	„	—	5	3	B.P.	—	3	—	Cure	
9	M	6	3	„	7/12/43	24/1/43	—	3	1	S.	—	3	+	Cure	
10	F	5	1	2/10/42	14/12/42	26/1/43	—	3	3	B.P.	—	2	—	Cure. Previous reinfection, Table I, No. 14—Parents concealed	
11	M	17	2	9/10/42	27/11/42	29/1/43	—	10	3	B.P.	—	5	+	Cure	
12	M	15	4	„	„	„	—	10	3	B.P.	—	5	+	Cure	
13	M	12	4	10/10/42	„	„	—	10	3	B.P.	—	5	+	Cure. Slight dermatitis, chest	
14	M	14	1	14/10/42	7/12/42	5/1/43	—	6	6	B.P.	1	4	+	Cure. Father concealed	2 reinfections in household
15	M	9	3	19/10/42	„	„	—	6	6	B.P.	1	4	+	Cure. Slight dermatitis, abdomen, chest	
16	M	13	4	„	„	„	—	6	6	B.P.	1	4	+	Cure. Father concealed	
17	F	35	2	„	„	„	+	6	6	B.P.	1	4	+	Cure. Husband „	
18	M	11	5	22/10/42	„	„	+	6	6	B.P.	1	4	+	Cure. Father „	
19	M	51	1	17/10/42	27/11/42	„	—	4	4	B.P.	—	4	+	Cure. Previous concealed case	
20	M	14	8	18/12/42	„	„	—	4	4	B.P.	—	4	+	Cure „ „	
21	F	16	4	20/10/42	„	„	—	4	4	B.P.	—	4	+	Cure Reinfection (Table I, No. 9)	
22	F	44	4	22/10/42	„	„	—	4	4	B.P.	—	4	+	Cure. Previous concealed case	
23	F	6	1	20/10/42	„	„	—	3	2	B.P.	—	2	—	Cure	
24	M	4	1	„	„	„	—	3	2	B.P.	—	2	—	Cure	
25	F	17	4	19/10/42	2/12/42	6/1/43	—	6	4	B.P.	—	4	+	Cure. Slight dermatitis, chest and abdomen	
26	F	38	3	„	14/12/42	„	—	6	4	B.P.	—	4	+	Cure	
27	M	1	4	21/10/42	„	„	—	6	4	B.P.	—	4	+	Cure	
28	M	3	5	„	„	„	—	6	4	B.P.	—	4	+	Cure	
29	M	12	4	19/10/42	29/12/42	22/1/43	—	4	2	B.P.	—	4	—	Cure	
30	F	9	3	21/10/42	„	„	—	4	2	B.P.	—	4	—	Cure	
31	F	28	2	20/10/42	14/12/42	26/1/43	—	4	4	B.P.	—	2	—	Cure	
32	F	2	2	„	„	„	—	4	4	B.P.	—	2	—	Cure	
33	F	3	5	21/10/42	27/11/42	5/1/43	—	7	7	B.P.	—	5	—	Cure, Slight dermatitis, chest	
34	F	7	6	„	„	„	—	7	7	B.P.	—	5	—	Cure. Slight dermatitis, chest and shoulders	
35	F	13	6	„	„	„	—	7	7	B.P.	—	5	—	Cure	
36	F	27	4	30/10/42	7/12/42	2/1/43	—	5	3	B.P.	—	4	+	Cure. Slight dermatitis, buttocks	
37	F	16	4	26/10/42	„	„	—	5	3	B.P.	—	4	+	Cure	
38	F	50	3	„	„	„	—	5	3	B.P.	—	4	+	Cure	
39	M	8	1	„	14/12/42	24/1/43	—	5	2	B.P.	—	3	—	Cure	
40	F	12	5	„	2/1/43	22/1/43	—	8	6	B.P.	—	6	—	Cure	
41	M	4	2	„	7/12/42	24/1/43	—	7	6	B.P.	1	4	+	Cure Mother previously denied scabies—later admitted. Elder sister—inefficient home treatment—still affected	2 reinfections in household
42	F	2	2	„	„	„	+	7	6	B.P.	1	4	+	Cure	
43	F	8	3	29/10/42	„	„	—	7	6	B.P.	1	4	+	Cure	
44	F	7	3	„	„	„	+	7	6	B.P.	1	4	+	Cure	
45	F	45	2	„	14/12/42	6/1/43	—	6	5	B.P.	—	5	+	Cure	
46	F	9	3	30/10/42	„	„	—	6	5	B.P.	—	5	+	Cure	
47	F	8	3	„	„	„	—	6	5	B.P.	—	5	+	Cure	
48	M	1	2	29/10/42	„	„	—	6	5	B.P.	—	5	+	Cure	
49	M	10	4	30/10/42	„	5/1/43	—	11	7	B.P.	—	6	+	Cure	
50	M	7	4	„	„	„	—	11	7	B.P.	—	6	+	Cure	
51	M	11	4	„	„	„	—	11	7	B.P.	—	6	+	Cure	
52	F	13	5	„	„	„	—	11	7	B.P.	—	6	+	Cure	
53	F	5	4	„	„	„	—	11	7	B.P.	—	6	+	Cure	
54	M	9	5	„	2/1/43	21/1/43	—	6	2	B.P.	—	3	—	Cure. Slight dermatitis, chest and shoulders	
55	F	12	4	„	„	„	—	6	2	B.P.	—	3	—	Cure	
56	F	5	3	„	„	„	—	5	2	B.P.	—	4	—	Cure	
57	F	9	5	„	„	„	—	5	2	B.P.	—	4	—	Cure	
58	F	10	3	„	8/12/42	6/1/43	—	5	3	B.P.	—	3	—	Cure	
59	F	9	3	„	„	„	—	5	3	B.P.	—	3	—	Cure	
60	M	4	3	„	„	„	—	5	3	B.P.	—	3	—	Cure	
61	F	10	5	„	30/11/42	4/1/43	—	6	4	B.P.	—	3	—	Cure	
62	M	14	1	4/11/42	„	„	—	6	4	B.P.	—	3	—	Cure	
63	F	9/12	6	6/11/42	„	„	—	6	4	B.P.	—	3	—	Cure	
64	F	36	7	„	„	„	—	6	4	B.P.	—	3	—	Cure	
65	F	41	4	4/11/42	14/12/42	21/1/43	—	5	4	B.P.	—	3	—	Cure	
66	M	9	7	9/11/42	„	„	—	5	4	B.P.	—	3	—	Cure	
67	F	11	6	31/10/42	„	5/1/43	—	4	2	S.	—	4	—	Cure	
68	M	6	2	30/10/42	„	24/1/43	—	5	4	B.P.	—	3	—	Cure	
69	F	19	2	12/11/42	„	4/1/43	—	3	3	B.P.	—	3	—	Cure	
70	F	1	2	„	„	„	—	3	3	B.P.	—	3	—	Cure	
71	M	14	2	11/11/42	4/1/43	24/1/43	—	8	5	B.P.	—	4	+	Cure	
72	M	13	2	13/11/42	14/12/42	„	—	8	8	B.P.	—	3	+	Cure	
73	F	19	4	27/11/42	„	„	—	5	2	B.P.	—	5	—	Cure	
74	M	13	4	„	„	„	—	6	3	B.P.	—	4	+	Cure	
75	F	11	3	30/11/42	6/1/43	„	+	3	3	B.P.	2	5	—	Cure. Foster parents at first denied and later admitted original infection	
76	F	12	2	29/11/42	29/12/42	4/1/43	—	4	4	S.	—	4	+	Cure	
77	F	25	4	7/12/42	„	24/1/43	—	4	3	B.P.	1	4	+	Cure	
78	F	13	3	„	„	„	+	4	3	B.P.	1	4	+	Cure. Father admitted an infection previously denied	
79	F	8	4	30/12/42	22/1/43	4/2/43	—	4	4	B.P.	—	4	—	Cure	
80	F	45	2	7/1/43	„	„	—	4	4	B.P.	—	4	—	Cure	
81	M	43	3	6/1/43	„	„	—	4	4	B.P.	—	4	—	Cure	
82	F	19	4	8/1/43	„	„	—	4	4	B.P.	—	4	—	Cure	
83	M	12	3	18/12/42	4/1/43	24/1/43	—	9	5	B.P.	—	3	—	Cure	
84	M	8	2	11/12/42	„	21/1/43	—	8	4	B.P.	—	4	+	Cure	
85	M	14	3	„	„	„	—	8	4	B.P.	—	4	+	Cure	
86	F	5	3	14/12/42	„	„	—	8	4	B.P.	—	4	+	Cure	
87	F	12	3	„	„	„	—	8	4	B.P.	—	4	+	Cure	
88	M	12	3	21/12/42	7/1/43	24/1/43	—	8	8	B.P.	—	3	+	Cure	
89	M	14	3	„	„	„	—	8	8	B.P.	—	3	+	Cure	
90	F	6	3	„	„	„	—	8	8	B.P.	—	3	+	Cure	
91	F	15	4	2/1/43	24/1/43	3/2/43	—	8	8	B.P.	—	3	+	Cure	
92	F	37	4	„	„	„	—	8	8	B.P.	—	3	+	Cure	
93	F	36	3	„	„	„	—	2	1	B.P.	—	3	—	Cure	

other adult members of the family, while Cases 10 and 11 were probably reinfected from next-door neighbours, whose infestation had not then come to notice. It will be noted that in two other cases (Nos. 9 and 14) in which there was concealment recurrences occurred at a much later date.

From Aug., 1942, onwards a second series of scabietic cases were treated with a 5% aqueous preparation of the 25% emulsion. On the addition of water an interesting bright-yellow suspension was formed, and it was found that not only was it essential to prepare the medicament immediately before use but that warm water as a diluent was superior to cold water, since the sediment which invariably formed upon the bottom of the vessel was less bulky. Such a 5% preparation, allowed to stand overnight, produced a substantial gritty deposit and rendered the solution unsuitable for application to the skin. In the series of 93 cases treatment was in some instances performed daily and in others every other day, whilst a similar method of routine was practised as before.

So far as could be ascertained, none of the cases treated had received prior medication; neither were directions given by me regarding the desirability of sterilizing or fumigating clothing and bedding during or after treatment. Table II shows the relevant details.

Analysis of Table II

Of 93 cases treated and subsequently visited on the first of two "follow-ups" (74 not less than one month and 19 in from two to four weeks after the last application of T.E.T.M.S.) none showed any sign of recurrent scabies. A second "follow-up" not less than one month after the last application showed 6 cases suffering from early scabies (Nos. 17, 18, 42, 44, 75, and 78), and of these only one case (No. 78, who showed a few minute papules and vesicles on one hand) had received her first "follow-up" under one month—i.e., 22 days. Since Munro (1919) has indicated that the life-cycle of the parasite, egg-to-egg stage, varies between 9 and 15 days (and there is much extraneous support for his findings), it is reasonable to conclude that none of the 6 recalcitrant cases could have been recurrences in the true sense, but rather reinfections. It can therefore be stated with some degree of certainty that the entire series of 93 cases were cured, but that 6 were reinfected from a concealed familial source. Further points which appear from the analysis are:

(*a*) An approximate average of 3 applications were needed, although in some cases 6, 7, and 8 applications were deemed necessary. From 6 of the later cases, acting as a small test group, active female itch-mites were extracted before treatment with 5% T.E.T.M.S. Twenty-four hours later further samples were extracted, and in 4 cases the parasites were found to be dead; while a further application had killed additional specimens taken from the remaining 2 cases twenty-four hours later still.

(*b*) From 227 occupants in the houses concerned 154 (67.8%) cases of scabies were discovered.

(*c*) Of 93 patients treated 88 slept with infested bed-partners, while the remaining 5 were of school age and associates of scabietics or living in the same house with them.

(*d*) Out of the 93 patients 55 lived in houses having a slipper bath with an adequate hot and cold water supply.

(*e*) Of the 93 cases 7 produced a mild erythematous dermatitis, which was found to be of little moment and quickly subsided on discontinuing the treatment. The rash was usually most obvious on the upper chest and shoulders. It is of interest to note that in the first series treated with the 25% emulsion no sign of dermatitis was apparent, and this would seem to be due to the oily and more penetrating character of the soluble T.E.T.M.S., as opposed to the watery 5% suspension.

From these results, and in my experience generally, routine fumigation and sterilization of clothing and bedding have limited value, besides being expensive. Reasonable cleanliness of person, clothing, and household is calculated to give equally good results.

Comment

It is stressed that the original cases were on the whole, and of their type, severe and responded extremely well to treatment. It is suggested that the application of the 25% emulsion, though seemingly wasteful, may be found both useful and time-saving, especially in severe and complicated cases for which hospitalization is considered necessary and when available beds are at a premium. Furthermore, it is admitted that in the first series of cases treatment erred on the generous side, and experience may show that the number of applications of the 25% emulsion may be reduced without detrimental effects. Alternatively, it is suggested that a similar emulsion with a smaller percentage of combined T.E.T.M.S. may perhaps give comparatively good results.

In 5% aqueous solution the preparation was less spectacular, though of considerable potency, and the dermatitis recorded in 7 cases was of a mild order. My observations, bearing in mind the limitations of the series, stimulate a cautious yet hopeful opinion that T.E.T.M.S., used under adequate supervisory control, may prove a potent and convenient acaricide and be preferred to other sulphur compounds. In conclusion, I would stress that it has not been my intention to detract from the merits of benzyl benzoate, for which I have high regard.

Summary

T.E.T.M.S. in 25% emulsion has been found to be curative in 11 out of 14 cases of severe and complicated scabies, the remaining 3 cases being probable reinfections.

In 15 volunteers and 18 patients the emulsion failed to produce dermatitis or irritation beyond a preliminary smarting in some severe cases.

It would appear to have extremely beneficial results upon some of the secondary concomitants of scabies.

In 5% aqueous solution it has proved curative in 93 consecutive cases and produced only mild dermatitis in 7 patients.

It has proved to be a sarcopticide of potency against the human itch-mite and is worthy of extended trial.

Thanks are extended to Messrs. Imperial Chemical Industries Ltd. for generous supplies of tetraethylthiuram monosulphide and, in particular, to Dr. C. M. Scott, whose kind co-operation was much appreciated.

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ON THE VALUE OF VITAMIN B_1 IN PREVENTION OF TOXAEMIA OF PREGNANCY

BY

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This experiment was suggested by perusal of the last (1940) Annual Clinical Report of the Department of Obstetrics and Gynaecology of the University of Hong Kong, in which Gordon King reported 155 cases of avitaminosis B_1 (beriberi) complicating pregnancy and labour, 117 (75%) of which had a blood pressure of 140/90 or over, including 16 cases of eclampsia. Assuming that the usual incidence of eclampsia is 1 in 500, it is apparent that its incidence in beriberi is increased about 50 times. Other observations pointed in the same direction, though less definitely. Siddall (1938), impressed by the high incidence of pre-eclamptic toxaemia and eclampsia in Canton, where beriberi is endemic, believes that B_1 deficiency in pregnancy leads to a malignant hyperfunction of the pituitary, with disturbed carbohydrate metabolism, oedema, and raised blood pressure. Nixon, Wright, and Fieller (1942) investigated the vitamin B_1 content of the urine, and in certain cases also of the placenta, in 46 clinically normal and 60 abnormal pregnant women whose disabilities were as follows: hypertension 28, hyperemesis 6, pre-eclampsia 3, eclampsia 9, oedema 14. They concluded that in eclampsia the amount of vitamin B_1 excreted in the urine and concentrated in the placenta was significantly lower than in the normal cases. In none of the other clinical groups, however, did the amount of vitamin B_1 differ significantly from the normal. Ross *et al.* (1938) added dried milk, vitamins (including vitamin B in the form of yeast tablets), calcium, and iron to a diet which, for pregnant women, might be regarded as marginal in regard to protein, vitamins, and minerals, but did not find any significant effect on the incidence of toxaemia. Twenty-seven patients were given the enhanced diet, and 9 (33.3%) became toxaemic, while among 26 controls 11 became toxaemic (42.3%). The women were all resident in a charitable institution, and their diet could therefore be carefully supervised.

The Present Investigation

In the autumn of 1941 an investigation was started in which vitamin B_1 was given to 100 women who were not more than 20 weeks pregnant, and continued till term. Alternate cases were taken as controls. To the treated women 1 tablet containing 3 mg. of vitamin B_1 (aneurin hydrochloride) was given daily. As each milligramme represented 320 I.U. of B_1 the total daily dose given to each patient was 960 I.U. In course of the investigation a certain number of patients dropped out through various causes—miscarriages, removals, etc.—so that in the end there were left 169 women, consisting of 88 treated cases and 81 controls.

Results.—In assessing the incidence of toxaemia in the two groups two different standards of toxaemia are taken: (1) a blood pressure of 130/70 (standard I); (2) a blood pressure of 140/90 or over, or any blood pressure of over 130/70 if accompanied by albuminuria (standard II). Of treated cases there were 32 (36.3%) who had a blood pressure exceeding 130/70, excluding patients with chronic hypertension. Of the control cases 20 (24.6%) had a blood pressure of 130/70. Of treated cases there were 7 (7.9%) who had a blood pressure of 140/90 or over, or a blood pressure of over 130/70 with albuminuria. Of the controls there were 4 (4.9%) who were toxaemic according to this standard. The results may be made clearer by the following table:

Table showing Incidence of Pre-eclamptic Toxaemia in Treated Cases and in Controls

	No. of Cases	Incidence of Toxaemia	
		Standard I	Standard II
Treated	88	36·3%	7·9%
Controls ..	81	24·6%	4 9%

These negative results might be explained in one of two ways: first, that B_1 deficiency does not play any part in the causation of pre-eclamptic toxaemia; secondly, that the diet of the women included in this experiment was not deficient in vitamin B_1. In this connexion it may be noted that McCance and co-workers (1938) in an investigation of the diets of 120 women from 3 to 9 months pregnant, at varying income levels, found that all, even including those in the higher-income groups, received suboptimal amounts of B_1, the estimated daily intake varying from 209 to 454 I.U., as compared with an optimal intake of 600 to 900 I.U.

The conclusion to be drawn from this experiment is that, so far as the prevention of toxaemia of pregnancy is concerned, no beneficial effect is obtained by supplementing the diet with vitamin B_1.

I am much indebted to Glaxo Laboratories, Greenford, Middlesex, for their interest in the experiment, and for a free supply of vitamin B_1 tablets.

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Medical Memoranda

Intra-uterine Rupture of the Umbilical Cord

The following case occurred recently in my practice, but I can find no record of a similar happening in England, although a few instances of spontaneous rupture have been recorded from other countries. Most of those already reported involved interference in an abnormal confinement or abnormalities of the cord.

Case History

The patient, aged 28, had had one previous normal confinement. The present pregnancy was normal except for some anaemia, and later there had been suprapubic pain for which no cause was found. She went into labour at term at 8 a.m. and had mild pains for ten hours. I saw her early in labour; the head was engaged, the foetal heart normal, and pains infrequent and slight. The nurse visited during the day and there was no advance. At 7.20 p.m. the nurse saw her again; pains were more frequent, but she left the house. At 8.20 p.m. the patient suddenly had one severe long pain. At this time she felt the foetus give a violent kick; she lost a small amount of blood per vaginam and felt faint. After this time a little blood was lost with each contraction, but on no occasion was the loss profuse. The nurse arrived at 8.40 p.m. and sent for me immediately. There had been slight loss of liquor amnii, but at 8.50 p.m. the membranes ruptured; there was a large amount of liquor, and the foetus followed at once. The cord was seen to be ruptured. The maternal end of the cord presented immediately afterwards; there was no bleeding from either foetal or placental end. The foetus was asphyxiated; it made no attempt to breathe, and there was no apex beat palpable. It was an apparently healthy full-term male, but remained blue in colour and flaccid. The placenta and membranes were delivered intact five minutes afterwards. The puerperium was uneventful.

The placenta was rather pale in appearance. The cord was 24 in. long and was torn about 1/4 in. from the umbilicus. There was just enough stump to hold a clamp. It appeared normal except at the umbilical end, where it was swollen and looked rather sloughy. The vessels themselves were not swollen. The tear was transverse and irregular. The amniotic sac contained some meconium and a blood clot which did not look very recent.

Discussion

A case of this sort in an otherwise normal confinement must be exceedingly rare. It is difficult to see why a cord of normal length should rupture. In this case there was no relative shortness, as the cord was not round the neck nor was there any sign that it had been so. In other reported cases there have generally been intra-uterine manipulations or relative or absolute shortness of the cord, which generally ruptures near the placenta although the cord is often thinner just at the umbilicus. The cord is said to be able to withstand a stress of 9 lb. It has been suggested that a loop of cord may get fixed at the place of looping. During the advance of the foetus there may be enough stress produced on the fixed cord to cause rupture. In this case there was some abnormal stimulus to the foetus, causing abnormal activity half an hour before delivery. This was at the time of the severe pain and the violent kick of the foetus, which was the last movement felt by the mother. Unfortunately there was no one present to record the foetal heart rate. The loss of blood was never excessive. The foetus undoubtedly died from asphyxia and not from haemorrhage. Bleeding from the foetal end would soon cease as the heart's action would be speedily inhibited by on-coming asphyxia. Bleeding from the maternal end would soon cease from retraction of the torn ends of the vessels. There was no evidence of retroplacental clot or earlier separation of the placenta to cause the external haemorrhage. This was therefore presumably due to uterine contraction expelling a small amount of blood from the torn ends of the cord into the amniotic sac. Some of this blood then escaped with the leaking liquor; the rest remained as a clot in the sac.

I would like to thank Dr. J. R. Campbell Canney and Dr. G. E. R. Hamilton for their help with this article.

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B. Rose and J. S. L. Browne (*Ann. Surg.*, 1942, **115**, 390) found that in some patients after severe burns there was a large increase in blood histamine. In all cases there was a decrease in the blood histamine with the appearance of toxaemia and oedema. As the oedema and signs of toxaemia disappeared and the patient improved, the blood histamine rose to normal or higher levels.

Reviews

EYESIGHT

The Practice of Refraction. By Sir Stewart Duke-Elder, M.D., F.R.C.S. Fourth edition. Churchill's Empire Series. (Pp. 328; illustrated. 15s.) London: J. and A. Churchill. 1943.

The Practice of Refraction, by Sir Stewart Duke-Elder, of which a fourth edition has just been published, is a book dealing with a subject of the highest importance, and in such excellent fashion that it will be one of those works which will be of value to graduates studying eye-work, and also to ophthalmic medical practitioners. Every one of us, no matter how keen our thought and work, gets an extra stimulus from the written experience of another.

At no time in our history has the best eyesight been of such high importance to the nation. Both for men and women on service in all the Forces, and particularly in the air and at sea; and for the vast numbers who are employed in industrial factories doing fine close work for hours every day—the better their vision the better their work. The more accurately the eye doctor measures errors of focus, and the more nicely he corrects the errors with glasses, the swifter and the finer will be the work of each of these people. A book such as this of Duke-Elder is particularly good, because it stimulates the mind of the eye student and the doctor, and tends to make him explain to his patient the conditions found by plain words, and also by sketches, that give the patient a clear understanding of the state of his eyes.

Alas, that there should be even in these days some, who are deemed "educated," who persuade themselves and try to persuade others that poor sight, mostly arising from anatomical defects with which they were born, may be diminished or removed by fantasies of imaginative persuasion. Even with squint, as Duke-Elder writes, "so disfiguring is this effect that the condition of squint has been recognized from the earliest times, and its history is full of interesting sidelights. It was—and still is—considered an affliction sent by an angry god, and the ill luck brought by the look from a cross-eyed person forms the basis of many legends." Maybe these folk are so fantastic that they would persuade themselves that a snub nose is really a Wellington nose! For the differences between so-called "far-sight," and "short-sight," and "astigmatism" are as sharp and physical as our nasal features.

At the end of the book is Appendix VI, which gives a full and accurate statement of "official visual requirements" for all forms of service; these are of great value to-day.

This new edition bears no marks of wartime limitations. The paper, the print, the illustrations, and the binding are all good.

N. B. H.

SENSATION AND PERCEPTION STUDIED HISTORICALLY

Sensation and Perception in the History of Experimental Psychology. By Edwin G. Boring, Ph.D. The Century Psychology Series. (Pp. 644. 26s.) New York and London: D. Appleton-Century Company. 1942.

This book is a powerful instance of the value of teaching a subject through a history of its development. It is in fact questionable whether any approach is so sound as that which rests current knowledge on a foundation of what is known to have preceded it. The perspective thus obtained is of the greatest value in bestowing a capacity for balanced judgment about the "facts" often so called, but really provisional findings, in the domain of science. Knowledge of this sort distinguishes the scholar and the savant from the crammer and the exploiter—the mastercraftsman from the common journeyman.

Boring's book is not only well documented but well written, and his method of giving his references in notes rather than dry lists ("nominal rolls," as they would call them in the Services) is worth imitating. The contents are very copious, and include accounts of physiological theories, such as the membrane theory of nervous conduction.

The summary of the present state of knowledge in each field is done with judicial impartiality. There is a concise and lucid statement of the principles of *Gestalt* psychology, and a fair evaluation of its influence. Where the author has made his own contribution, as he did to the controversy over sensory endings in the skin, he is not prejudiced. After covering the history of sensation and perception in each sensory field, including the visceral field, he discusses in a final chapter the nature of scientific progress. It is an interesting study in the social psychology of science. He indicates how scientific progress depends on instruments and techniques; insight, he points out, rarely can be independent of contemporary thought. The inertia of tradition is emphasized. "Men do not readily perceive the obvious when it contradicts their habits of thought. . . . Personal and social attitudes can constrain or divert thought. . . . There is a need for prestige, for self-consistency, and for conformity; even scientific men need to stand together; they shiver in scientific isolation." How well we know these limitations! The history of even the purest of sciences, mathematics itself, has not been free from them. Boring has some homely and less general admonitions. His warning to Harvard is one that we might all take to heart. "Sometimes," he says, "I fear that if Harvard does not give up trying to turn itself from an institution of learning into an educational institution, we may have a generation of professors whose duty it will be to disseminate information which they have not had time to acquire."

TREATMENT OF DISEASES OF THE HEART

Tratamiento de las Enfermedades del Corazón. By Dr. Luis Calandre. (Pp. 247. 25 pesetas.) Madrid: Ediciones Pegaso. 1942.

Dr. Calandre divides his book on the treatment of diseases of the heart into two main parts: in the first he describes the various available therapeutic measures, and in the second the more common types of heart disease and the appropriate treatment. In his introduction he states that there is a tendency to consider an accurate assessment of the functional capacity of the diseased heart to be more important than an exact anatomical diagnosis of the lesion present, and he contrasts the well-known type of case in which there are gross physical signs but the patient may remain well without treatment for years with others showing serious circulatory insufficiency but in which the lesion is difficult to diagnose. He emphasizes the importance of recognizing the effect of cardiac failure upon other organs and, equally, the effect that extracardiac disease may have upon the heart. The help to be obtained from special methods of investigation should never be neglected. The author gives first place in drug therapy to digitalis, which receives 25 pages, and a historical review notes that William Withering was the first to recognize its value in the treatment of oedema of cardiac origin. Digoxin is omitted from the list of preparations, and not all would agree that the tincture keeps well for several years. Strophanthus and squills are listed with digitalis as cardiac tonics, while under stimulants come camphor, caffeine, and adrenaline. Depressants include quinine and quinidine, atropine, nitrites, and also various organ extracts—e.g., padutin—the doubtful value of which Dr. Calandre neatly delineates by stating that their efficacy is not always appreciable. Among the sedative drugs morphine is stressed, the indications and contraindications for its use being clearly stated. The time-honoured prescription of valerian for cardiac and other neuroses is noted. Of the diuretics, while the value of the mercurials is appreciated, no mention is made of the rectal route of administration. The chapter on dietetic management is excellent. The second part of the book, comprising some two-thirds of the whole, not only describes the application of the therapeutic agents detailed in Part 1, but gives clinical descriptions of various cardiovascular diseases, together with their prognosis. Dr. Calandre does not hesitate to state when knowledge is scanty, aetiology is unknown, treatment is of no avail, or prognosis is hopeless. He does not indulge in theories lacking foundation. His book is full of common sense and of evidence of his experience, and should be read by anyone wishing to learn how heart disease is assessed and treated.

THE NURSE IN TRAINING

Nursing Life and Discipline. By Sheila M. Bevington, Ph.D.(Econ.). With a preface by Charles S. Myers, F.R.S., and foreword by Florence Horsbrugh, M.P. A Study Based on over Five Hundred Interviews. (Pp. 89. 7s. 6d.) London: H. K. Lewis and Co. 1943.

Even before the outbreak of war recruitment for the nursing profession was becoming a difficult problem. Dr. Sheila

Bevington has undertaken an inquiry into the reasons for this, in the course of which she confidentially interviewed 525 nurses and obtained their opinions. She admits that it was the more modern-minded matrons who agreed to her so doing, while the less progressive ones denied her entry. Despite this favourable bias it is clear from her data that things are far from right. One great improvement has been made by splitting the Preliminary State Examination, which allows of the first part being taken before entering hospital. Medical students are not expected to work at their preliminary subjects while doing ward work, and there is no reason why nurses should be submitted to this double strain. Yet this improvement met with strenuous opposition. But the gravamen of the charge is that while girls in other walks of life are increasingly treated as responsible adults, the nurse is still often encompassed by disciplinary rules which, however adapted for a bygone age, are certainly unsuitable, if not intolerable, to-day. Moreover, the probationer is often left in doubt as to whether she is a public servant, an employee, or a student. Actually she is all three, but the distribution between those roles is often obscure. Dr. Bevington has some constructive proposals to make, largely based on changing conceptions of discipline; but so long as the bullying methods all too common in hospitals are maintained many girls of an admirable type will fight shy of the nursing profession. Doubtless the ward routine is trying to the nerves, but it is significant that many Sisters can adopt a much more sympathetic attitude to the relations of her patients than to the probationer who finds herself in an entirely strange world. It is to be hoped that Dr. Bevington's carefully documented conclusions will not fall on ears deafened by convention and tradition. Even the material improvements foreshadowed in the Rushcliffe Report will not solve the problem without a still further internal change of attitude.

Notes on Books

Sir Frederick Banting, whose name will ever be associated with the discovery of insulin, lost his life on Feb. 21, 1941, in an aeroplane while on a mission concerned with research into medical aspects of flying. He died in his 50th year, but he was already a world celebrity in his earliest thirties. Few people in this country know that Banting had a gift for draughtsmanship and colour. He first became interested in art after the last war when he was struggling to establish a practice in London, Ontario. He came to see a kinship between scientists and artists and was willing to believe that the latter did research work too. He started to make sketching expeditions in 1927, and as the years passed he developed into a vigorous painter. Most of his work was painted on small birch panels, out of doors under all conditions of weather. "He was learning to simplify and to keep his colours fresh." The story is now told in an illustrated booklet, *Banting as an Artist*, by A. Y. Jackson, LL.D. (Ryerson Press, Toronto; 75 cents). This is published appropriately at a time when a special committee has held an exhibition of his paintings, drawings, and wood-carvings in the Art Gallery of Hart House, University of Toronto. The exhibition was the result of a suggestion by Prof. Barker Fairley, a former chairman of the Art Committee, after discussing the matter with Dr. C. H. Best, Banting's fellow worker, whose name is linked with his whenever the story of insulin is retold. This interesting pamphlet includes a catalogue of Banting's artistic output and a brief memoir by Dr. Frederick W. W. Hipwell, a fellow student and lifelong friend. Paintings lose much when reproduced in black-and-white, but we can well believe Dr. Jackson when he says of Banting's sketches: "The pleasure was in making them, in mixing up a lot of colours in a sketch box and all the adventures that led up to it, the freedom from responsibility, scrambling over unknown country, getting burned by the March sun, smoking a pipe before the camp fire, or the welcome at the little hotel and the good meals and looking over the day's work. Then all these things were put aside and there was no more time for painting, but the memories were there."

The Governors of the Royal Cancer Hospital, London, have authorized the re-publication of selected papers from that hospital and the associated Chester Beatty Research Institute. The volume consists of 484 pages, and includes 30 contributions which have appeared in various scientific journals, many of them no longer available as reprints. It is hoped that this volume will be the first of a series to be published annually. A limited number of copies are available at a cost of 16s. each, post free, from the Secretary, Royal Cancer Hospital (Free), Fulham Road, London, S.W.3.

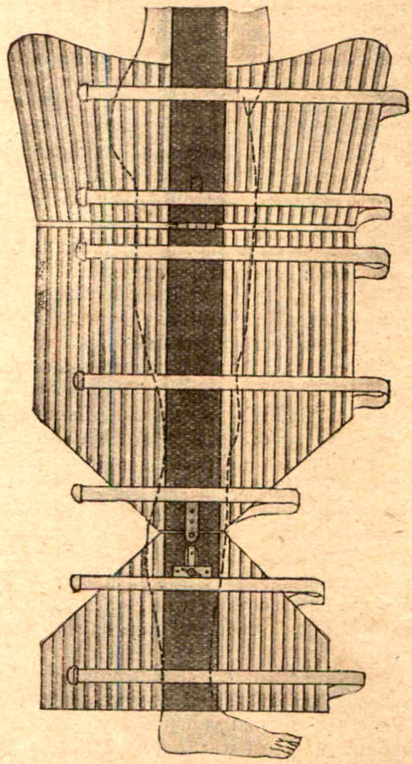
Preparations and Appliances

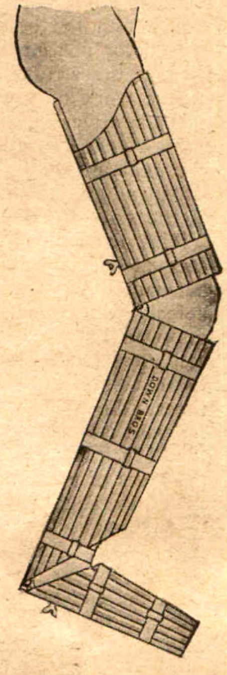
A UNIVERSAL FIRST-AID SPLINT

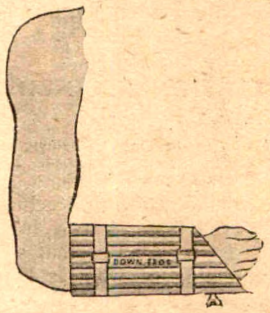
Dr. F. O'Sullivan (Harrow) writes:

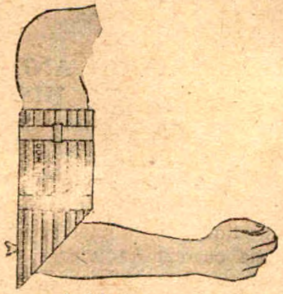
The following type of universal first-aid splint, recently designed by me, may, I think, help to facilitate the treatment of certain types of fractures of the lower and upper limbs. It can be employed for first-aid treatment of fractures of the femur (upper, middle, and lower thirds), the neck of the femur—acting as a modified long Liston—the patella, fibula and tibia, and the tarsus and metatarsus. It is possible to disarticulate the sections for treatment of fractures of the humerus, the radius and ulna, and the carpus and metacarpus.

The splint may be employed also in certain cases as a tourniquet: with suitable padding, no bandages are needed for its application, valuable time thus being saved. Its use does not interfere with x rays, so that diagnosis can be verified without removal. Another advantage of this type of splint is that it can be folded when not in use. The splint may be applied outside the clothes, and has been proved effective for most standard sizes.









The appliance is constructed of light wood, consisting of rigid back pieces with detachable hinges, which can also be locked. The sides are formed of strips of strong rounded lath, attached to firm strips of canvas, resembling cricketers' leg-pads, which can be rolled, and at the same time give firm adjustable support, laterally and anteriorly. The articulating ends of the splint have clamp screws and pins for the adjustment of angles. The splint is quick and simple in application, and its technique can easily be learned by first-aid students.

My grateful thanks are due to Mr. Kearsey, chief engineer to H.M. Stationery Office, who kindly constructed the first model for me, also the drawing details of the splint itself. The improved model has been made by Messrs. Down Bros. Ltd., who have kindly supplied the illustrations.

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FROM BEVERIDGE TO BROWN

Not long after the Council of the B.M.A. had collected the views of a number of its committees on Assumption B of the Beveridge report, and had on the basis of these drafted a recommendation to put before the Representative Body, the Association was asked by the Minister of Health to form a committee to confer with him on the procedure of discussions to take place forthwith on a comprehensive National Health Service. The Minister of Health was at the same time taking similar steps with representatives of local authority organizations and of the voluntary hospitals. When it was clear that the Minister wanted to meet a committee representative of the profession, agreement with the Royal Colleges and the Society of Medical Officers of Health was quickly reached on the desirability of united action, and a committee, the personnel of which was set forth in the *Journal* of March 20, page 359, was formed. It has since been enlarged slightly by the addition to its number of a " truly rural " practitioner from Wales, of two representatives of non-teaching voluntary hospitals, and of a doctor in general practice to be nominated by the Society of Apothecaries, an ancient champion of the rights of the general practitioner. At the joint Conference of the Representative Body and the Panel Conference on March 31, and at separate meetings of the two bodies later on the same day, the representatives were asked to approve the composition of this committee. This approval was given, the Panel Conference recommending in addition that Scotland be asked to choose its own representatives, other than those already nominated by the Royal Scottish Corporations. The combined and separate meetings—the proceedings of the former are reported in this week's *Supplement*—also agreed that the Government's invitation to enter into discussions without commitment be accepted; and that these discussions should be conducted in the light of the undertaking that all members of the medical profession, including Service members, shall have an opportunity to express their views and to present them to the Representative Body, and that before negotiations open, and before proposals are submitted to Parliament, such proposals shall be considered by every unit of the Association's organization. The full text of the recommendation agreed to is given in the *Supplement.*

Those who took part in these meetings on March 31 are to be congratulated on the sense of unity they maintained amid a diversity of views on certain aspects of the situation they were confronted with. The action of the Executive Committee of the Council, for example, in forming a Representative Committee without referring the matter to the peripheral organization of the Association was sharply criticized by several speakers. These critics were disinclined to believe in the urgency of the situation. But it was soon made clear that the urgency was all on the part of the Ministry of Health. The Minister decided to get off the mark quickly. If those responsible for central executive action at B.M.A. headquarters had not shown equal alacrity, then the peripheral organization of the Association might well have asked its elected executive and appointed officials why they were not fulfilling their proper task of acting and leading. The central executive has the right to expect the confidence of those who have chosen it to conduct the affairs of the Association. And when it comes to dealing with the Ministry of Health it is well to be on the scene quickly. That the B.M.A. was on the scene quickly was a matter for congratulation, not for reproach.

It should be emphasized once more that the Representative Committee is not a negotiating body; it is not, that is to say, a body which is to arrange with the Minister of Health the terms and conditions of service in the new scheme contemplated by the Government. The committee will discuss, argue, advise, correct, and guide—but it has no power to enter into any commitments on behalf of the profession. No action will be taken before the whole profession has had full opportunity of reviewing the proposals and of making representations on them. For the Association's part, it is entering on these discussions, as Prof. Picken pointed out, prepared as it has never been prepared before. It has published, and just before the war brought up to date, its proposals for a General Medical Service for the Nation. During the war it has published the draft interim report of the Medical Planning Commission. Apart from anything else, the preparation of these reports has trained a number of men to deal with problems of medical organization and has taught them the craft of discussion round a table. It is this constant practice afforded by work in the Association's numerous committees that enables it to make a special contribution in the particular task ahead. A hint of what this task is was given by Mr. Ernest Brown, Minister of Health, in a speech on March 26, when, referring to group practice in health centres, to consultant and hospital services, he said: " We must commit to capable hands the duty of providing these services, by drawing together into a comprehensive whole the sometimes scattered and unrelated resources we already have, and by developing them wisely and well. The Government looks confidently to local government, with its long experience and its resilience in meeting the problems both of war and peace, to undertake this new responsibility." If this is to mean that the Government contemplates providing a national medical service by turning all doctors into local government employees, then it is likely that the discussions will last quite a long time—until in fact the Government changes its mind.

IS ANAEMIA PREVALENT?

It is no disrespect to the pioneers to say that the day has now passed when knowledge of the relation of anaemia to nutrition can be advanced by a medical officer working with an uncalibrated haemoglobinometer in an out-patient department or clinic. We now demand that the haemoglobinometer should be standardized in terms of oxygen capacity or N.P.L. specification.[1] Venous blood should be employed, to avoid the errors that are prone to occur in sampling capillary blood and to allow simultaneous estimation of the size and the haemoglobin saturation of the red cells. It is an advantage to estimate also the serum albumin, and the vitamin C content of the plasma or the white-cell layer. The diet should be assessed in terms of the total income per head, the money available for food per head, or, better still, the actual food consumed. It is desirable to know the incidence of recent infections, as well as the amount of menstrual and other losses, and the occurrence of pregnancy or abortion. Orr[2] has defined an optimum diet as one such that no improvement in nutrition can be effected by further supplementation. If iron supplementation is used to test the adequacy of the diet in iron, the iron must be continued for at least three months to allow the abnormal erythrocytosis produced by iron to subside.[3] In reporting results great care should be exercised in the use of words with strong associations, such as anaemia. It would be better to use colourless words such as hypohaemoglobinaemia and hypocythaemia, if they were not so cumbersome. To the clinician, anaemia means a haemoglobin level below 80%. It is therefore misleading to say that a group with an average haemoglobin level of 94% is anaemic, just because the normal average is 98.3%. The best method is to use statistical language and say what percentage of the group falls below the normal range (mean less three times the standard deviation). The clinician will perhaps understand the results better if he is told what percentage of the people were clinically anaemic—i.e., below 80% haemoglobin.

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[1] M.R.C., Report to the Traumatic Shock Committee, *British Medical Journal* 1943, 1, 209.

If these stringent criteria are applied to a recent paper by Lucy Wills and co-workers[4] on anaemia in women and children on wartime diets, we must conclude that it is a great advance on much previous work in this field. It certainly contains some surprising and puzzling discoveries, though it is not possible to agree with some of the interpretations the authors have put on them. We will confine ourselves to the findings in the adults. The authors found that women working in factories have a higher haemoglobin level (94%) than London nurses and students of the same age (90.6%). London mothers of the hospital class have almost the same haemoglobin level (89.6%) as the London students and nurses, which is higher than that of nurses and students who have been working out in the sector for about six months (84.1%). The country nurses and students are obviously more anaemic than their London sisters. With the clinical notation of anaemia as a haemoglobin percentage below 80, the groups fall in a different order, the incidence of anaemia being 5% in the London nurses and students, 7% in the factory workers, 9% in the housewives, and 17% in the country nurses and students. The authors compare the mean haemoglobin values with Price-Jones's figure (98.3%) for normal nurses and female students in 1931, and argue that there has been a general lowering of haemoglobin values in the population. This conclusion does not, however, appear to be justified by the evidence.

Working-class women are a much more numerous section of the population than nurses and female medical students. There is no evidence that their haemoglobin levels ever were as high as Price-Jones's standard, and it must be said that the values found by Lucy Wills in 1942 do not suggest any general lowering of haemoglobin values throughout the population. No data were collected on the diet of these women. The authors would perhaps have been wiser to concentrate their attention and their conclusions on the findings in the nurses and female students. Here there has undoubtedly been a fall in haemoglobin. The authors have made a careful inventory of the diets, and it is clear that the women were not getting as satisfactory a diet as it is possible to get in wartime Britain. In fact, the country nurses and students were being undernourished, for they received only 1,662 calories, 47 g. protein, and 9 mg. of iron a day. They should have received over 2,000 calories, 65 g. protein, and 12 mg. iron a day. There is evidence that these unfortunate conditions were not confined to one particular sector. Even lower haemoglobin values were found in nurses in 1942 by Whatley[5] and Helen Wright.[6] Nursing has never been an easy profession; it has always had a high wastage rate. The Lancet Commission on Nursing in 1932 found that from 33 to 50% of probationers fell by the wayside. It seems that one of the ill effects of the war has been to expose women medical students in London to the same unnecessarily arduous existence as the nurse. But these evils are not peculiar to women students in wartime England. Pryor and Ferguson[7] in 1941 reported that of 364 Stanford women undergraduates, 145 had haemoglobin levels below 70%; in 90 the anaemia was hypochromic, and in 55 it was orthochromic.

Further analyses of the data presented would have made it easier to assess them fully. One of the dangers of this type of mass observation is that by pooling and averaging the data the exceptions are lost sight of, for the marginal fringe of observations might be more illuminating than the central core. Were the individuals with the higher haemoglobin values in each group successful in getting more food? And to what extent were the country students initially comparable with the town students? Is it not possible that the country group tended to be students who had previously lived in lodgings in London and perhaps consistently neglected their diet, whereas the London students were women who lived with their parents in London? This possibility is mentioned, and the high proportion of auxiliary nurses in the sector, because the findings are difficult to explain when taken at their face value. It is surprising that a difference of 6.5% in haemoglobin (i.e., 1/15 of the woman's normal store of blood) should have been brought about by six months' difference in diet between London and the sector. This corresponds to 300 c.cm. of blood, which is probably as much as or more than was lost at all the menstrual periods.[8] To put it another way, one in every eight nurses who went out in the sector developed clinical anaemia after a period which apparently averaged only about six months. This can hardly be explained by uncomplicated iron deficiency: the iron intakes in the two groups were 10.8 and 9.2 mg. respectively. The healthy woman has a reserve store of iron, and her daily needs are small in relation to the total amount of circulating iron. Then what was the deficiency in these young women? Was it in protein or in vitamin C or in total calories, or in all three? If it was protein deficiency, was this confirmed by estimation of the serum albumin, which is a more sensitive index of protein deficiency than haemoglobin?

Lucy Wills and her colleagues speak of the anaemia as a conditioned deficiency of iron. Even this expression appears to give too much weight to the importance of iron. One would expect that anaemia due to a conditioned deficiency of iron would be hypochromic, and that it would respond to treatment by iron. But in the few cases in which a complete blood count was done the anaemia was normocytic and orthochromic, and there was no evidence that it responded to treatment with iron. Indeed, recent work suggests that in the past far too much attention has been paid to the iron content of the diet, and emphasis should rather be placed upon obtaining diets optimum in other essential nutrients which have been shown to function in efficient iron absorption and utilization. Leverton and Marsh[9] have shown that it is quite possible for women to maintain iron equilibrium on as little as 7.2 mg. of iron a day, provided other factors such as calcium, phosphorus, and protein are adequate. All this evidence makes us unwilling to agree with Lucy Wills and her colleagues that "the most important factor in the aetiology of this anaemia is a low iron intake." Is there not an element of wishful thinking in this? It leads to the suggestion that the national diet should be fortified with metallic iron,[10] and we should have to feel a stronger conviction that anaemia was becoming more prevalent and that it was due to lack of iron in the diet before such a suggestion could be supported. The country would probably kick against a national loaf that turned the stools black. It would be difficult to give more than 15 to 20 mg. of Fe ion a day, and there is no evidence that so small a dose would have a curative effect on the 10% of the female population whose haemoglobin is below 80%.

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[2] *Food, Health and Income*, 1937, London.
[3] Fowler, W. M., and Barer, A. P.: *Amer J. med. Sci.*, 1941, **201**, 642.
[4] *J. Hyg.*, Camb, 1942, **42**, 505
[5] *British Medical Journal*, 1942, **1**, 163
[6] *Lancet*, 1942, **2**, 138
[7] *Northwest Med.*, 1941, **40**, 58.
[8] *Lancet*, 1942, **1**, 588.
[9] *J. Nutrit.*, 1942, **23**, 229

Lucy Wills and her colleagues conclude that "the bearing of this anaemia on the health of the nation is of sufficient importance to call both for official action at the present time and for further investigation." Who are the officials who should act? The most obvious conclusion to be drawn from this study, and from an equally valuable investigation of public school diets by Widdowson and McCance,[11] is that the officials in charge of some of our hospitals and schools are not doing the best that can be done for their pupils in present circumstances. As Widdowson and McCance have pointed out, it is foolish to ask for extra rations or Government action when people who should know better are not taking up their full allowance of rationed and unrationed foods and are not even eating more potatoes. Much sound and practical advice has been given by the Ministry of Food, the Board of Education, the Industrial Health Research Board, and the Select Committee on National Expenditure, to mention only a few official bodies. It might be wise to follow some of this advice before asking for further action on a national scale. If the diet and health of nurses are below those of the general population, surely the first thing is to set our own house and garden in order.

PULMONARY CONGESTION AND OEDEMA

The death of Soma Weiss was a great loss to Harvard. For fifteen years he made extensive studies of various aspects of the circulation, and a short time ago there was published[12] an interesting review by him of some of the problems of congestion and oedema of the lungs. Broadly, the clinical causes of congestion and oedema are: (1) heart failure; (2) pronounced changes in pulmonary "haemodynamics" and/or capillary damage (infarct, pneumonia, drowning, irritant gases); and (3) diseases associated with retention of fluids in the tissues (beriberi, glomerulonephritis, and toxaemia of pregnancy). The causes may be combined. After a certain point has been passed oedema may progress rapidly; and the longer it lasts the more difficult it is to re-establish the physiological state. Congestion and oedema may be localized (as in pneumonia). In heart disease, congestion usually precedes oedema, which may be either pericapillary (interstitial) or intra-alveolar, or both. When caused by infectious diseases or chemical agents, on the other hand, oedema often develops without preceding congestion, and results from changes in permeability of the alveolar wall. Failure of the pulmonary circulation often occurs in the presence of an adequately maintained greater circulation. If pulmonary oedema persists, fibrosis and obliteration of capillary beds in the alveolar wall may supervene. Thus heart disease can cause first reversible and later irreversible lung disease. There may be much interstitial oedema without intra-alveolar oedema, and therefore without rales, as is observed in patients with left ventricular failure who have dyspnoea and a low vital capacity. Diffuse intra-alveolar oedema, giving bubbling rales, may be unilateral, and may involve only one lobe. In left ventricular failure there is severe impairment of the reserve functional capacity of the left ventricle as compared with the right. Therefore, under physiological stress, a serious imbalance between the functions of the two ventricles is apt to occur. In such circumstances paroxysmal dyspnoea (cardiac asthma) and transient pulmonary oedema associated with heart disease may cause gross disturbance of the pulmonary circulation within a few minutes or even seconds. If the balance between the two ventricles as regards equality of output is re-established, by decreasing arterial resistance or the inflow to the heart or both, the engorgement will persist, because the accumulated excess of blood and oedema remains trapped within the pulmonary circuit (and diffuses away into the lung tissues slowly). Repeated attacks of paroxysmal dyspnoea may therefore lead to progressive deposition of fibrin and connective tissue (looked upon in the past as "induration pneumonia"). In this instance the left ventricular failure is caused by arterial hypertension, but it may be associated with a normal or low arterial pressure, as in coronary thrombosis. *X*-ray appearances, Weiss says, indicate that the distribution of oedema varies in different types of congestive failure: in general heart failure it is usually basal; in pure left ventricular failure it is often hilar and perihilar. Congestion and oedema usually begin over the right lung, and remain more intense on this side (right hydrothorax usually precedes left hydrothorax). During and immediately after an attack of pulmonary oedema, various bizarre-shaped distributions of the oedema may appear. These *x*-ray changes may disappear within forty-eight hours, but obstruction of lymphatic drainage influences the persistence of oedema within certain areas. At times the appearances may be identical with those observed in tuberculosis or pneumoconiosis. Accumulations of oedema close to lung roots may imitate shadows caused by aneurysms or neoplasms; and in rare instances haemosiderin pigment deposits and surrounding tissue reactions in mitral stenosis may give radiographs imitating miliary tuberculosis or sarcoidosis. The *x*-ray differentiation of pulmonary oedema, infarction, and pneumonia and fibrosis is often difficult, particularly as pulmonary infarction is often associated with local or generalized pulmonary oedema.[13]

SCABIES ON THE SCREEN

The first showing of a film produced for the Ministry of Health on the control and treatment of scabies was given at a recent meeting of the Section of Epidemiology and State Medicine of the Royal Society of Medicine. The film, in two reels, occupying about 35 minutes, is a masterly production, with photography and cartoon-work of a high standard and a spoken commentary which is all that can be desired. It is not intended for exhibition to the general public, but is an instructional film for medical practitioners, as well as for health visitors and the personnel of treatment centres. Dr. P. G. Stock reminded the meeting that the Ministry of Health had issued a memorandum on scabies, in which it had said all that it had to say on the subject, but he added that Dr. Henry MacCormac, remembering the experience of this minor pestilence during the last war, had been anxious that some means should be available for bringing home to practitioners more vividly than can be done in an official memorandum or lectures, the need for appropriate action in view of the probable increase in incidence in war conditions. Dr. MacCormac had succeeded in interesting the Ministry in the project and had himself supervised the filming. The result of nearly a year's work, with the disappointments and delays of film production, is a highly finished "documentary," as we suppose it would be called. We understand that Dr. Kenneth Mellanby supervised the admirable cinemicrography, and that in the production of the film valuable assistance was given by the Middlesex Hospital, where some of the "shots" were made.

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[10] *Lancet*, 1942, **2**, 441.
[11] Ibid., 1942, **2**, 689.
[12] *Bull. N.Y. Acad. Med.*, 1942, **18**, 93.
[13] See also *Amer. J. Roentgenol.*, 1940, **43**, 305

The film begins with animated tracings which reveal the recent rise in the incidence of scabies, and then goes on to illustrate the life-history of the acarus. Some excellent cinemicrography shows the burrowings of the parasite in the skin, and the technique of its extraction with the needle. The ease with which scratching may set up secondary infections, such as prurigo, is demonstrated, and then the film turns to treatment and disinfestation. The patient is shown undergoing a preliminary bath (without disinfectant), followed by the application of a light coating of the slightly warmed benzyl benzoate emulsion, now recommended as a wartime substitute for sulphur ointment. The effectiveness of the emulsion in causing the death of the mite is quite dramatically shown. Finally two well-recognized figures appear on the screen, one a prominent member of the public health service and the other a well-known dermatologist, who reinforce the lessons of the film with short homilies.

The film was highly appreciated by a large audience, which afterwards turned to a discussion of the general question of scabies. It was pointed out by both Dr. A. M. H. Gray and Sir Arthur MacNalty that the present increase of scabies is not entirely a war phenomenon, but began to be appreciable about 1936-7. The incidence has, however, risen steeply during the war years, particularly among the civil population, and one officer from a London fever hospital stated that, whereas in 1940 scabies was found in 3.5% of all patients admitted, in 1942 the incidence had become 7.2%, or more than double. Dr. E. A. Underwood, medical officer of health for West Ham, said that at the beginning of 1942 three scabies treatment centres were established in his borough, and from that time until the present the total number of cases treated was just under 7,500, with 37,000 attendances. The average number of new cases was from 400 to 500 a month. Since benzyl benzoate was introduced the average number of treatments per case was 3.4, partly accounted for by the treatment of secondary infections. A point made in the discussion, as also in the film, was that scabies is not a disease contracted only by persons of unclean habits, but that the mites may find a home in the skin of any person.

MEDICAL FOLKLORE

Modern medicine is too heavily indebted to empiricism to dismiss off-hand any medical practices that have not an obvious scientific sanction. To the American Indians we owe, as Eric Stone[1] has pointed out, some sixty drugs that figure in our pharmacopoeias, while our debt to other primitive forms of medicine, such as the Assyrian and the Egyptian, needs no stressing. The contribution of primitive medicine to the total body of knowledge is so striking that it has led some observers, such as E. H. Ackerknecht,[2] to postulate an instinct in primitive man enabling him to select valid modes of treatment. Practices that persist over generations, though they may change unrecognizably in the process of transmission, deserve attention. If they carry the germ of a valid empirical observation, their study has its own justification. More frequently they are rooted in superstition, but understanding of the irrational is a rational study. At its lowest medical folklore is the emergence and persistence of irrational practices in treatment, but there are other aspects. The study of folklore in general has revealed an amazing similarity in highly complex beliefs and practices in widely separated human groups. The significance of such data in the study of the early phases of civilization is obvious, though it is well to remember that apparently similar practices and beliefs may have different roots. Medical folklore touches the history and current practices of medicine at more than one point, but the literature on it is not rich. In this country the outstanding contribution has been Dan McKenzie's *The Infancy of Medicine*, published in 1927, but it is due to the indefatigable labours of J. D. Rolleston that we now have a substantial collection of folk-practices in these islands and comparison with practices elsewhere. His paper on ophthalmic folklore,[3] recently published, rounds off similar studies in otology,[4] venereal disease,[5] acute exanthemata,[6] alcoholism,[7] pulmonary tuberculosis,[8] dermatology,[9] and medicine in general.[10] It is to be hoped that they will eventually appear in book form

QUININE SUBSTITUTES

That many doctors do not yet appreciate the extent of the quinine shortage is shown by the number of communications we receive advocating quinine sulphate for a variety of conditions. Materia medica days may, perhaps, be too far off even for the most recently qualified to recall that the great bulk of our quinine supplies come from the East Indies, now overrun by the Japanese. Be that as it may, quinine is evidently being ordered and/or prescribed in such quantities as to call for a notice from the Ministry of Health that synthetic substitutes are now available and should be used for antimalarial treatment. In a circular to all hospital authorities the Ministry states that these substitutes—namely, the *B.P.* preparations mepacrine hydrochloride (atebrin), mepacrine methanesulphonate (atebrin musonate), and pamaquin (plasmoquin)—may now be obtained from the manufacturers as follows:

Substitute	Manufacturer	Dose	Pack
Mepacrine hydrochloride	May and Baker	0·1 g. (tablets)	Bottles of 25, 100, and 500
" " ..	Imperial Chemicals	0·1 g. (tablets)	Bottles of 15, 100, and 300
" " ..	Boots	0·1 g. (tablets)	Bottles of 25, 100, and 500
Mepacrine methanesulphonate	May and Baker	0·1 g and 0.3 g. (ampoules)	Boxes of 6 and 25
" "	Imperial Chemicals	0·1 g. and 0·3 g. (ampoules)	Boxes of 6 and 25
Pamaquin	May and Baker	0·01 g. and 0·02 g. (tablets)	Bottles of 15 and 500
"	Imperial Chemicals	0·01 g. and 0·02 g. (tablets)	Bottles of 15 and 300

The Director of Medical Supplies, Ministry of Supply, Portland House, Tothill Street, London, S.W.1, will help in case of difficulty in obtaining requirements.

We announced on Jan. 16 last (p. 87) an Order (S.R.&O., 1942, No. 2668), which came into force on Jan. 5, prohibiting the use of quinine and its salts except as antimalarial drugs, and restricting the use of quinidine to the treatment of cardiac arrhythmia.

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[1] *Medicine among the American Indians.* Clio Medical Series. New York, Hoeber, 1932.
[2] *Bull. Hist. Med.*, 1942, **11**, 503; **12**, 545.
[3] *Brit. J. Ophthal.*, 1942, **26**, 481.
[4] *J. Laryng. Otol.*, 1942, **57**, 311.
[5] *Brit. J. vener. Dis.*, 1942, **18**, 1.
[6] *Proc. roy. Soc. Med.*, 1942, **35**, 535.
[7] *Brit. J. Inebriety*, 1941, **39**, 30.
[8] *Tubercle*, 1941, **22**, 55.
[9] *Brit. J. Derm. Syph.*, 1940, **52**, 43, 73
[10] *West Lond. med. J.*, 1939, **44**, 44.

THE MEDICAL SUPERINTENDENT

HIS FUTURE POSITION AND FUNCTIONS

BY

W. J. T. KIMBER, L.R.C.P., D.P.M.

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There seems to be every probability that the future will see the establishment of a form of national hospital service in which the general hospitals of the country will be linked up in some such manner as they have been in the Emergency Medical Service. There are a variety of ways in which such a service might be administered as between central and local controlling authorities, and much difference of opinion exists as to the most suitable of them. These are not matters which need be discussed here, but I propose to consider a problem which will remain to be decided in any case—that is, the internal administration of the individual hospital, particularly as it affects the medical superintendent. Since in some quarters the appointment of a lay rather than a medical superintendent is favoured, it will not be amiss to discuss what evidence there is in favour of a medical appointment to such a post.

Such hospitals as we are considering will be staffed by whole-time junior medical officers—residents—and largely by part-time paid medical staff, many of consultant status, and possibly some senior whole-time officers holding clinical supervisory and possibly teaching appointments. The advantages of general medical knowledge in co-ordinating and encouraging the activities of such a complex specialized group of workers are considerable, but administrative capacity is also essential. Most lay officers holding administrative posts of similar responsibility are chosen chiefly on account of their administrative capacity, while this has often been almost ignored when a medical superintendent is appointed. If this point were duly considered in filling such posts a medical rather than a lay appointment would be almost universally approved. Further arguments in favour of this contention are presented later on.

Functions of the Medical Superintendent

What, then, are the functions of a medical superintendent and what position must he occupy in the scheme of things to function successfully? The position held by a medical superintendent varies very much at the present time. In most mental hospitals and some others he is the chief clinician, besides being the executive head of all divisions of the hospital—medical, nursing, and lay. In other institutions we find him in medical charge, possibly also controlling the nursing service, through a matron subordinate to him but with a largely or almost entirely independent lay officer directly responsible to the governing body. In effect these conditions exist in many public assistance institutions with hospitals attached. In some of the E.M.S. hospitals the medical superintendent officially admits and transfers patients, etc., to comply with the Ministry's requirements, but has little, if any, authority in directing or controlling the medical work of the hospital. Various modifications of these examples may be found. The difficulties of each of these positions have been revealed during the war period, and for the most part have been met and overcome. They demonstrate that none of these schemes is suitable for use in a permanent organization, but all are useful in indicating what to avoid.

Whether control is vested in a central Government Department or a regional board or a local authority, the essential elements of hospital organization in any scheme for a national hospital service consist of:

1. A lay administrative body, representative of (or, possibly directly elected by) the inhabitants of the district, charged with the proper expenditure of the funds they control, and with the efficient running of the hospital in the interests of those they represent. Such an elected body or committee would be strengthened by the co-option on it of other members with local interests and also by some medical representation.
2. A professional body, the medical staff comprising individuals with varying degrees of professional skill and experience—of consultant rank, intermediate, and junior status.
3. Nursing staff.
4. Lay staff, including medical auxiliaries and clerical, domestic, and maintenance staff.

The relation of the medical superintendent to the nursing and lay sections of the staff is a matter of some importance, and affects both his position and his functions, but it is subsidiary to that which he occupies in respect to the medical staff, and will not be further considered here. Similarly, his relation to the junior grades of the medical staff may also be passed over, since it will depend on whether or not his functions and his position as regards the senior medical officers are satisfactorily determined. And here, lest I should be accused of overlooking the needs of that all-important person the patient, I would say that from an administrative point of view I regard him as being adequately provided for by his representative on the hospital committee or governing body, though I admit that in practice something more than this should be accorded him.

The medical superintendent would be responsible for ensuring that the policy of the board was carried out through all departments of the hospital. As chief executive officer he must serve the committee by interpreting its policy and seeing this implemented; but equally he must serve the medical staff and arrange that they are adequately provided with the means and conditions for carrying out their work. True, no man can serve two masters, but it is equally true that a house divided against itself cannot stand. Any successful scheme of hospital administration depends without doubt on the governing body's commanding the respect and confidence of its staff. With this the medical superintendent will not be faced with the difficulties of divided loyalties; without it, difficulties cannot be avoided.

A Link between Board and Staff

The medical superintendent, then, finds himself in the position of a link between the hospital board and the medical staff. He must also, if the time and money and skill lavished on a patient in the hospital are to have the maximum effect, see that there is an effective linking up between the hospital and the environment to which the patient is to return. The crux of the problem as regards the position of the medical superintendent lies in determining the precise meaning given to the terms "link" and "linking up" used in this context.

A hospital committee or board of governors constituted as suggested would command the confidence and loyalty of the medical staff; it would determine the general policy of the hospital and possibly, through a house committee, would supervise the major details of administration.

As a professional adviser the medical superintendent must keep the committee informed as to the medical needs of the hospital and as to the views of the medical staff on these matters. He may have to attempt to assess the merits of competing claims of different departments. Such a task must be accomplished by some means or other, and although the final decision will rest with the democratically elected hospital committee, that body will be advised in the last resort by its chief administrative officer, the superintendent, be he lay or medical. Under whatever system of control the future hospital may be run, this position will not be essentially altered. Even in a fully developed State Hospital Service, unless local representation and control be entirely done away with—an unthinkable contingency—many important decisions affecting the welfare of patients and the efficiency of the hospital will rest in the hands of the institution's own board.

Arguments in Favour of the Medical Superintendent

Herein is perhaps the strongest argument against the appointment of lay superintendents. A competent medical officer in this position will not only advise on particular issues as they arise, but will succeed in keeping his committee in close touch with current medical practice and progress, thus enlisting their interest and ensuring their capacity to maintain a high standard of efficiency. This is vital, and I would not rely on the medical superintendent alone in advising and instructing the lay committee. There should be a medical staff committee, whose recommendations would automatically be submitted to the governing body. The medical superintendent would, of course, be a member of this staff committee, but not necessarily, and probably not usually, its chairman. I would go further than this even, and provide for the direct approach to the hospital board, by personal representation, of members of the medical staff committee in any matters affecting their work. The usual method of approach, even if a report were submitted, would be through the medical superintendent; but on a resolution by the medical staff committee direct approach by representatives should be allowed. I would stress the point that such procedure should be regarded as a normal alternative, not one to be employed in the ordinary course, since it is more cumbersome and would delay the taking of effective action. Nevertheless, it should be looked upon as appropriate when certain matters of importance were at stake. It should not be regarded by the governors, the medical staff, or the superintendent as a challenge to the authority of the last-named.

It is not to be supposed that medical staff of consultant rank will be willing to serve in a hospital unless there is provided some such scheme by which to approach the democratically elected body managing the hospital, if need be over the head of an autocratic executive officer. Such provision would do much to dissipate the fear of bureaucratic tyranny, of which, though probably sometimes over-emphasized, a number of examples could be quoted.

A patient in a large hospital, it has been pointed out by Lord Horder, is likely to find himself in a position of some disadvantage, since there is a tendency for him to be successively subjected to the scrutiny of so many specialists that no *one* seems to be responsible for him as an individual, and, I would stress, as an individual in a certain environment. A medical as opposed to a lay superintendent could appropriately step in here. In doing so his attention would be directed to the needs of the patient as an individual getting ready for discharge and so for passing on to the almoner's department and the sphere of social medicine.

It seems unfitting that while all departments of a hospital, including the many newly established rehabilitation units where such exist, are under the direct supervision of a medical officer, the almoner's department, which makes the final and culminating effort of the hospital to re-establish the patient as a social unit in his environment, should lack such direct medical supervision and control. Here, surely, is an opportunity for the medical superintendent—who is in contact with all departments and who, if successful, must have secured the co-operation of all his colleagues—to complete for them this last service which the hospital is called upon to render its patients. In this way, I think, some advance over what has been accomplished in the past may be expected. "The best doctors of all time," wrote Weir Mitchell, "have been those who regulate the lives of their patients so that they may be restored to and maintain health." The present-day cry for social medicine is merely an admission that we have fallen short of this ideal; but, organized on the lines I have suggested, the hospitals should be in a much better position to achieve success.

Summary

The need is emphasized for a medical rather than a lay officer to co-ordinate the work of the hospital and interpret its requirements and the general medical position to a lay representative governing body.

The outline of a scheme whereby the medical staff can make their views clear to the governing body is explained and the advantages of this in securing the services of experienced staff of consultant status are stressed.

The special relation of the medical superintendent to the almoner's department is discussed, together with the advantages of his direct supervision of this department in securing a full restoration of the patient and in maintaining for him "positive health" as a social unit in the community.

At a meeting of the Joint Tuberculosis Council in February, Dr James Watt presiding, some discussion took place on the draft of the circular on the scheme for mass radiography which the Ministry of Health is sending to local authorities. Dr. Jessel said it was a technical report and dealt especially with apparatus, teams, and administrative problems. It had been agreed that the films should be viewed by one person, and a standard classification had been drawn up. On the question of allowances during treatment the chairman said the chief problem was that of the forms of tuberculosis for which these allowances should be paid. Dr. Sandison suggested that they should be paid if the patient was recommended by the tuberculosis officer for "a period of treatment specifically prescribed by the tuberculosis officer with the aim and reasonable anticipation of resumption of working capacity." Dr. D. P. Sutherland thought that the following words should be added to this definition: "and to patients in whom resumption of working capacity is unlikely, but who carry out the requirements of the tuberculosis officer necessary to prevent the spread of infection."

REHABILITATION IN CIVILIAN HOSPITALS

SURVEY BY MINISTRY OF HEALTH

Following on the report of the Interdepartmental Committee on Rehabilitation (the Tomlinson Committee), and impressed by the need for reducing industrial wastage caused by prolonged invalidism, the Ministry of Health is taking steps to improve and expand in civilian hospitals the methods of treatment grouped under the term "rehabilitation." With the greatly increased number of classes of patients for which the Ministry has accepted responsibility within the emergency scheme, the earlier provisions authorized in 1941 have proved inadequate, and the Ministry is arranging for their expansion as well as for their more effective use.

As a preliminary a survey is to be made throughout the hospital regions, and a circular has been sent to the regional and sector officers suggesting that the officer or his deputy with some member of the clinical staff should visit the larger hospitals in the area in order to ascertain what rehabilitation treatment is at present given and to consider the most practical means of effecting improvements. The visitors are expected to make their own comments on what might be reasonably practicable under wartime conditions, and it is hoped that those in charge of the hospitals will also make suggestions. A full and frank discussion is desired amongst all those concerned.

The general principles of rehabilitation as the Ministry understands them are indicated in Supplements 28 and 28A to E.M.S. Instructions, Part I (Red Book), and may be conveniently summarized as follows:

Type of Patient	Rehabilitation Required
In-patients—	
1. Bedfast	In ward
2. Ambulant	Whole-time in rehabilitation department
Out-patients—	
3. Unfit for work—attend daily	„
4. Unfit for work—convalescence at home	Report for instructions and progress
5. Fit for work	„
Annexe or auxiliary hospital—	
6 Light workers away from home	Whole-time group exercises and games
7. Heavy workers	„

One of the most important requirements is considered to be the designation in each hospital of a medical officer as responsible for rehabilitation treatment. It is also suggested that this officer and if possible other members of the medical staff might in some cases be encouraged to visit an efficient unit where rehabilitation measures are in use, and that similarly masseuses and other auxiliary personnel might benefit by a period of duty at such a unit.

Problems of Staffing

A difficulty to be faced is that of the restricted numbers of masseuses and occupational therapists to be obtained through the usual channels—that is, the Chartered Society and Dorset House School respectively—but it is hoped that some suggestions may emerge as to alternative sources of supply. The position with regard to physical training instructors is also difficult. It has been suggested that suitable men in the National Fire Service or Civil Defence Services might be made available as part-time instructors. Such an arrangement, of course, would not apply in hospitals, where partially trained instructors would not be fully competent to judge between the needs of different patients, but the services of such workers might be employed in the final stages of rehabilitation, as, for example, for men returning to work in heavy industries who merely need to be "hardened off." Yet another class of worker needed is the trained social worker, whose job it is to facilitate the return of patients to normal life by investigating and improving their home conditions and advising as to employment—an extension, in fact, of the duty of hospital almoners. The circular makes suggestions with regard to the accommodation for these purposes at hospitals and the use of annexes and convalescent homes. Owing to shortage of labour and material, the provision of new accommodation is at present out of the question, but with good will and enthusiasm it is thought that much can be done by using hospital space at present devoted to less important purposes.

A further point on which the Ministry of Health is anxious is the encouragement of interest in rehabilitation methods on the part of practitioners generally and for the benefit of patients suffering not merely from fractures but from all kinds of disease and injury. Here, we think, the Ministry is knocking at an open door. The question of rehabilitation has frequently been brought to the notice of the profession in these columns —most recently in a leading article on March 13—and there is little doubt that the general practising doctor is now aware of the importance of this subject. The measures now being taken are emergency ones to meet a wartime need, but out of them will be evolved the peacetime departments forming part of a comprehensive health service.

Reports of Societies

CLINICAL PATHOLOGY

Some sixty members and guests were present at a meeting of the Association of Clinical Pathologists held at the Westminster Hospital Medical School. Dr. S. C. Dyke was succeeded by Dr. A. F. S. Sladden as president, and Dr. C. E. Dukes by Dr. W. H. McMenemey as secretary.

Blood Diseases.—A number of haematological papers were discussed and much attention was given to the aid which sternal puncture affords in many cases where the clinical findings and ordinary blood examinations do not indicate a clear diagnosis. Dr. Dyke described two misleading cases. In a girl aged 21 the blood picture—30,000 white cells, 98% of mononuclear type —indicated leukaemia; a positive Paul-Bunnell reaction, however, and the appearance of the bone marrow, established a diagnosis of infective mononucleosis. In a male aged 65, 2,800 white cells, nearly all mononuclear, indicated aleukaemic lymphatic leukaemia, but peroxidase stain and the bone marrow clearly showed myeloid leukaemia.

Dr. E. N. Allott described the case of a woman with Raynaud's disease whose serum contained agglutinins active at 37° C. against Group O corpuscles. Quantitative absorption experiments suggested that in addition to the abnormal agglutinin in the serum there was also a deficiency of the ordinary Group O antigen in the corpuscles.

Diagnosis of Tuberculosis.—In a discussion on laboratory aids in the diagnosis of pulmonary tuberculosis Dr. A. S. Watts pointed out fallacies in the patch test: the possibility of degeneration of the patch material and hence the greater accuracy of the Mantoux test; the necessity for thorough cleansing of fat from the skin with ether or acetone before the application of the patch; the lack of response in skin tanned by sun and wind. Speakers stressed the need for examination of a 24-hour collection of sputum by a concentration method if early morning specimens of sputum failed to solve the diagnosis. For concentration, some laboratories preferred the "antiformin," others the "soda" technique. It was agreed that by neutralizing the soda deposit the final material adhered satisfactorily to the slide. Dorset egg medium should be included, or the exclusive use of media incorporating glycerin would result in a disproportionate selective isolation of human type. H. G. Close showed cultures of saprophytic acid-fast bacilli which had grown in 30 of 1,900 specimens (1.57%) of sputa inoculated on Löwenstein media. They were characteristic in that 2 to 4 weeks elapsed before the colonies became visible on primary isolation; on subcultivation they grew within "days" at room temperature. All his strains were of the pigmented, smooth, easily emulsifiable type, and were non-pathogenic to guinea-pigs.

Pemphigus Epidemics.—Dr. F. A. Knott detailed, in a survey covering one year, recurrent epidemics of pemphigus among the babies in a maternity ward, and of staphylococcal infection among the mothers. The many cultures of *Staph. aureus* were (according to general biochemical activity rather than in any one reaction) arbitrarily divided into three grades —A, B, and C. Grade A was the most vigorous in haemolysin, coagulase, and pigment production, and fermentation of carbohydrates. Numerous cultures from nose, hands, skin, vagina, breasts, and mouth enabled the infected children to be identified, as well as the carriers presumably responsible for the outbreaks. Grade A strains predominated in fluid from unbroken bullae. Exclusion from the wards of all mothers, children, and nurses yielding grade A staphylococcus gave effective control of the outbreaks. Grades B and C appeared to play a minor part or none in causation. Grade A strains were rarely, if ever, found in the dust or environment, and seemed to be transmitted from person to person. It appeared that infants' noses became infected from carriers on the staff, and then infected the mothers' breasts during suckling. Dr. E. H. Gillespie pointed out that staphylococcal typing was the only reliable method for identifying strains responsible for epidemiological infection. Techniques which depended on the rate of antibody absorption, even if they helped in distinguishing potentially pathogenic staphylococci, would lead to false incrimination of carriers. From the ensuing discussion it was clear that some maternity hospitals are not yet alive to the urgent danger of direct spread of infection from mastitis, pemphigus, and the like, in what the *Lancet* recently called "the staphylococcal nursery."

MEDICAL HISTORY OF THE WAR

At a meeting of the Section of History of Medicine of the Royal Society of Medicine on March 3, Sir Arthur S. MacNalty gave an address on "The Official Medical History of the War." Sir Walter Langdon-Brown presided.

Sir Arthur MacNalty spoke first of surgical writings relating to early wars, notably those of Ambroise Paré in the sixteenth century, William Harvey's clinical notes which were the only such record of cases in the Civil War, and John Hunter's service with the Forces in 1761–2, when he acquired the extensive knowledge of gunshot wounds embodied in his important treatise (1794) on that subject. The first official medical history of a war was British and concerned the Crimean campaign (1854–6), which was published in two volumes within two years of the cessation of hostilities. The first of those volumes dealt with medico-military matters in the individual corps, and the second with the history of disease, wounds, and injuries. It was produced on the initiative of Sir Andrew Smith, Director-General of the Army Medical Department, who explained in the preface how he had searched the records of previous wars in vain for guidance as to the care of the sick and wounded, and, because of his disappointment, he determined that his successors should not have the same difficulty.

Other medical histories were published by the French and the Russians. The Americans published a medical history of their Civil War, and the Germans a history of the Franco-Prussian War of 1870–1. An unofficial account of the Russo-Turkish War of 1877–8 was published, showing that the Russians then had an organized medical service, and the Bureau of War Affairs in Japan prepared a surgical history of the naval war between Japan and Russia in 1904–5. A volume was also published by the British War Office in 1908 on medical and sanitary reports from officers attached to the Russian and Japanese Forces in the field

The First European War

Of the many nations concerned in the war of 1914–18 only Great Britain and the United States published comprehensive histories. The Germans issued a medical and surgical history in nine volumes, but gave no account of their administrative arrangements, and the French Government published a report of surgical statistics. In Great Britain, within three months of the beginning of the war of 1914, arrangements had been made for standardizing Army records of casualties in such a way as to serve a statistical purpose. This provided the skeleton for the official medical war history. Sir Walter Fletcher and Sir William Osler had been anxious that preparation should be made for this history by special inquiries and collection of data, and in January, 1915, a Medical History Committee was set up with Sir Alfred Keogh as its chairman. Many schemes were set on foot, but that committee never met again, and in December, 1918, a new committee was formed to arrange for the actual writing, with Sir William Macpherson as editor-in-chief. The History was published in twelve volumes between 1921 and 1931, and had proved of great value in connexion with administration and other matters in the present war. In 1925 two volumes were published on the Australian Medical Services; the Canadian Government included in its official history of the war one volume on medical services, and the New Zealand Government did likewise.

All these histories had dealt mainly, and sometimes entirely, with the organization of medical services in relation to armies in the field. But the present war affected the civil population much more than did the wars of the past. It was also remarkable in that a large standing army had been maintained in this country, so that the medical problems of the Services' and of the civil population were closely intermingled. A number of new features in public health came forward—movements of population by evacuation, the creation of the E.M.S. with the administrative association of municipal and voluntary hospitals, which received both civilian and Service cases, the effects of intensive air raids, many medical problems in connexion with industry, also rationing and nutrition. The writing of a history covering these events entailed inquiries and investigations which could proceed only while the war organization was in being.

Projected History of Present War

A War Cabinet committee was set up to control official histories, and it was determined that the medical history should be part of an organized scheme and include the civilian as well as the fighting Services. An interdepartmental conference was held in 1940, attended by representatives of every Department concerned, and it was recommended that a representative editorial board should be set up, with himself (Sir Arthur MacNalty) as editor-in-chief. Mr. R. A. Butler, President of the Board of Education, guided the initial deliberations of the board, but as he was a prominent member of the Government and immersed in official work, it was realized that a successor must be found as soon as the History was in preparation, and Mr. C. E. Flowers, a member of the Advisory Committee on Official Histories, was appointed, and through him the medical branch was kept in close touch with the parent committee. The Directors-General would be regarded as editors in respect of their particular services.

The duties of the board included the supervision of the collection of material, the prevention of overlapping, and the selection of contributors. It had power to co-opt experts on special subjects and to consult with investigation committees set up by other bodies, notably the Medical Research Council. Government Departments gave active co-operation by furnishing reports and official documents relating to medical administration and to technical and clinical subjects. Close touch was maintained with the various bodies and persons whose work had any bearing on matters of interest for such a history. The Dominions and Colonies and the Allied Governments collaborated. Close liaison had been established with the National Research Council in the United States, which was collecting similar data, and there was an exchange of experience and information. Attention was also being paid to medical literature already published. A far-reaching organization was being built up at the new offices at 25, Victoria Street, London.

Sir Arthur MacNalty described the scope of treatment of the various medico-sociological problems relating to civil life which had come into prominence during the war. Each of the fighting Services would contribute its own section, giving an account of its medical organization before the war, its growth and increased functions during the war, and the medical aspects of the various campaigns. Certain problems would be treated at length in those sections of the history which were likely to be published earliest, so that wartime experience might be made available as widely as possible. Contributors were being asked to submit progress reports, because, of course, few monographs could be written until the war was over. Records should be made while the memory was fresh, and changes in methods of administration or treatment should be recorded when they took place. He indicated some of the headings in the sections of the technical volumes—war nutrition, physical training of recruits, effects of shipwreck, immersion and exposure, blood transfusion, effects of high-explosive bombs, blast and crush injuries, burns, plastic surgery, also epidemiology, venereal diseases, psychiatric conditions, industrial health, and rehabilitation. A special volume would be devoted to statistics. In conclusion he invited the help of the medical profession, upon whose whole-hearted co-operation the success of the History would largely depend.

Discussion

Mr. C. E. FLOWERS said that the History would be a vaster work than any similar record of previous wars. There were two dangers against which to guard—namely, omissions and repetitions The urgency of the matter lay in the fallibility of human memory. Unless facts were collected at the time reliance could not be placed on the accuracy of a narration. Col. YULE stated that detailed accounts from the war diaries of certain operations had been completed. The story of the Norwegian campaign was finished, and the story of the expeditionary forces in the Low Countries nearly so. The civil aspect of the war was being dealt with on its social side by Prof Hancock and on its scientific side by Sir Arthur MacNalty. Surg. Cmdr. KEEBLE pointed out that naval medicine as an organization was comparatively new; 1943 was the centenary year of medical commissioned rank. The difficulty in producing a history of this war so far as the Navy Medical Service was concerned was the system by which medical officers were scattered all over the world as isolated units in H.M. ships. Moreover, a number of records were lost, and the men with them, and in whatever was eventually produced there were bound to be large gaps. Records of operations at sea had been completed to the end of 1941, and in large part for 1942. Dr. SANDERSON remarked that his Ministry (Pensions) dealt only with an aftermath of the war, and in the last war was relegated to the 1931 volume. This time it was hoped to include this aspect somewhat earlier. Fl. Lieut. DAVIS said that the R.A.F. organization made for a somewhat parochial approach to the collection of material for a history, inasmuch as it was divided into commands and groups which became very much self-contained. Every medical officer in the Air Force was being encouraged to express his opinions, if necessary voice his criticism, or at any rate make some form of contribution to the History. The histories of some of the campaigns were completed. Mr. MELLOR, secretary of the official committee, said that he thought everyone was more or less convinced of the necessity for writing their contributions while the subject was fresh in the mind.

GIARDIA LAMBLIA INFESTATION

At a recent meeting of the Section of Medicine of the Royal Academy of Medicine in Ireland, with Dr. P. T. O'FARRELL in the chair, Dr. S. J. BOLAND, Dr. O. FITZGERALD, and Prof. J McGRATH gave a report on *Giardia lamblia* infestation. The first case was that of an adult male with recurrent attacks of tetany, diarrhoea, and steatorrhoea, and loss of weight. *Giardia lamblia* were found in the intestinal contents but none in the duodenal contents nor apparently in the gall-bladder after magnesium sulphate. Blood calcium was depressed to 5 mg. per 100 c.cm. blood; there was definite loss of fat in the split form from the intestinal contents, and the absorption of glucose was prolonged. *X*-ray examination showed marked clumping and segmentation in the lower ileum after a barium meal, and these radiological changes were shown, by intestinal intubation, to be correlated with the presence of *Giardia lamblia* in the intestine. There was mild normocytic and normochromic anaemia. Treatment with atebrin cleared up all the symptoms and signs except for the radiographical changes in the intestine.

In the second case a young boy aged 5 suffered from recurrent attacks of abdominal cramps and diarrhoea for some two years. There was no loss of weight, and apart from the presence of *Giardia lamblia* in the stools no other abnormality could be found. *X*-ray examination showed some changes in the lower ileum, but otherwise the child was healthy. Treatment with atebrin led to complete recovery from the infestation, but the radiographical changes persisted.

Prof. J. McGRATH, who made the pathological examinations, stressed four points. (1) It was important to show that giardiasis had a pathological significance, and these cases helped to give an affirmative answer. (2) The infestation was most marked in the duodenum and gall-bladder. The passing of tubes showed giardiasis concentrated in the middle or upper ileum. (3) The difficulty of identification of the cysts in the faeces had been resolved by the modified de Riva concentration method. (4) Atebrin (mepacrine hydrochloride) was an effective therapeutic agent.

Dr. OLIVER FITZGERALD, in reply to some questions, observed that if blood was present in the stools in any quantity *Giardia lamblia* were likely to be absent. The length of treatment was five days, 0.1 g. of mepacrine being given three times a day.

Prof. McGRATH replied that the concentration method described would show small numbers of giardia cysts in the faeces; by the use of this method the effectiveness of atebrin had been demonstrated. In giardia infestation damage was almost entirely limited to the mucous membrane. Giardia infestation occurred perhaps in early life; and a certain amount of damage was done to the mucosa of the intestine, particularly the ileum. This damage would persist and produce a partial failure of the absorption area of the small intestine; even if the giardiasis was cured the damage to the ileum remained. Early treatment of giardia infestation would prevent the extension of the damage and recurrence of these cases.

Correspondence

Planning for Treatment of Head Injuries

SIR,—Important and controversial issues are raised by Brigadier Hugh Cairns (March 13, p. 313) and also in the papers of Symonds and Russell and of Guttmann quoted by him and recently published elsewhere. Many pronouncements on the closed head-injury problem, in eagerness to prove how bright is the outlook, are guilty of a considerable syllogistic error. A follow-up of an unselected series of hospital admissions shows a high percentage returned, with satisfactory efficiency, to their work (Russell). It is too often assumed that this shows that a better "prognosis" is present in such cases than had previously been thought. Insufficient care is taken in differentiating between (1) the expectation of return to work and (2) the true prognosis of the injury which (in the words of the *Oxford Dictionary*) is "a forecast of the course of the disease." "Prognosis" is the corollary of "diagnosis," and, like the latter, applies to clincial manifestations and is independent of return to work. Thus, during a remission a sufferer from disseminated sclerosis may return to work without the prognosis being affected. Yet we see Guttmann publishing a paper, "The Prognosis in Civilian Head Injuries," in your issue of Jan. 23 last (p. 94) which, far from dealing with prognosis, is solely concerned with return to work. Guttmann is conscious, almost as an afterthought, of his illogicality, and, at the last moment, tries to retrieve himself by the illuminating remark, "The social prognosis [*sic*] is not identical with the medical prognosis," and proceeds to admit, with damaging reluctance, that some patients complained of headache, giddiness, and mental impairment, but that they "were able to adjust themselves to their symptoms" and that these "did not prevent them from returning to their previous work and doing it efficiently and willingly." We know that sufferers from severe post-concussional symptoms can, if of good stuff, often return efficiently to work even if the prognosis for recovery from symptoms is bad. Confusion must not be brought in by misusing the word "prognosis."

In an 18-months follow-up Major W. Ritchie Russell (Oct. 31, 1942, p. 521) found that about 40% of his patients still had symptoms. This points to a fairly serious prognosis for symptomatic recovery when we consider that his series doubtless contained many mild cases. In their series of Service cases Symonds and Russell (*Lancet*, 1943, **1**, 7) found 20% invalided and the remainder returned successfully to duty. No inquiry was made as to whether the 80% were symptom-free. It was apparently assumed that they were (a dangerous assumption), because the authors say: ". . . The prognosis is cases of accidental head injury in the Service personnel is usually good." This, of course, does not follow at all; the prospect of return to duty may be good, but not necessarily the prognosis for symptomatic recovery. Russell, with some naivety and unconscious reflection upon the cerebral requirements of the Army and of a stout section of it in particular, admits this when he says elsewhere in his article above quoted: "A slight degree of intellectual impairment often causes no noticeable disability to the private soldier, unless his previous intelligence was low. Transfer to the pioneer corps may sometimes be a satisfactory method of disposal." What of those pioneers who knocked out German tanks in Boulogne with their spades? The danger is that though "intellectual impairment" may produce no great disability in a private soldier (or even in far higher ranks) on garrison duty in England it may have a dire effect in emergencies and under stress on the battlefield. It is this well-known liability of those who have suffered serious head injury to break down under unusual or exceptional strain, even though they may be doing work well with which they are familiar, that makes it so important not to confuse efficient return to such work with a good prognosis.

One would like to see Symonds and Russell carry out a symptom follow-up in a similar series of Service cases and tell us what symptoms they find, especially among those back at duty. The questionary would need to be carefully composed to get the best results. It is probably misleading and incomplete to rely, as Guttmann did (*Lancet*, 1943, **1**, 10), on one symptom only, such as headache. I have found it useful to begin with a very general question: "Do you feel the same man that you were before the accident or have you never quite fully recovered from it?" It is surprising how often the reply to the first part of this question is in the negative, although the man may find it difficult to particularize his symptoms. The second question should be, "If you don't feel the same man, what do you feel wrong?" Only when these general questions have been answered should particularization begin. Sometimes a man, made of good stuff, will assert with pride that he feels fully restored, but when family or friends are questioned they are emphatic that he has never fully recovered. In a complete questionary the views of others should always be obtained. I feel that an inquiry on the above lines, confined to serious cases with unconsciousness or anterograde amnesia for more than 24 hours (for to include mild cases only confuses the issue), and carried out, say, 18 months after injury, would not produce such a bright picture as do these return-to-work studies.

As Cairns has said, the nature of the familiar post-concussional syndrome still remains a matter of controversy. Russell seems to regard it as largely psychogenic, while Cairns (*Proc. roy. Soc Med.*, 1942, **35**, 200) plumps for the physical basis. Jefferson sits, statesmanlike, exquisitely balanced on the fence: "We must beware, also, of the danger of coming to regard all who have had a head injury as neurotic, though it would not be wrong to regard all of them, as I believe we do, as potential neurotics" (ibid.). After that he can certainly come down on whichever side he fancies! The fact, I think, is that the clinical difference between the symptoms of traumatic anxiety, psychogenically determined, and those of the mental state directly produced by the cerebral injury is often very difficult to discern. Yet it is most important to make this differentiation. The psychological picture of cerebral injury seems one of diminution in intellectual power associated with loss of inhibition over lower mental function, so that the primary emotions, in McDougall's sense, are much exaggerated, the picture resembling that of other organic conditions, such as cerebral arteriosclerosis, sequelae to cerebrospinal meningitis and encephalitis lethargica. This is commonly shown by the violent and hasty temper to which many patients confess. Whining and peevishness are common in the neurotic but not towering rages, for which he has not the stomach, and this point is of occasional diagnostic value. So also is, of course, the organic diminution in the power of recent memory. Symonds has pointed out that chronic symptoms are commoner after head injury in those with a psychopathic personal or family history, but is this greater chronicity psychologically or physically determined? Probably physically, more often than not. A little loss in the power of the highest level of cerebral function, which is more vulnerable than lower levels, as a result of injury will make more pronounced an underlying neurotic state, just as an unstable person becomes more unstable as cerebral arteriosclerosis creeps on.

A final point of importance, I feel, is in connexion with the issue of the hour—rehabilitation. By all means "rehabilitate" the psychogenic traumatic neurotic for all you're worth, but there will be a very definite limit to the amount of rehabilitation possible for those with neuronal destruction. More productive results will probably follow skilled and detailed attention to "placement" or "disposal" (or whatever the favourite non-humanitarian word of the moment may be), rather than obstinate persistence in the uninspiring regimen of "netball, leather work, and rounders" in a rehabilitation centre. But it will need to be more carefully studied placement than merely "transfer to the pioneer corps."—I am, etc.,

London, W.1. T. ROWLAND HILL

Calorie Control

SIR,—I have followed the correspondence about calorie control with much interest, and agree with Dr. Lawrence and Dr. Fletcher in their comments. Dr. Wauchope has carried out a seven-day experiment on a diabetic patient and thinks that the result supports Dr. Crooke's claim. Unfortunately, her patient was very unbalanced, as the fasting value of the blood sugar varied from 343 to 68 mg. per 100 c.cm. Dr. Crooke's experiments were also carried out on a very unbalanced patient, as the fasting value of the blood sugar varied from 400 to 150 mg. per 100 c.cm. I do not think that any conclusions can be drawn from these results. To prove Dr. Crooke's hypothesis a patient should be selected whose fasting blood sugar is between 90 and 120 mg. per 100 c.cm. each day of the experiment, and he should have a dose of ordinary insulin night and morning and not one of P.Z. insulin, as it has such a delayed action. The effects of the diets must be watched for two or three days with alternate periods of the standard diet. These experiments are time-consuming, which perhaps explains why Dr. Crooke has not been able to carry them out in wartime, when laboratory technicians are few in number.—I am, etc.,

London, W 1 George Graham

Effect of *p*H of Blood on Haemolysis

Sir,—We have read the recent article by Lieut.-Col. Felix Smith and Capt. R. Winstone Evans (March 6, p. 279) with interest. In their discussion on the possible effects of changes in *p*H on haemolysis the authors mention work by Israëls on paroxysmal haemoglobinuria. They do not give a reference, but presumably this refers to a study made by one of us (J. V. D.) in 1937 on a patient suffering from chronic haemolytic anaemia with nocturnal haemoglobinuria ("nocturnal haemoglobinuria" or the Marchiafava-Micheli disease), an account of which was published subsequently in collaboration with Israels and Wilkinson.[1] This paper is, in fact, referred to later by Smith and Evans, who add inaccurately that a decrease in the *p*H of blood was demonstrated during sleep. No such claim was made, but the review by Kleitman[2] was quoted as authority for the statement. In nocturnal haemoglobinuria the *p*H of the blood is not abnormal, but it can be shown both *in vivo* and *in vitro* that a fall in *p*H will increase haemolysis and vice versa. A far better and more complete account of this disorder was published later in America by Ham.[3] This author studied the effects of the administration of large doses of alkalis to two patients. There was a transient inhibition of haemolysis, but Ham concluded that the use of alkalis was unwise, for cessation of treatment was complicated by severe haemolytic episodes.

The observations of Smith and Evans on the changes in osmotic fragility produced by alterations in *p*H are not new; the effect of variation in CO_2 content has been known for at least thirty years (Butler[4]), and the changes in cell volume have been carefully worked out by Hampson and Maizels.[5] Moreover, as the interrelationship between osmotic fragility *in vitro* and haemolysis *in vivo* has for long been a subject for debate, the tacit assumption that small changes in fragility produced by alkalosis are responsible for inhibition of haemolysis in blackwater fever cannot be readily accepted.

In their reference to the treatment of malignant tertian malaria Smith and Evans write that "slight jaundice associated with albuminuria is also an indication for stopping quinine." Both these signs are not uncommon in malignant infections, and are a feature of the "bilious remittent" type which, untreated, may end in death. It is possible that the authors prefer in such cases to replace quinine by some other antimalarial drug, but in the absence of any statement to this effect their implication that treatment should be suspended is both unjustifiable and dangerous. Furthermore, if the authors claim such cases are likely to develop blackwater fever they are in fact coming very near to implying that a pre-blackwater fever state can be recognized. Slight icterus and albuminuria have, however, no more claims to be portents of blackwater fever than have the classical textbook signs which the authors failed to find in their own cases.

Finally, the work of Fairley[6] renders no longer tenable the seventy-year-old belief that haemoglobin liberated by haemolysis undergoes conversion in human plasma to methaemoglobin.—We are, etc.,

J. V. Dacie.
F. Murgatroyd

Gastro-enteritis in Infants

Sir,—In the *Journal* for March 27 (p. 371) there is an article entitled, "A Standardized Plan for Treatment of Gastroenteritis in Infants," by Drs. Field, MacCarthy, and Wyllie, which I have read with great interest. They open the article with these words: "Following an outbreak of infantile diarrhoea and vomiting at a base hospital shortly after the onset of war, with the very high mortality of 80%, certain strict prophylactic measures were taken and a schedule of treatment formulated." The authors keep strictly to the title of their article and deal only with treatment, which they describe lucidly and which should prove most useful. Nevertheless, if I may say so, the interest and value of the article would have been greatly enhanced if the authors had stated what, in their view and if ascertainable, had been the cause of this outbreak. The terms "gross sepsis" and "parenteral infection" are used, but no indication is given of the nature or incidence of these illnesses or parenteral infections. No post-mortem findings or other investigations are given, and without these, in my view, no accurate statements about the presence or absence of parenteral infection can be made.

The authors divide "relapses" into two groups: (1) those occurring soon after the original illness, and (2) those occurring after convalescence had been established. In my experience "gastro-enteritis" occurring in hospital is almost invariably the result of parenteral infection, the commonest being upper respiratory infection leading to otitis media and possibly mastoiditis. The treatment which the authors so admirably advocate resolves itself into two methods: (1) reducing the amount of food, and (2) the administration of parenteral fluids, both of which are well recognized and generally accepted for gastro-enteritis in infants; but is it as well appreciated as it should be that such treatment is, in a considerable proportion of these cases, purely symptomatic?

In an annotation in the *Journal* of Jan. 2 (p. 19) the causes of infantile mortality are discussed and the following statements made: (1) "In the period after the first month the chief causes of death were infective conditions, which caused death in 90 out of 112 cases in which an opinion could be given." (2) "The relatively small number of infant deaths attributable to gastro-enteritis may be surprising to those accustomed to assume that diarrhoea and vomiting mean primary infection of the alimentary tract. That infection of the respiratory tract is nowadays—i.e., with the disappearance of 'summer diarrhoea'—the more serious problem needs repeated emphasis. . . ." These views coincide almost exactly with my own opinion and experience of this problem, and I was gratified to see them given such prominence in the *Journal*. If these views, which possibly explain the success that attended the preventive measures employed by Drs. Field, MacCarthy, and Wyllie, are correct—and I think they are—then the problem of parenteral infection is obviously one of the greatest importance to those having care of infants, especially infants in hospitals and institutions.

I trust the authors of this paper may see their way to embark upon a second article in which details of the points I raise will be dealt with.—I am, etc.,

Liverpool E. C. R. Couper.

Anaesthesia for Laryngofissure

Sir,—Mr. T. E. A. Stowell (March 6, p. 302) deprecates the use of trilene on the ground that it will decompose into phosgene if the diathermy cautery is employed. Dr. C. B. Lewis in his excellent memorandum (Feb. 6, p. 162) distinctly stated that the trachea was packed off around the catheter so that no anaesthetic vapour could be in contact with the spark. Even if it were, the amount of phosgene (as in the case of chloroform vapour) would be negligible. The only danger of phosgene is to the surgeon who is such an inveterate smoker that he continues to indulge his habit while actually operating. Under these circumstances he can inhale dichloracetyl chloride, carbon monoxide, hydrochloric acid gas, and phosgene. Whether this method of suicide is preferable to the more rapid disintegration which may follow the same practice with ether vapour is a matter for the surgeon himself to decide.—I am, etc.,

St Albans C. Langton Hewer.

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[1] *Lancet*, 1938, **1**, 479.
[2] *Physiol. Rev.*, 1929, **9**, 624.
[3] *Arch. Intern. Med.*, 1939, **64**, 1271.
[4] *Quart. J. Med.*, 1912–13, **6**, 145.
[5] *J. Physiol.*, 1926–7, **62**, Proc. 16.
[6] *Quart. J. Med.*, 1941, **10**, 95.

SIR,—Having read with interest Dr. C. B. Lewis's medical memorandum (Feb. 6, p. 162) describing his anaesthetic technique for laryngofissure and Mr. Lionel Colledge's criticism (Feb. 20, p. 230), I should like to submit a method which I have used in my last four cases with satisfactory results.

Bearing in mind the necessity for establishing a light anaesthesia with rapid return of cough reflex, and for using a drug of minimal toxicity, non-irritant, and non-inflammable (in case diathermy is used), I chose the intravenous method and venesetic (sodium thioethamyl). This I find to be less toxic and less depressant to the respiration than other similar reagents. In premedication opiates were avoided, a small dose of seconal 2 to 5 gr. being given half an hour before operation. Induction was carried out with 5 to 8 c.cm. of 7.5% solution of venesetic. Then a cannula was inserted in the internal saphenous vein at the ankle and a glucose (5%) saline drip established. Immediately distal to the cannula a hypodermic needle was inserted obliquely and connected to a two-way syringe, which was strapped to the dorsum of the foot. Anaesthesia was maintained with 2 c.cm. of venesetic every 5 to 20 minutes. The throat was sprayed with percaine 1 in 200 in order that a Phillips airway should be tolerated. In one case with a large growth and stridor an endotracheal tube was necessary and passed under direct vision. Carbogen or oxygen could be given by this tube.

The advantages of this method are: (1) The anaesthetist and his impedimenta are out of the way of the surgeon. The pulse in the dorsalis pedis artery can be as useful as the superficial temporal. (2) The anaesthetic is not conducive to congestion or haemorrhage, is non-irritant to the respiratory tract, and respiratory depression is minimal. (3) If tracheotomy is favoured by the surgeon, as was not so in my cases, this may be done by him after induction. (4) The cough reflex is depressed but returns rapidly. A disadvantage occurring in one case was a mild thrombophlebitis of the internal saphenous vein used.

In three of my cases preliminary laryngoscopy had been done under venesetic and laryngeal percaine, and observations of the patient's reaction to this "preliminary canter" were of much use at operation. The patients liked the intravenous anaesthetic and were pleased and relieved to know that they would have it for the major operation. Admittedly, no definite conclusions can be drawn from four cases, but these were so satisfactory to patient and surgeon that I propose to continue to use this method for subsequent cases.—I am, etc.,

Liverpool. UNA M. WESTELL.

Mitral Systolic Murmurs

SIR,—Dr. William Evans (Jan. 2, p. 8) wisely directs attention to the difficulty of establishing a diagnosis of mitral regurgitation. Everyone may not agree, however, that the term should be abandoned. The traditional teaching that functional incompetence may occur not only in gross left ventricular hypertrophy, as Dr. Evans states, but also as the result of relaxation of the sphincter muscle of the orifice has much evidence to support it. For example, Cowan and Ritchie (*Diseases of the Heart*, 2nd edition, page 291), discussing the symptoms of mitral disease, state: "Incompetence, however, owns one cause which is peculiar to itself. The orifice of the mitral valve is large, while the cusps are relatively small and quite incapable of closing the aperture unless it is narrowed by the contraction of the sphincter muscle. In anaemia and in debility from any cause this sphincter action may fail, and a 'functional' mitral incompetence ensue." Although Sir Thomas Lewis (*Diseases of the Heart*, 3rd edition, page 139) expresses the opinion that a diagnosis of mitral regurgitation has a very limited importance, he states: "It may be useful as an early indication of muscular failure in acute infectious disease and occasionally in old age." With regard to the question of determining whether in a doubtful case blood regurgitates into the auricle during the ventricular systole, it is interesting to note that in 1906 Minkowski obtained characteristic tracings from the left auricle in cases of mitral reflux by passing a stomach tube, capped with a thin rubber bulb, to a distance of 35 to 37 cm. from the teeth, at which point the left auricle is in contact with the oesophagus (Hirschfelder, *Diseases of the Heart and Aorta*, 3rd edition, page 81). I wonder if this method has been employed by other workers.—I am, etc.,

Dundee D. G. MCINTOSH.

SIR,—Though not unmindful of Dr. William Evans's experience as a cardiologist, I welcomed Dr. H. S. Gaskell's letter (March 13, p. 332), and I must include myself among the pigeons referred to by him, and, indeed, I have elsewhere registered a lonely protest against the recent dogmatic tendency to ignore mitral systolic murmurs. The presumption that a systolic murmur which disappears during the inspiratory phase must be innocent is, in my opinion, unsafe and unsound, for the murmur is audible even on full inspiration when the subject is in the knee-elbow position. The audibility of a murmur varies with the proximity of the chest piece to the source of origin of such murmur, and this variation accounts for the waxing and waning of certain murmurs with respiration. Systolic murmurs are abnormal, and it takes more than a simple manœuvre, such as change of posture, to arrive at a decision as to whether a murmur is innocent or not. The subject is of particular interest to me, for, as it happens, by means of a London University grant, I am at present investigating the recruit's heart, and the question of murmurs is of no small concern. If any of your readers should have any views on the subject, I should be glad to include them, with acknowledgment, in a paper which will in due course be published.—I am, etc.,

Solva, Pembrokeshire J. STEPHEN LEWIS, M.D

SIR,—Dr. H. S. Gaskell states that his mind has been completely fogged as a result of reading Dr. William Evans's paper. This is most unfortunate, but surely a fogged state of mind cannot be accepted as an excuse for Dr. Gaskell's failure to quote correctly from the paper in question? Let us analyse and compare Dr. Gaskell's statements and quotations with what was actually written by Dr. Evans in his original paper.

Dr. Gaskell writes: "Again, Dr. Evans states in two consecutive paragraphs in juxtaposition that 'when the murmur is decidedly louder in the upright posture it is the innocent kind'; and then, 'when a systolic mitral murmur becomes louder in the reclining posture the innocent nature of the murmur can be presumed.' In other words, whether it is louder sitting up or lying down it is 'innocent.' Frankly, that does not make sense to me." The latter statement is not surprising. What does make sense, however, are Dr. Evans's own words, correctly quoted: "*In instances in which a trivial* mitral systolic murmur becomes louder in the reclining posture, *and in which a murmur develops at the base of the heart, and particularly in the pulmonary area,* the innocent nature of the murmur can be presumed." The words in italics, ignored or altered by Dr. Gaskell, change entirely the meaning and significance of the paired quotations, besides disproving the charge of contradiction in terms implied by him.

It is Dr. Gaskell who has reached a *reductio ad absurdum* of his own making: in the first place by his failing to grasp the content of what Dr. Evans actually wrote, and, secondly, by drawing conclusions from incorrectly quoted, and therefore misleading, statements.—I am, etc.,

Southend-on-Sea. D. S. LEWES.

War Neuroses

SIR,—Dr. Ronald Fairbairn (March 27, p. 396) says he cannot refrain from raising the question whether the "simple psychotherapy" used in the last war was really psychotherapy at all. Perhaps it wasn't, but it was certainly very successful, as shown both by the immediate results and in the light of a long-term follow-up. In contrast with this the results of the "real" psychotherapy of to-day are disappointing. This is hardly surprising when a modern psychotherapist can make the fantastic suggestion, even if only in a "philosophical aside," that the war neuroses are the result of an attempt to restore essentially "the intra-uterine state of security which was rudely disturbed by the experience of birth."—I am, etc.,

Oxford. ARTHUR HURST.

Treatment of Vomiting after Sulphapyridine

SIR,—Sulphapyridine has a well-known and highly inconvenient toxic effect—severe and persistent vomiting. In all my recent cases of severe vomiting I have adopted the following method of administration. This method has been successful in stopping the vomiting in all cases.

It consists of splitting the 1-gramme (2 tablets) dose, usually given four-hourly, into 1/8 gramme (1/4 tablet) half-hourly, well crushed and dissolved in milk with a pinch of sodium bicarbonate. I start this treatment as soon as it is obvious that severe vomiting is going to persist, and continue it until 10 p.m. With the last dose, I give 1 gramme of sulphapyridine soluble intramuscularly, and then give no more until the following morning at 6 a.m. I then recommence my half-hourly administration. After about twelve hours the dose and interval can usually be increased.

The advantage of this method of administration is obvious as it reduces the necessity for such alternatives as parenteral or rectal administration. It is more convenient, too, than changing to sulphathiazole or sulphadiazine, drugs which are not so often to hand as sulphapyridine. I have mentioned this form of administration to other doctors, and none of them appears to give it this way. It would be interesting to know if a method like this is used by other members of the profession.—I am, etc.,

R. O. GILLHESPY,
Act Squad. Ldr., R.A F V R.

Brow Presentation

SIR,—I was interested to read Dr. G. H. H. Booth's report (March 13, p. 320) of a persistent brow presentation. In March, 1942, I had under my care a similar case. The patient was a primigravida aged 40. On vaginal examination at the 36th week the head was found to be deep in the pelvis in what was taken to be a left occipito-anterior position. At the 39th week she was admitted to hospital with vague labour pains, the membranes having ruptured just before she came in. Sixteen hours later the cervix was fully dilated and the head soon descended to the perineum. After two hours in the second stage there was no advance and the presenting part was noticed to be peculiarly bald. Vaginal examination revealed an anterior brow presentation with the head in the left oblique diameter. Under anaesthesia the head was rotated to the anterior position, and it was then easy to push up the vertex and bring the chin down under the symphysis, thus converting it into a right mento-anterior presentation. Gentle traction with forceps was sufficient to extract a vigorous infant weighing 6 lb. 10 oz. after a small episiotomy had been performed. The caput was not large, but the frontal discoloration was sufficient to convince the most sceptical colleagues on the following morning that the child had, in fact, presented by the brow.—I am, etc.,

Carshalton DOREEN DALEY.

Sulphanilamide in Acute Disseminated Lupus Erythematosus

SIR,—We have been particularly interested in Dr. J. E. G. Pearson's account (Feb. 27, p. 253) of his case of acute disseminated lupus erythematosus which yielded to treatment with sulphanilamide, and would like to bring to his notice our note on the chronic form of the disease (*British Medical Journal*, Nov. 30, 1940, p. 741). All our cases responded to treatment with this drug, and cure was obtained in half the number of cases treated. Our results were so much better than those achieved by other methods in our hands that we have adopted it as our standard line of treatment. It is scarcely necessary to add that prolonged search for a streptococcal focus is made in all cases. One of us (F. G.-H.) has recently successfully treated a case of acute disseminated lupus erythematosus with prontosil by mouth. This case began as the primary acute type.

We would like to add our conviction that lupus erythematosus is streptococcal and not tuberculous in origin, although we have seen both lupus erythematosus and lupus vulgaris occurring in the same patient.—We are, etc.,

Liverpool F. GLYN-HUGHES.
A. M. SPENCE.

Minimum Human Requirements

SIR,—It is a matter for satisfaction that Sir William Beveridge has, in his report, recognized the principle that quantitative standards based on scientific knowledge may, and should, be applied to the measurement of minimum human requirements in food, fuel, light, and clothing. As medical knowledge advances and as cultural demands change, any standards of this nature will be gradually modified, though there can be no doubt that those for food have now been determined with a fair degree of scientific accuracy. We would express our conviction that the food standards now proposed for this country, based as they are on the scales laid down by the British Medical Association, and the League of Nations Technical Commission, accord with the opinion of all accredited scientific workers in this particular field. It is not our business to decide what shall be the actual scales of cash benefit and allowance under any system of social security. That decision rests with the people of this country and with their elected representatives. But we do urge that all such scales shall, in future, be related immediately to the scientifically estimated needs of each type of beneficiary.—We are, etc.,

JOSEPH BARCROFT
S. DAVIDSON.
F. GOWLAND HOPKINS
HORDER.
JULIAN S. HUXLEY.
J. M. MACKINTOSH.
CHARLES MARTIN
R. McCARRISON.
MORAN OF MANTON.
B. S. ROWNTREE.
J. C. SPENCE.
W H. WYNN.

Venereal Diseases

SIR,—There are doubtless many who will differ from Col. E. A. Chartres (March 13, p. 331), who writes, "This is an entirely medical matter." I attended the conference on Feb. 26 which was addressed by the Archbishop of Canterbury, and was particularly impressed by the remarks of a medical officer of the United States Army who stated that the Church, the medical profession, and the State are all concerned. Col. Chartres may be interested to know what is happening in the county borough of Bournemouth in which he resides. The health committee of the council launched a campaign early in the year before the national scheme was inaugurated. A poster was devised and displayed in various buildings—e.g., factories, works, business premises, public conveniences, social clubs, etc. Cards suitable for each sex were also provided for distribution. These describe in simple language the procedure recommended when a risk has been incurred. The response has been extremely good. I have heard of no unfavourable criticism, but have received requests from individuals and organizations to throw further light on the subject.

Some of the clergy have already followed the lead of the Archbishop, and one vicar especially seemed to strike the right note when he arranged separate meetings for both sexes. At these were discussed, first, the normal functions of the sex organs and the correct moral code, and then venereal diseases. It appears to me that while the Church alone may take a generation or longer to produce an appreciable effect, combined efforts as outlined above are capable of producing rapid results against an enemy already in our midst.—I am, etc.,

H. GORDON SMITH,
Bournemouth Medical Officer of Health

Dietetics of Pregnancy

SIR,—I shall be grateful if you will allow me to make some comments on the correspondence arising out of my letter (Jan. 30, p. 144).

(1) Prof. W. C. W. Nixon is anxious that it should be emphasized that his conclusions apply only to eclamptics. My comments are particularly applicable to this group of patients, since eclamptics are particularly prone to suppression of urine and form the only group of toxaemic patients for which it is known that the mean placental weight is significantly subnormal. Your leader writer's interpretation of Prof. Nixon's conclusions is also rendered correspondingly more erroneous by the restriction of the findings to eclamptics.

(2) Prof. Marrack thinks that I should have taken the trouble to look up American definitions of miscarriage. I have seen two, neither of which agrees with the one he quotes. He also emphasizes the ease of providing extra rations for pregnant women, but neglects the difficulty of providing extra accessory food factors. The necessity for economy has recently enforced the reduction of the concentrations of vitamins A and D in commercial concentrate and synthetic preparations.

(3) Russell and Martin seem to be under the impression that the subject of discussion is Doyne Bell's histogram, which they insist on forcing into a Type I Pearson mould, although the divergences from a normal distribution are no greater

than can be accounted for by sampling errors. They have nothing to say on the fundamental point of difference—the bearing of an arbitrary definition of prematurity on death from immaturity.

(4) The People's League of Health have shown significant decreases in "prematurity" and "toxaemia," as defined by them, to result from supplementing the diet of pregnant women. They have then drawn conclusions concerning the importance of these differences, without providing infant mortality and maternal mortality figures to support the weight they give to these differences, although the committee's terms of reference were to "consider the nutrition of expectant and nursing mothers *in relation to maternal and infant mortality.*" Prof. Young thinks that the conclusions should be accepted without this evidence, because other workers have expressed similar views.

(5) Dr. Yates's speculations concerning the probable reasons for the obscurities in the papers of the Toronto workers are persuasive, in view of their origin, but, of course, they cannot be conclusive. It is clearly unsafe and unwise to base any large conclusions on work which has to be interpreted in terms of "if" and "may have been."—I am, etc.,

Department of Biochemistry, Oxford. R. B. FISHER.

Future of Women in Medicine

SIR,—I have read Dr. Jane Scott Calder's fantastic letter and I cannot allow her remarks to go unchallenged. What does Dr. Calder mean by a "debased feminism"? Are we to bow our heads and meekly accept such few crumbs in the way of medical training and postgraduate opportunities as our male colleagues are pleased to throw to us? If so, then we shall rapidly sink back into the limbo of mid-Victorian obscurity, and we shall have only ourselves to blame. She mentions the "essential dignity" of women. What is this mysterious aura which envelops us like a shroud and constitutes our most precious attribute? Some women can be dignified conducting a delivery in a basement slum; others would be gauche at a State ball; in fact, dignity is not a universal possession, nor is it confined to the female sex. And to maintain that a woman loses what dignity she may possess when she asks for equal opportunities with men to use her intellect and natural gifts is as absurd as it would be disastrous to the well-being of the country at present or to humanity as a whole.

Dr. Calder puts forward certain suggestions for the future education for medical women. She asserts that co-education is dangerous as it leads to laxity of moral behaviour. Nonsense. Coeducation has obtained in all our provincial universities for years, and is universal in many parts of the world, without much obvious decadence among the female population. There is still far too much segregation of the sexes in this country, and the memory of my own schooldays 15 years back makes me blush for shame at the absurd taboos with which we were hedged. Dr. Calder speaks of undesirable heterosexual behaviour; I can assure her that homosexual traits—even the mildest varieties would sometimes appear in a community of women—are just as unpleasant, and far more trying to live with. Secondly, she suggests raising the entrance age to 22 years and wishes to insist on a preliminary 3 years' training as a general nurse. For what? We are training to be doctors, not nurses, and very few people will tolerate 9 years' training for any profession, much less an expensive one such as medicine. She wishes us to train to be doctors to whom the anatomy of the male would be a closed book, in hospitals from which all males down to the smallest babe are rigidly excluded, where the door is closed to the best teachers in the land if they happen to be men, and where we shall finally emerge, after 6 years' seclusion comparable to a nunnery, totally unfitted to earn our daily bread in a competitive world. The mind boggles at the vast field of medicine closed to such an unfortunate being. General practice, public health, industry, are but a few which leap to the mind: no woman could reach specialist rank except in the field of obstetrics and gynaecology—for who is going to send work to a surgeon whose knowledge and activities are confined to the female form?—and even the humble house job would be very hard to find. Men are not likely to enter into this scheme and shut out women patients from their hospitals, so the pendulum will swing still further in their favour, and the woman graduate will, I am afraid, have even more difficulty than at present in finding a niche where she can practise her peculiar profession. There is another point which appears to have escaped Dr. Calder's notice. Where would we be now if women, not only in the medical but in all professions, had not been able to step into the men's shoes and carry on? Dr. Calder objects to contraception, but this practice has come to stay whether we like it or not, and to the vast majority of women who attend birth control clinics it has proved a blessing. The solution to the falling birth rate is not to be found in outlawing pessaries and condoms, but in the provision of family allowances, abolition of the marriage bar in the employment of women—incidentally, our own profession is not guiltless in this respect—and generally making it possible for young people to get married and start families without having to wait years because they cannot afford children.

Dr. Calder wishes to live in a world, professionally at any rate, which consists of nothing but a monstrous regiment of women. She wants to undo all the good work put in by her predecessors, who fought for and eventually obtained a measure of equality, and to put back the clock at least 100 years. She says that she is among those who have "neither the character nor the vocation" for a medical career, yet she has the temerity to outline a system of training for her successors who have both the character and the vocation. It is obvious that Dr. Calder has not the vaguest notion of the outlook of most women doctors, who take a pride in their profession and enjoy working with their male colleagues, and who number many grateful males among their patients.—I am, etc.,

CATHERINE SWANSTON,
Senior Medical Officer, Royal Ordnance Factory.

SIR,—I have read with amazement Dr. J. S. Calder's ideas on the position of women in medicine, and her suggestions for improving their training. None will contest her statement, "Women are created women; men are created men," but there is only one medical profession, which includes a variety of sciences and an ethical tradition built up through the years. I believe the aim of most women taking up medicine is quite simply to have full opportunity to acquire proficiency in that interesting profession, and thereby earn a living in a world that is admittedly and unregrettedly composed of two sexes.

Women are now accepted (sometimes more willingly than at others!) as part of that profession with its privileges and obligations, and I emphatically deny her statement that they are not pulling their weight in it, although I doubt if, without some use of methods that Dr. Calder deplores as "debased feminism," they would ever have had the opportunity. Some have even come through the perils of co-education still possessed of a great interest in the work and some standards of morality and modesty. Some would even gratefully admit to having learnt much of value from the other sex.

Dr. Calder would seem to demand the creation of a new and exclusive profession for women, with a secondary interest in medicine proper, for which the essential qualifications of entrants are: (1) an urge to boom the "nobility and dignity" of woman; (2) a conviction that they are possessed of such qualities and special gifts and inspiration for such a calling; (3) a hypertrophied sex-consciousness necessitating the segregation of the sexes; (4) a private income sufficient to allow a postponement of training till the age of 22 years; (5) agreement with Dr. Calder on birth control. I cannot think such a profession would be overcrowded.—I am, etc.,

Bromley Common. LORNA S. KING.

SIR,—The correspondence begun by Dr. Jane Scott Calder shows that the woman's side of the medical profession still retains its tradition of Victorian idealism. It is, perhaps, time that it came to be looked on as no more than a career which is easily adaptable and well suited to the average intelligent woman who desires to combine a career with a normal family life. A woman doctor's practice can range from that of a normal G.P. to out-and-out specialization, probably and most usefully in gynaecological work.

I was impressed when a locumtenent in districts hitherto exclusively served by men by the number of female patients who had suffered from gynaecological and allied complaints for many years without reporting them. Now, in my own practice, this impression is confirmed. Further, patients are even more willing to ask advice of one who is a wife and mother. It is also inevitable that birth control should take its place. Birth rate is a measure of economic opportunity. Birth control may be assisted scientifically by the medical profession; if not, it assuredly will be by countless folklore methods ably assisted by the advertisers. The normal rate of natural miscarriages is one in every five conceptions. I have every reason to suspect that in this working-class district this is more than doubled. This is largely the result of financial worry. Therefore I consider that satisfactory birth control methods are essential to the prevention of illegal operations and disease. But, excluding the gynaecological aspect, my practice is of normal constitution, with, at present, one-third men patients, both private and panel.

Why should female nurses and not women doctors and medical students be admitted to male and mixed hospitals? On the subject of medical education of women I disagree with Dr. Jane Scott Calder that women should not qualify before the age of 30, as it nullifies her own contention that woman's right is to a home and family of her own, and that she can attain at present at a normal age. The education of medical women should not differ from that of medical men. Few will deny that the majority of medical men become doctors because of its possibilities as a career, and that, on the whole, this produces reasonably satisfactory results. As a graduate of a mixed medical school, my only criticism is that the proportion of women admitted and the opportunities after qualification are not adequate to meet the actual need of the population The moral dangers are chimerical.—I am, etc.,

London. Eleanor Mears.

⁂ Nine of the 25 letters written in reply to Dr. Calder have now been published, and the correspondence is closed —Ed., *B.M.J.*

Case Notes for Salvage

Sir,—Members of the honorary staff of a voluntary hospital here have been shocked to discover that the house committee decided to hand over old case notes and records as a contribution to the salvage campaign, and have fixed twenty years as the period for retention of these notes. This action was taken without consulting the members of the staff who make use of these notes. I cannot believe that the Ministry of Health suggested that such action should be carried out. I should be very glad to know if other hospitals have been affected in a similar fashion. We here feel that the retention of old case notes is a necessary factor in the treatment of cases, and that the handing over of such records is a vital matter not only to the profession but to the community as a whole. —I am, etc.,

Hull. R. Bertram Blair.

Bee-stings, Mosquitoes, and Chloroform

Sir,—I have just read an article on bee-stings by Dr. A. J. Jex-Blake (Aug. 29, p. 241) and other letters in the *Journal* for Sept. and Oct. last. I think perhaps a discovery I made some years ago may be useful in places like Rhodesia where bees are particularly vicious. The discovery, which may or may not be original, is that bees detest chloroform above all things; even a small quantity added to a vapour spray like "flytox" or "flit" (which alone are almost valueless) will cause ordinary bees to depart hurriedly, but for a very persistent swarm it is necessary to add up to one-third chloroform. A very determined swarm of bees once got under the roof of my country cottage; for days they resisted all the usual methods of expulsion, and made themselves a great nuisance by filling the house as well. I then remembered chloroform. After half a dozen puffs with 30% chloroform the angry buzzing ceased, the bees stood not upon the order of their going but went. In less than five minutes the house and roof were clear, and they did not return.

All insects, I find, have similar hatred of chloroform. The very best prophylactic against sandfly and mosquito bites is a mixture of kerosene, oil of eucalyptus, and chloroform in equal parts smeared over the exposed skin. I have used this for some years on fishing expeditions, when camped out in Australia and New Zealand. It will keep bare arms and neck free from sandflies for several hours, and is almost as good as a mosquito net when sprinkled in a tent. Sir Philip Manson-Bahr has recently stated that the mosquito net is the most valuable prophylactic against malaria. I suggest that a chloroform mixture in small individual containers issued to troops in malarial countries would be invaluable, and could be used when a net would be impracticable. A two-ounce bottle lasts many weeks. The incidence of malaria might then be lowered, and the comfort and efficiency of fighting forces enhanced.—I am, etc.,

Wellington, N Z. H. P. Pickerill.

Military Medicine in the Middle East

Sir,—I should like to congratulate Dr. Ernest Bulmer (March 27, p. 374) on his excellent article, which should be carefully studied by all medical officers who are working or who are likely to work in the Middle East. Among the many excellent things in it are his "debunking" of three widely held conceptions. They are: (1) the value of bacteriology in the treatment and management of bacillary dysentery; (2) the value of saline treatment in this disease; (3) the value of the Egyptian climate in chronic chest conditions. From a similar experience in the Middle East I most heartily agree with him on these points.—I am, etc.,

Richard Clarke,
Bristol. Col., R A M.C (T A.) (ret)

Obituary

T. E. HAMMOND, F.R.C.S.

Cardiff will feel the loss of Thomas Edwin Hammond, whose early death has come as a shock to his colleagues. He was a first-class urologist who had been president of the Section of Urology of the Royal Society of Medicine, and his opinion was sought and valued throughout Wales. Within a few weeks the Welsh National Memorial Association has had a dual loss in the deaths, first of Dan Powell, the chief medical officer, and now of the consulting urological surgeon. Tommy Hammond, as he was everywhere known to his friends, did well as a student at Bart's and got his Fellowship of the College of Surgeons a year after he qualified and when still very young. This was in 1913, not long before the outbreak of the last war. He served in Gallipoli as a medical officer in the R.A.M.C., was badly wounded, and probably never recovered from the effects of these wounds. From the time of his discharge from the Army until his death his health had been precarious. He started his surgical work in Cardiff as an assistant in the surgical unit of the Welsh National School of Medicine at the Cardiff Royal Infirmary, and from this appointment became in turn an assistant surgeon and then full surgeon to the Royal Infirmary. He was an attractive teacher, and constantly emphasized the importance of the bodily constitution in its relation to urinary diseases and, in fact, to disease generally. He published several monographs on this theme.

A colleague writes: Hammond had wide intellectual interests and a ready pen, with which he contributed numerous articles to the local press. As a surgeon and a consultant he was thoughtful, thorough, and painstaking. His disposition was to be serious and his personality was pronounced—he had strong likes and dislikes and emphatic views which he did not hesitate to put forward. He served as chairman of the Cardiff Medical Society, and both in its meetings and in those of the Medical Board of the Royal Infirmary was sometimes provocative, but in a way which so often caused mirth to his colleagues that there were no bitter feelings on either side. Tommy Hammond will be much missed both personally and for his work, which was of high standard and served to enhance the prestige of the surgery of the Royal Infirmary.

News of the death on March 24 of Dr. Charlotte Elizabeth Ferguson-Davie (*née* Hull), wife of the Right Rev. Bishop Ferguson-Davie of Fort Hare College, S. Africa, has been received by cable. She was one of the pioneer medical missionaries of the Society for the Propagation of the Gospel, and worked first in India (Delhi and Ranchi) and later in Singapore, after her marriage to the Bishop of Singapore. St. Andrew's Hospital, Singapore, owes its existence to her untiring efforts. The medical mission work under her supervision had been carried on with extreme difficulty in three separate centres in the city, and in buildings quite inadequate for the medical needs of the people. For some years Dr. Ferguson-Davie worked untiringly to collect funds to build a hospital. In 1923 her efforts were crowned with success, and the hospital with accommodation for sixty in-patients was completed and opened. It filled a great need in Singapore, and the medical work quickly developed. Many thousands of women and children were treated annually. In 1927 Dr. Ferguson-Davie retired from Singapore but accompanied her husband to S. Africa, taking an active part in medical missionary work wherever stationed. Her death is a great loss to the medical profession and especially to the cause of medical missions.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

At a Congregation held on March 13 the following medical and surgical degrees were conferred, all by proxy:

M CHIR —W. M Beattie.
M B., B CHIR.—H. R A Michelmore, B. H. Barns, H. W. Gordon.

UNIVERSITY OF LIVERPOOL

The following candidates have been approved at the examination indicated:

FINAL M.B., CH B.—*Part II*: C. Taylor, S J. van Son

UNIVERSITY OF LEEDS

The following candidates have been approved at the examinations indicated:

M D—J. R Armitage, L. Rosenthal.

FINAL M.B, CH B.—*Part II*: [1] O. Magidson, [2] Isabel H M. Blyth, [2] H. N Burwell, [2] R B. Jones, [2] M Stanton, Jean Bateman, J W. Bishop, J. Bruce, L. S. P. Divers, W D Fletcher, D. Fox, R. Goldberg, J. F. Hanratty, Cecilia Henry, J. D. M. Holt, Agnes A Jervis, Ursula M Kirk, A C. Knight E. R. Lecutier, A L. McKnight, Barbara J Maxwell, M M. Nagley, A. P Percival, H Shaw, Victoria M. D. N Shaw, P. A. Thorpe, Gwenith Turnbull, W N. Wild, J. R. Wilson.

[1] First-class honours. [2] Second-class honours.

The following scholarship and prizes have been awarded:

Infirmary Scholarship, divided between J. A. Holgate and Elizabeth M. Stokes, *Littlewood Prize*, divided between Henriette Lackner, Elizabeth M Stokes, and K. F. Wood. *Scattergood Prize*, O. Magidson. *Hardwick Prize*, divided between R B. Jones and O Magidson *Hillman Prize*, divided between G. M Williamson and Mildred S. Airey. *McGill Prize*, E. R. Lecutier.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Prof. A. J. E. Cave will give a series of Arnott demonstrations and museum lecture-demonstrations, open to advanced students and medical practitioners, at the College (Lincoln's Inn Fields, W.C.) on Tuesdays and Thursdays, April 27 and 29, and May 4, 6, 11, 13, 18, 20, and 25, at 4 p.m.

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

The following candidates have satisfied the examiners and have been awarded the Diploma of the College: H. Broadbent, W. Calvert, Nora H. C. Clarke, F. B. Davidson, G. S. W. Evans, Jean A. Forbes, Agnes J. M. Gilruth, Irene D. M. Hastilow, Irene E. Howorth, Mary M. Lynch, A. S. Minabbawy, Joyce G. Neil, Erica M. Roberts, Edith Taylor, Mary U. Wilkin.

SOCIETY OF APOTHECARIES OF LONDON

At a meeting of the Court of Assistants held on March 23, with Sir Stanley Woodwark, Master, in the chair, news of the death of the Senior Warden, Dr. F. Gymer Parsons, was received with regret. Dr. J. P. Hedley was re-elected as the Society's representative on the Central Midwives Board. Mr C. Jennings Marshall was nominated Examiner in Surgery in succession to Brig. H. C. Edwards, who has resigned. The Gillson Scholarship in Pathology was re-awarded to Mrs. Helen Payling Wright.

The following candidates have passed in the subjects indicated:

SURGERY.—C P. Brown, J. W. Evans, P. S Hollings, G. L. T. M. Patey, E A Williams, W. H Lillywhite, J Mason, R. Mather.

MEDICINE—J. W. Evans, L. E. D F. Joubert, G. L. T. M. Patey, J. S Pegum, C P. Brown, J M Hanson, P S. Hollings, W. Sommer, C T. Tahil, K. Talboys

MIDWIFERY—J. W Evans, L E. D. F. Joubert. G. L. T. M. Patey, R N. Theakston, C. I. Waters, S Yaffie, A. G. Wolstenholme.

The Diploma of the Society has been granted to J. W. Evans, G. L. T. M. Patey, E. A. Williams, J. M. Hanson, J. Mason, and R. Mather.

The Services

CASUALTIES IN THE MEDICAL SERVICES

Reported Missing, presumed Killed on Active Service.—Surg. Lieut. W. R. B. Dickinson, R.N.V.R.

Wounded.—Major D. W. Bentinck, R.A.M.C., Temp. Major J. G McDowell, R.A.M.C., War Subs. Capt. P. Unwin, R.A.M.C., War Subs. Capt. D. R. P. Wilkie, R.A.M.C.

DEATHS IN THE SERVICES

Colonel WALTER GEORGE PRIDMORE, C.M.G., I.M.S. (ret.), died on March 24 at St. Albans, Herts, aged 78. He was educated at Highgate School and at the Middlesex Hospital and Durham University, and took the M.B., B.S. at the latter After holding resident posts at his hospital he entered the Indian Medical Service in 1891, taking the second place. In the following year he saw active service in the Chin Lushai Expedition in Burma, and later joined the civil medical department of Burma and held important posts as pathologist, and later as ophthalmic surgeon, at the Rangoon General Hospital. In 1911, while in the first of these, he made an important discovery by cultivating for the first time the glanders-like bacillus, named after him, at necropsies on beggars, which is the cause of a rare but fatal disease of Burma and Malaya. In the war of 1914–18 he served as a lieut.-colonel with the Egyptian Expeditionary Force and was mentioned in dispatches. In 1916 he received the C.M.G. and in 1918 he became full colonel, and held an administrative post in India before retiring in 1923. He thus had a distinguished career and showed his versatility in several directions, for he had also played rugby football for both the Middlesex Hospital and Durham University.

Medical Notes in Parliament

Pensions Appeal Tribunals

On March 23, replying to Mr. Arthur Greenwood, Sir WALTER WOMERSLEY said the Government had promised to set up as soon as possible pensions appeal tribunals. He had appointed a subcommittee of his Central Advisory Committee to examine this problem. Thanks to the B.M.A. the Minister now had a list of doctors willing to serve either on tribunals or on tribunal work in the Ministry. It was desirable that the subcommittee should undertake a general review of this list, not with the object of expressing views on the suitability of any individual but to satisfy itself that sufficient doctors of suitable experience could be available without serious effect on other essential war services. In this he had the valuable help of Lord Horder, and he with senior medical officers of the Ministry would review the list and give their general opinion. Sir Walter said he would then call a further meeting of the subcommittee to consider the question in the light of the opinion of Lord Horder and his colleagues. If the subcommittee reported in favour of early establishment of tribunals and the main committee supported that view the Government would review the whole problem. When the Government decided that tribunals could be set up no time would be lost in giving effect to that decision.

A general discussion on war pensions was then opened by Sir IAN FRASER. Mr. R. C. MORRISON said there should be more elasticity in defining the words "due to or aggravated by war service." Hitherto the definition had been a narrow and medical one. When a difficult case came up the Minister referred it to a panel of doctors who were entirely independent. These independent doctors rejected cases without seeing the men at all. It was impossible to convince the appellant or any of his neighbours that a man had been fairly treated when his case had been turned down by doctors who had never seen him. Sir HENRY MORRIS-JONES said it would be no use setting up appeal tribunals unless Sir Walter Womersley had on them men of high academic qualifications who were also men of character and sympathy and able to sift evidence. There would be so many applications that it would be impossible to see all cases individually and some cases would have to be decided on evidence. Sir Henry said that members of the House of Commons got cases by the hundred of men who had been turned down by the Ministry of Pensions as suffering from disabilities not attributable to service. No medical officer in the Ministry of Pensions could say that the disability from which a man suffered would have been contracted had the man remained in civil life, yet cases were turned down on the ground that if the man had not joined the Services he would have contracted the ailment for which he was discharged.

Sir WALTER WOMERSLEY said he would require at least 24 appeal tribunals to cover the United Kingdom, and those who undertook work on them would have to make it a full-time job. It would take them all their time to do eight cases a day if Parliament said the decision should be final and that cases could not be brought to the Minister for review. He wished to pay a tribute to his staff. No one did more than the doctors to try to make the system perfect. The case of the neurotics was difficult. A large number of the Ministry's cases were of neurosis, a question which the medical services of the country would have to face before long because it was increasing. Actually there was less neurosis among the Forces than in civil life. He wished to stress the procedure in connexion with the independent medical experts. It was a certainty that a man would be examined if it were necessary and that he would go before the appeal tribunal personally and have someone with him as an advocate. The independent medical experts had been very effective. They had been appointed by the Presidents of the two Colleges on the understanding that they would be uninfluenced by his Department. Sir Walter agreed that popular opinion was that unless a doctor examined a person thoroughly he did not know anything about the case, but the point at issue with the independent experts was that the doctor had to decide not what was the matter with the man but whether his disability had been caused or aggravated by war service.

Representative Committee of the Profession

Dr. MORGAN inquired on March 25 what medical organizations had been called into consultation on proposals for the future National Health Service, and whether Mr. Brown intended to afford equal facilities to all medical organizations. Mr. BROWN answered that he was consulting a representative group of medical men and women brought together by the B.M.A. with the co-operation of the three Royal Colleges. It was fully understood that views expressed by members of this group at this stage could not be taken as committing the profession as a whole, any more than views expressed by him to the group at this stage represented the final conclusions of the Government. He would be glad also to hear the views of any responsible organization which had bearing on the planning of a comprehensive medical service. He contemplated, a little later on, publishing a statement on the general nature of his proposals so that all concerned—including the profession and particularly its members serving in the armed Forces—had equal opportunity to consider them.

Industrial Health Advisory Committee

Mr. BEVIN said on March 25 that the Industrial Health Research Board was not specifically represented on the newly formed Industrial Health Advisory Committee. A number of members were common to both bodies. Contact would be maintained through these members and through official channels. Duplication of functions would be avoided. The Board was a research body, whereas the committee would not conduct research. It would advise him on technical and scientific problems arising out of the current administration of the Ministry of Labour. Immediately a problem ceased to be a thing which could be dealt with currently and required long research it would be passed on.

Maternal and Infant Mortality

The rates of infant and maternal mortality for England and Wales in 1941 and 1942 were the lowest ever recorded. They were:

	England and Wales	
	1941	1942 (provisional)
Infant deaths per 1,000 live births	59	49
Maternal deaths per 1,000 live and still births		
Post-abortion infection	0.35	0.35
Abortion without sepsis	0.19	0.11
Infection during childbirth and puerperium	0.47	0.42
Other maternal deaths	1.75	1.59

Medical Supplies for China

Mr. RICHARD LAW, replying to Mr. Cocks on March 31, said the British Government had for long been fully aware of the urgent necessity for giving China all possible help in the way of medical relief, and had taken practical steps to do so, both by providing financial assistance and by the dispatch of medical supplies. The Government had made a grant-in-aid of £50,000 to the British Fund for the Relief of Distress in China and a further £41,500 to the Chinese Red Cross. Apart from this, large sums had been collected by voluntary societies in this country, notably the United Aid to China Fund. Every effort had been made to send medical supplies from India, and important allocations—e.g., 5,000,000 tablets of quinine—had been made in the past. At the present time the shortage of medical supplies in India, in addition to the difficulties of transport, constituted serious limiting factors. The Government were fully alive to the needs of the situation and would continue to do all that lay in their power to remedy it.

Medical Advisory Committee.—Mr. Ernest Brown thinks he would not be justified in enlarging the Medical Advisory Committee at this stage by appointing a representative of psychological medicine, but it is contemplated that the committee's membership shall be periodically renewed, and he will bear this suggestion in mind.

Beveridge Report: Consultations with Profession.—Mr. BROWN stated on March 18 that his conversations with the medical profession on the Beveridge report would include discussions with allied professions, such as dentists, opticians, and pharmacists. He would make appropriate arrangements to this end.

Medical Auxiliaries in a National Health Service.—Asked by Sir IAN FRASER on March 24 for an assurance that physiotherapists and masseurs and medical electricians would be consulted through their appropriate organizations on the future of private practices and other relevant matters before any national medical scheme reached its final stage, Mr. BROWN said he intended to hear the views, at the appropriate time, of any representative body whose members' interests were likely to be affected.

Vaccine Lymph.—Mr. VIANT, on March 30, inquired the reason for the change made in the number of live bacteria allowed in vaccine lymph; whether a more potent lymph was needed; and what safeguards were furnished for the protection of the public against the effects of lymph containing such large numbers of living bacteria. Mr. BROWN said the change had been made to facilitate production of vaccine lymph, not to increase its potency. The increase of bacteria mentioned related to harmless adventitious organisms found in lymph as taken from the calf; and the safeguards against harmful micro-organisms remained as stringent as they had always been.

Native Medical Officers for West Africa.—Mr. OLIVER STANLEY stated on March 31 that measures were under constant consideration for increasing opportunities for the employment of Africans as medical officers in West Africa. West Africans had not been formally included in the unified Colonial Medical Service, but 84 African medical officers had already been appointed to the West African Government services. So far, most of the senior medical administrative posts were held by Europeans, but the medical officer of health at Lagos and his assistant were Africans, and a West African held a specialist post in Nigeria. Measures to facilitate the interchangeability of African medical personnel among the four Colonies were being considered.

Diphtheria among Immunized Children.—Among approximately 3,731,000 children immunized against diphtheria under local authority arrangements in England and Wales during the three years 1940, 1941, and 1942, the number of notified cases of the disease was 7,286. The number of immunized children who died from diphtheria during 1942 was 41, as compared with 1,473 deaths among non-immunized children.

Medical News

The Royal Sanitary Institute is holding a meeting at Preston to-day (Saturday, April 10) in the Town Hall. The programme includes a paper at 10.15 a.m. by Dr. J. D. Kershaw on child guidance in its relation to infant welfare.

The London Association of the Medical Women's Federation will discuss some therapeutic uses of endocrines in obstetrics and gynaecology at a meeting in the Hastings Hall, B.M.A. House, Tavistock Square, on Thursday next, April 15, at 5 p.m. Miss Moore-White will contribute a paper on aspects of sterility and treatment, and Dr. Josephine Barnes one on lactation.

A meeting of the Diagnosis Section of the Faculty of Radiologists will be held at 32, Welbeck Street, W., on Saturday, April 17, at 10.30 a.m.

The representatives of the Socialist Medical Association who saw the Minister of Health on March 26 and laid before him that association's views on the organization of a comprehensive health service included Mr. Somerville Hastings, Dr. H. Joules, Mr. Aleck Bourne, Dr. D. Elizabeth Bunbury, Dr. L. T. Hilliard, Dr D. Stark Murray, and Dr. P. Inwald.

A new plasma drying unit which will bring the equipment of the Scottish National Blood Transfusion Association into line with the most modern developments in blood transfusion was opened in the Royal Infirmary, Edinburgh, on March 26 by Mr. Thomas Johnston, M.P., Secretary of State for Scotland.

The Ministry of Health has issued an addendum to Memo. 139/Foods, on laboratory technique for the phosphatase test for heat-treated milk.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* notifications of scarlet fever were up by 253 and whooping-cough by 143; there were 390 fewer notifications of measles.

The only big variations in the local trends of scarlet fever and whooping-cough were those of Yorks West Riding, London, and Middlesex, with rises of 58, 39, and 32 for scarlet fever, and of 36, 53, and 24 for whooping-cough.

Acute pneumonia underwent a general small decline. The only fluctuation of note was an increase of 94 cases in Yorks West Riding, due to a large outbreak in Sheffield C.B.—103 notifications, compared with 9 in the preceding week.

Seven of the 8 cases of paratyphoid occurring during the week were notified in Yorks West Riding, Kirkburton U.D.; 2 cases of typhoid were also notified in this area. Other areas with multiple cases of typhoid were Nottinghamshire, Bingham R.D. 4, and Surrey, Epsom and Ewell M.B. 2.

In *Scotland* measles notifications were up by 109 and those of acute pneumonia down by 100. The increased trend of measles was due to the experience of the cities of Glasgow and Edinburgh, with 89 and 47 more cases respectively. Glasgow, with 90 fewer cases than in the preceding week, was the only area with a decided fall in the incidence of pneumonia. The notifications of diphtheria fell by 19 and scarlet fever by 21; there were 39 more cases of whooping-cough.

In *Northern Ireland* 11 cases of cerebrospinal fever were notified, the largest weekly total during recent months.

Measles

The largest falls during the week were those of Yorks West Riding 277, Gloucestershire 254, Yorks North Riding 222, London 212, Lancashire 190, Durham 123, Devonshire 102. The largest of the increases were recorded in Sussex 208, Essex 162, Staffordshire 121, Denbighshire 96, Somersetshire 92, Cheshire 80, Bedfordshire 73, Monmouthshire 62.

The trends of the local epidemics may roughly be described as decreasing in London and the North but still increasing in the other areas. A comparison of the distribution of the notifications during the past six weeks, in fortnightly groups, illustrates these variations:

Divisions	Number of Notifications during the Weeks			Notifications expressed as Percentages of those in 6–7 Weeks	
	6–7	8–9	10–11	8–9	10–11
London	2,307	2,782	2,516	121	109
South-East ..	3,419	4,089	4,705	120	138
South-West ..	1,174	1,803	2,622	154	223
South Midland ..	4,226	4,663	4,380	110	104
East	1,834	2,482	2,877	135	157
West Midland ..	4,319	5,766	5,634	134	130
North Midland ..	3,098	3,038	2,863	98	92
North-West ..	3,765	3,677	3,582	98	95
Yorkshire	6,426	5,373	4,442	84	69
North	3,069	3,421	3,032	111	99
Wales	1,893	2,186	2,651	115	140

Quarterly Returns for England and Wales

The returns of the Registrar-General for the fourth quarter of 1942 show that the birth rate, at 15.4 per 1,000, was the highest for any fourth quarter since 1930 and was 1.8 above the average of the five preceding fourth quarters. Infant mortality was 48 per 1,000 live births—10 below the average of the ten preceding December quarters and 1 below the low record reached in 1939. Stillbirths formed 33 per 1,000 of the total births registered. The death rate of 11.0 per 1,000 was the same as in the December quarter of 1941, but was 1.3 below the average rate for the five preceding December quarters.

The provisional rates for the whole of 1942 show that the birth rate of 15.8 was the highest recorded since 1931, and the death rate of 11.6 per 1,000 was the lowest since 1930, except for 1938, when it was the same. Infant mortality was 49 per 1,000 live births and was the lowest recorded, being 1 below the previous lowest in 1939. The lowest recorded value was also given by stillbirths—33 per 1,000 live births. The illegitimacy rate among live births was 10 per 1,000 above the average of the preceding five years. The natural increase—excess of births over deaths—was 175,168, or nearly twice the average of 1936-40.

The Week Ending March 27

The notifications of infectious diseases in England and Wales included: scarlet fever 2,185, whooping-cough 1,982, diphtheria 816, measles 19,561, acute pneumonia 1,505, cerebrospinal fever 101, dysentery 92, paratyphoid 1, typhoid 6. In the large towns 73 deaths were attributed to influenza.

No. 11

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended March 20.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease are for: (a) The 126 great towns in England and Wales (including London) (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	95	7	30	2	11	281	30	45	2	9
Deaths		3	3				4	2		
Diphtheria	798	44	180	100	28	900	30	241	72	27
Deaths	15	1	3	1	—	15	—	9	3	—
Dysentery	66	8	26		—	146	23	44		—
Deaths		—	—	—	—		—	—	—	—
Encephalitis lethargica, acute	2	—	—		—	3	—	—	—	—
Deaths		—	—				1	—		
Erysipelas			53	5	5			60	7	1
Deaths							—	—		
Infective enteritis or diarrhoea under 2 years				16						
Deaths	59	12	6	10	4	38	6	11	2	2
Measles	19,409	1,152	638	8	78	2,980	195	286	91	21
Deaths	41	5	1	1	1	5	1	2	2	2
Ophthalmia neonatorum	103	6	22		—	94	4	9		—
Deaths										
Paratyphoid fever ..	8	—	1	—	—	13	1	1	—	
Deaths	—	—	1	—	—	—	—	—	—	
Pneumonia, influenzal*	1,304	75	9	12	12	1,567	78	39	12	13
Deaths (from influenza)	52	5	2	1	2	66	9	15	—	2
Pneumonia, primary			328	28				334	20	
Deaths .. .				13	17				18	7
Polio-encephalitis, acute	1	—				2	—			
Deaths		—					—			
Poliomyelitis, acute ..	3	—	2	3	2	4	—	2	—	
Deaths .. .		—	—		—		—	—		—
Puerperal fever ..	—	4	29	2	1	—	3	11	2	—
Deaths		—					—			
Puerperal pyrexia ..	173	9	23		3	175	12	21		—
Deaths										
Relapsing fever ..	—	—			—	—	—			—
Deaths .. .										
Scarlet fever	2,160	165	288	48	56	1,296	47	204	58	21
Deaths	3	—	—	—	—	2	—	—	1	—
Small-pox	—	—	—		—	—	—	—		—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever† ..	13	—	6	14	3	7	—	—	4	1
Deaths .. .	1	—	—	—	—	—	—	—	2	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths ..			—	—	—			—	—	—
Whooping-cough ...	2,007	191	253	29	20	1,553	189	52	19	7
Deaths	13	6	1	4	1	7	4	9	5	—
Deaths (0–1 year) ..	434	60	79	43	42	405	42	77		
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	5,395	816	666	259	159	5,639	809	822		
Annual death rate (per 1,000 persons living)			15 0	17·0	‡			18·5		‡
Live births	6,425	758	934	345	290	6,523	674	938		
Annual rate per 1,000 persons living ..			19·1	22·7	‡			19 4		‡
Stillbirths	216	38	40			239	28	52		
Rate per 1,000 total births (including stillborn)			41					53		

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* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes paratyphoid A and B for Northern Ireland.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

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ANY QUESTIONS?

Viruses of Varicella and Herpes Zoster

Q.—*Is it established that varicella and herpes zoster have a common virus origin? If so, is it explained why this virus should cause the one disease in the child and the other disease in the middle-aged and elderly?*

A.—The viruses of varicella and herpes zoster "cross-react" in complement-fixation tests and "cross-immunize"; they are therefore either the same or very closely related. The usual result of infection entering by way of the upper air passages is dissemination by the blood stream and hence an attack of varicella. In herpes zoster, on the other hand, there is localization in the central nervous system with spread to the affected area of skin. The causes of this localization are not known, but it is possible that the virus may persist in the C.N.S. following an attack of varicella in early life, to resume activity when resistance to it is depressed by some other cause, either local or general.

Some Sulphonamides

Q.—*What sulphonamide preparations are now in use and for what conditions are they the drug of choice?*

A.—To answer this question fully nothing less would serve than a book, and several on the subject have been published. In the 2nd edition of Wesley W. Spink's *Sulphanilamide and Related Compounds in General Practice,* recently reviewed in this *Journal,* an attempt is made to state in tabular form an order of preference by four sulphonamide compounds for 60 different conditions, and this by no means covers the whole subject. The main indications for the principal compounds may be stated in general terms as follows.

Sulphanilamide.—The earliest (apart from prontosil, which is now no longer used) and until 1938 (again with the same exception) the only sulphonamide compound in general use. Fully effective in infections due to haemolytic streptococci, the gonococcus, the meningococcus, in infections of the urinary tract due to *Bact. coli,* proteus, and other coliform bacilli, and in gas gangrene due to *Cl. welchii.* Has the advantages of great solubility and rapid absorption, universal availability, and cheapness.

Sulphapyridine ("M & B 693").—The main advantage of sulphapyridine over sulphanilamide is that it is effective against the pneumococcus; its introduction in 1938 brought pneumonia within the scope of sulphonamide treatment. Can also be used in any of the conditions for which sulphanilamide is indicated and is preferred for them by some. Recently reported to be greatly superior to sulphanilamide for treating meningitis due to *H. influenzae.* More liable than any other compound to cause nausea and vomiting.

Sulphathiazole.—Chief specific advantage is its greater effect in staphylococcal infections, which are a strong indication for it, although they are unfortunately not as controllable as, for example, streptococcal infections by any form of sulphonamide chemotherapy. Can also be used in any of the conditions aforementioned, and preferred for them by some. Is less toxic than either of the other compounds in the sense that nausea and vomiting and cyanosis are less severe and less common during its use.

Sulphadiazine.—Full data do not yet exist for assessing the relative efficiency of this drug in various susceptible infections, but it appears to have the same scope of activity as its predecessors, and its efficiency is fully proved in pneumonia. Has the great advantage of almost complete freedom from subjective toxic effects. Very costly and at present very difficult to get.

Sulphaguanidine.—Poorly absorbed and therefore mainly retained in the bowel; sole indications for its use are intestinal infections, particularly bacillary dysentery. Succinyl sulphathiazole is also recommended for this purpose and for disinfecting the colon before operations on it.

In addition to these compounds, there are soluble derivatives for administration by injection and others with more restricted uses. It is unjustifiable to dogmatize about the relative merits of the first three for many purposes: acute streptococcal infections and cerebrospinal fever, for instance, respond well to all, and there can be little to choose between them. Generally speaking, sulphonamide chemotherapy is more successful in acute than chronic infections, and if it is indicated at all it demands adequate dosage, usually not less than 1 g. of the drug four-hourly for an adult. It is futile and may actually do harm to give only a 1/2-g. tablet t.d.s., and useless in most cases to continue treatment for more than a week if no effect has been obtained.

Psychological Impotence

Q.—*I should be glad to know if any effective treatment is available for a case of psychological impotence in a man about 45 years who complains of tiredness, lack of energy, etc. I have tried injections of testosterone, 10 mg. weekly, benzedrine tablets, etc., but with no result.*

A.—The treatment of a case of psychological impotence is psychological, and but little help can be expected from benzedrine or from any other drug if the psychological factors have not been dealt with. Sometimes these factors are obvious and can be eliminated by reassurance, encouragement, and suggestion. At other times they are the result of some deep-seated conflict which can be discovered and satisfactorily treated only by an expert psychologist. This being the case I would suggest that this patient be referred to a competent psychotherapist.

LETTERS, NOTES, ETC.

Liq. Ferri Perchlor. for Sore Throat

Dr. N. Corbet Fletcher (London, N.W.3) writes: The note by Dr. Ralph Jones (March 13, p. 340) on the administration of liq. ferri perchlor. for sore throats interested me because my father taught me to use it in combination with pulv. potass. chlorat., and, further, to instruct my patients to gargle well before swallowing each dose. Rarely have I known this mixture to fail in my 40 years of general practice. But perhaps the best comment is the fact that many patients who have once tested the mixture return and ask for a bottle of "gargle and swallow."

Mr. J. Cole Marshall, F.R.C.S. (London, W.1) writes: I was very pleased to see the letter from Dr. Ralph Jones (March 13, p. 340), and should like to give my experience of the efficacy of liq. ferri perchlor. Some years ago I had a very nasty-looking tonsillitis. I consulted my friend, Dr. Alex Gavin, and he thought I had diphtheria, and took a swab. In the meantime he ordered me 30 minims of liq. ferri perchlor. taken in half a tumbler of soda water every four hours, and I also painted my throat with Mandl's paint. In 24 hours my throat was nearly clear—the swab showed a heavy growth of haemolytic streptococci. A year or two later I got an acute attack of erysipelas in my right leg from a crack between my toes. My leg was scarlet from the ankle to the knee, and my temperature was 103.5° F. I immediately took large doses of liq. ferri perchlor. in soda water and applied glycerin and belladonna to my leg. In two days my leg cleared up and within a week or less I was convalescent I always feel that it is a pity that this old remedy is not more widely used.

Temperature-taking in Tuberculosis

Dr. P. C. Matthew (St. Ives, Cornwall) writes: You state (March 6, p. 308), in answer to a correspondent's query on temperature-taking in pulmonary tuberculosis, ". . . for a half-minute thermometer it is immaterial whether the time chosen is 2 minutes or 5 minutes." This raises a point that has interested me since 1937, when I stayed for a time at Montana Hall, in Switzerland. I noticed there that Dr. Hilary Roche insisted upon 10-minute mouth readings, and he told me that only this gave a degree of accuracy equal to rectal readings. Why does a half-minute thermometer take up to 10 minutes under the tongue to reach body temperature? The answer I think is that the mouth must be closed for 10 minutes before the "under-tongue" temperature equals body heat. Anyone can try this by taking 2-, 5-, and 10-minute readings under the tongue after (*a*) breathing through the mouth, and (*b*) sitting with the mouth closed. The rise to normal in the first case is gradual; in the second rapid. This 10-minute technique is uncalled for in dealing with the ordinary fevers of general practice, but is invaluable in detecting unsuspected temperatures of 99–99.4° F.

Corrigendum

The last sentence of Mr. P. B. Roth's letter on surgery of tendons (April 3, p. 426) should read: "I should very much like to know what results are obtained by others who have a large experience of tendon suture."

BRITISH MEDICAL JOURNAL

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STRATEGY AND TACTICS IN RESEARCH*

BY

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Of the various fields of medical activity now coming under review in the discussions being held on the future of medicine in this country, that of research must command its full share of attention. If the greatest possible advancement of knowledge is to be secured, those in whose hands the reorganization of medicine will lie need a sound conception of all that is embodied in the idea and in the execution of research. We may not assume that everyone eager to provide us with a bright new medical world has the experience or insight necessary to deal with the problems of medical research, nor even that all of those actually engaged in it are endowed with the clearest vision on the subject. Some familiarity with the literature in which original investigations in my own field of medicine are recorded, various discussions that I have listened to, and schemes of research upon particular problems that I have known propounded have led me to believe that not a few of those who engage in research work, or who find themselves—often for quite irrelevant reasons—in a position to initiate and control it, have extremely limited views as to what constitutes good research, how to plan and set about it, or how to interpret and use to the best advantage the results it yields. The present time therefore seems apt for an attempt to formulate some general principles of a strategy and tactics of research. I shall concern myself principally with medical research, but my remarks may possibly have a wider application if they are well founded.

Research in the Past

Until comparatively recent times medical research has been pursued largely in the voluntary hospitals and their medical schools. Most of those from whose ranks the original workers were mainly recruited—namely, the honorary medical staffs—have from the nature of the voluntary hospital system been compelled to gain their livelihood by the private practice of medicine. As a result clinical research has been hampered in its full development, for those engaged in it have found themselves increasingly drawn away by the demands of practice, until in middle life most of them are compelled to relinquish all hope of serious original work. Even under conditions so adverse, their achievements in the past have been considerable, and have provided the foundations upon which a more fortunately placed younger generation may now build. Perhaps not all of this generation realize fully that some at least of the broad perspectives now opening before them they enjoy because they are, as it were, standing on the shoulders of their unsubsidized predecessors. Some of them, it may fairly be urged, are inclined to scorn the base degrees by which they did ascend, and therefore a tribute to the labours of past generations in advancing medical knowledge is not wholly superfluous.

Yet under these past-time conditions advance was uncertain and somewhat fortuitous, and none will deny that the increasing pace of scientific work requires that greater opportunities for clinical research should be provided. The growing complexity of the problems before us, and of the research methods essential to tackling them, makes greater demands upon the individual than in the old days when the hewing out of the rough features of medical knowledge by relatively simple methods was possible for men who, in more leisurely times, were also engaged in the practice of medicine and surgery. Research is becoming increasingly a matter of ever finer analysis of fundamental bodily processes by technical methods of great complexity, and is too exacting a mistress to be satisfied with less than the first claim on the worker's endeavour.

Despite the steady increase of opportunities for the free pursuit of clinical science that the past 20 years has provided, further opportunities must be forthcoming if British medicine is to regain its position in the van of progress. It is not my prime purpose to discuss how far simple organization can achieve this result. Of organizers we need fear no dearth, nor of those ready to place all their hopes in planning and to cherish the most sanguine expectations as to what can be achieved by committees. My first concern is to consider the part that must be played by those who do the research work if this is to yield a good harvest.

One of the outstanding features of medical research of the past is that for the most part only the man with the urge to explore the unknown engaged in it. He could hope for no material reward from doing so. Indeed, he might easily suffer from his preoccupation with original investigation. It offered him no prospect of a career; what we may call the professional researcher in established laboratories was apt to look askance at him as an amateur, nor could he expect to join the select ranks of press-famous doctors by devoting himself to it. In fact, he too often ended as one of those pathetic figures of whom we used to see it stated in obituary notices in our medical press that "he did not attain that success in practice that his merits entitled him to, but his colleagues appreciated his worth."

Only the rare man who combined insatiable scientific curiosity with abounding vitality and enthusiasm could succeed in both research and practice. Victor Horsley was such a man, but we cannot tell when we may look upon his like again. Hughlings Jackson, to take an outstanding example of the original thinker in medicine, thought long and profoundly on the problems of neurology and psychology and greatly enriched knowledge because it was in him to do so and would not be denied. It is as difficult to believe that any formal organization of research in his day would have made him more productive as it is to suppose that English poetry would be any more rich and lovely than it is had all poets in the past been given salaried posts and relieved of financial difficulties: a thought that we may well ponder when thinking of the possibilities of mere planning for achievement in the realms of the mind.

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* Being a paper read before the Society of British Neurological Surgeons on Aug. 1, 1942.

The subsidizing of medical research has grown and will continue to grow, and thus many now engage in it, and will in future do so, who, in days gone by would have been neither willing nor able. Their compelling motives are many and various. As always, a few have the true vocation and eagerly embrace the enhanced opportunities now opening before them. Many enter research for more pedestrian reasons: some because it offers a safe refuge from the exhausting labours, responsibilities, competition, and financial uncertainties of private practice; others because it affords them the illusion of an intellectually higher life; a few, perhaps, because they are misanthropes who, in the laboratory, can hope to escape contact with their kind; some just choose it upon a dispassionate calculation between the various openings a medical training offers them; and some, alas, merely as a stepping-stone to more attractive adventures in other fields of medical activity.

The True Discoverer

Whatever their reasons, a growing army of men and women are enlisting in the ranks of original investigators. Of all these, however, we can look for very few in the first ranks of true discoverers: those who infuse their technical competence with scientific imagination, who see their problem in essence before they proceed to tackle it; who know how to ask the experimental questions best calculated to elicit from Nature the relevant answers; who not only add new facts to store but see their significance and can embody them in the ordered knowledge that is science. Not content merely to dig for gold, they also refine it, knowing that it is useless until they have done this, and that isolated pieces of information are merely the raw material of knowledge. A capacity for the unresting contemplation of the facts of observation is their surest and peculiar weapon and their guide in experimental work. They are the strategists of research.

No planning can provide us with these men or determine the goal of their labours. When they possess the added gift of being able to attract younger men around them their powers of discovery are immeasurably enhanced; for they can train their successors, and can direct the labours of workers of lesser rank, the tacticians of research who when a problem is formulated can devise a means of tackling it. Under them also work the third rank of research workers, to whom can be confided limited and precisely defined tasks in the larger plan of campaign.

Here we have a sort of spontaneously arising organization that has grown round a personality and has owed little or nothing to deliberate planning. When this comes into existence it is the richest of all sources of original knowledge. Within our own time and in this country, physiology, biochemistry, and clinical science have given us brilliant examples of such schools under the leadership of Sherrington, Gowland Hopkins, and Thomas Lewis. Woollard, had he lived long enough, might have established such a school in anatomy. Given such leaders, research of the first order will flourish, however scanty the material resources available, however negligible the organization from without. Going further afield, we have a striking illustration of this in the school of Magnus of Utrecht, a true offshoot of the Sherrington school of physiology. Over a period of years a sequence of closely related investigations upon the physiology of body posture came from this active centre of research, and was recorded in a series of papers that were a model of what such records should be: concise, crystal-clear in language, and with step following logical step in the presentation of facts and argument. All this work was carried out in a cramped and ancient building, once a plague hospital, as ill adapted for modern research as may be imagined and as poorly endowed. Yet the personality of the leader inspired a band of paid and voluntary workers—de Kleyn, a practising surgeon, being one of the latter—to complete one of the most fascinating chapters in the records of neurophysiology. In short, it is round the man and not round the plan that the wheels of research revolve most rapidly.

All this is not to deprecate some attempt to organize our resources, but rather to indicate the limits of what planning and research foundations can achieve. Geniuses for research are not created by committees; they are not even invariably recognized by them in time to afford them support. By the time Magnus at Utrecht could look upon a new and fully equipped laboratory his last experiment had been made.

Lines of Approach in Strategy and Tactics

These considerations bring me back to my starting-point—namely, the great importance of sound ideas as to a strategy and tactics of research if the greatest efficiency is to be attained. Perhaps some apology is called for from me at this juncture. It may be thought that only one whose active life has been spent in research can be competent to discuss this question. Up to a point this is probably true, yet, after all, the onlooker sees a great deal of the game, and it is as an interested spectator of the fields of neurophysiological and clinical neurological research during the past quarter of a century, and for part of that time associated with the editorship of *Brain*, that I venture to give my impressions of the quality of strategy and tactics to be seen in these fields of medical and allied research.

Claiming no more than this, then, I submit that a sound research strategy connotes a familiarity with what has already been accomplished in the field of investigation to be explored; but it calls for more than this—namely, for a clear grasp of the implications of earlier work and some discernment as to where it is probably leading. Some pattern has to be sought in the numerous and often seemingly unconnected items of information available, and the gaps in this have to be recognized as the field of knowledge is critically surveyed, since from this recognition it may be hoped to get a lead as to what questions remain to be answered before the complete pattern of the bodily function or process under inquiry can be revealed. The strategist's scientific imagination will show him what lines of approach offer the best hopes of success, and when to abandon any given line and start afresh. He may have, and must be able, to recast his ideas completely regarding the nature of his problem should unlooked-for results make this necessary. This in turn requires that he shall have the intellectual integrity and clarity to sacrifice his provisional hypotheses to the facts if these demand it. Experience shows that this dilemma is not always successfully solved by the research worker; for his hypothesis may have become dearer to him than the facts, which he then proceeds to tidy up in conformity with his preconceived notions, turning a blind eye to one and "modifying" another. By tactics of research I have in mind the drawing up of a precise experimental plan, once the general intention of the research has been thought out and formulated. It implies the devising of experiments—that is, of questions designed to extract the answers from Nature. In doing this the worker shows his capacity for cross-examining Nature and his purpose in doing so. His experiments, therefore, are not well-intentioned gropings in the dark but skilfully directed probings. Some there are who, while not being strategists of the first order, are adept in this tactical planning once the purpose of an investigation has been defined for them. Now, in the world of scientific activity as we find it there are not enough strategists of the first rank to go round, and thus it comes that many investigations are carried through with no longer view than the acquisition of some piece of information as an end in itself without any clear thought as to its possible implications. Once gained, this piece of information is put on record, but its orientation in the larger field of related knowledge and its building up into a general body of thought seem beyond the vision of the workers. Indeed, we sometimes ask ourselves what was in their minds in undertaking it. They have, as it were, rooted up industriously a sort of scientific truffle and have then promptly lost interest in it. The journals are full of these bits of isolated work, of which it may be said that they are no more than the raw material of knowledge. Not a few workers pass their active lives going from investigation to unrelated investigation on no discernible plan, never pausing to contemplate the full implications of their work, but, with an unresting haste and an apparent horror of contemplation, proceed on their mission as collectors of information. Sometimes one cannot but suspect that they cherish the illusion that he who publishes four papers is a better man than he who produces but one, and there is not a little in the current standards of values concerning these things that encourages them in this dreadful notion. Concerning these standards and the question of the productivity of the research worker I shall have something more to say later.

Now, the research worker of the first rank does not leave his facts of observation lying on the grass in this unfinished state, nor does he collect facts just for the sake of doing so. He extracts the last grain of significance from his observations before he leaves them to pass on to a logical next step in his planned campaign of investigation. It is true, of course, that the raw material of less polished labours may from time to time provide him with essential links in some chain of evidence or, illuminated by his thought, may come to have crucial importance. Yet this is no justification for research work as lacking in purpose as in method. At the other extreme we find scanty or ill-substantiated observations made the foundation of some elaborate structure of hypothesis which they cannot support. To this variety, also, the literature of research is no stranger.

Shortcomings in Research

But perhaps the most pitiful travesty of original investigation is that undertaken for some irrelevant reason, such, for example, as that research work gives a committee, an institution, or a hospital a good name, and creates an atmosphere of scientific glamour highly gratifying to those promoting it or engaged in it. An apt variety of this aimless activity was the scheme I once heard proposed to take polygraph tracings from all the patients admitted to a certain institution over a twelve-months period, on the naïve expectation that "something's bound to emerge!" No one paused to ask what might be expected to emerge, or how, once emerged, it was to be recognized as a significant phenomenon.

Not less unpromising were the labours of a committee within whose terms of reference it was to initiate and support schemes of research, when it met to think out from the inner consciousness of its component members things to research about, much as one might ask at a children's party, "What shall we do next?" Closely related to this conception of research is the notion that all that is needed is an elaborate questionary for a collection of assorted workers of unknown capacity to conform to and to fill in, some statistical amateur then to distil knowledge from the completed returns. From this Gallup poll to research by automatic calculating machines seems but a brief step, for the use of the intellect has been virtually done away with.

But lack of imagination is not the only shortcoming of much modern medical—and other—research. A not less pervasive evil is the tendency to accept statements of fact, and even hypotheses, on trust, more especially when they emanate from writers to whose name prestige attaches. Prestige, indeed, may be a deadly peril in scientific thought. Every statement and every hypothesis on record must stand or fall on its merits, irrespective of its author. Nothing is more common than to read in the opening paragraphs of an original paper the phrase, "So-and-so has shown that," when more often than not "So-and-so" has shown nothing of the kind—he has only said or suggested it but has not demonstrated it. Once thus referred to, a false air of reality attaches to the statement and it passes insensibly into the category of things we accept as proved, where as likely as not it does not belong. In this way a hypothesis with no demonstrable validity may obtain a measure of acceptance and a lease of life to which its merits by no means entitle it—and it may even hold up fresh thought for a generation by its malign influence. Yet really critical examination would have revealed from the outset that it was fallacious or unsubstantiated. That this should be so is a reproach, and suggests that what I have spoken of as the unresting contemplation of the facts of observation does not engage original workers to the degree it should.

Necessity for Critical Analysis

This brings me to the role of critical thought in the field of research. This, and this only, can keep the world of original thought alive and fresh, can sort the wheat of sound hypothesis from the tares of rash and ill-thought-out speculation, the ephemeral from the lasting. When one considers the flood of papers dealing with new observations—or rediscoveries of old observations—that surges about us in a rising tide each year, it is clear that the imperative necessity for quite ruthless critical analysis becomes even greater. Yet who wants to shoulder this role of intellectual inquisitor? No one, indeed, with any regard for his own advancement or peace of mind. It has become the craven fashion to decry critical analysis by attaching to it the unpopular name of "destructive criticism." Yet we must clear the ground of the lumber of unreliable observations and unsupported hypotheses before advance is possible. Those of you who have read—as we all should read—Trotter's *Collected Addresses* will find in them the following passage, which cannot be too constantly borne in mind. He says: "The common tendency to regard destructive criticism as always easy and generally reprehensible is one I do not share; I doubt if it could be acquiesced in by any sensible person making a frank survey of the intellectual world to-day. At no time in the history of the intellect has the sanitary work of destructive criticism been more needful." If for the words "intellectual" and "intellect" we substitute "medical" and "medicine," these words lose none of their force. Yet if there is nothing the research worker needs more as a stimulus and a guide, there are few things he dislikes more than critical thought applied to his labours. He is always able to persuade himself that any criticism is inept, unnecessary, or impolitic. This, I suppose, will always be so—for the investigator is as full of human frailties as the rest of us; yet this emotional reaction makes all but the most hardy shrink from those periodical and candid surveys of the field of knowledge the lack of which may allow the most fallacious of generalizations to dominate thought for a generation.

Yet it is of the very essence of scientific advance that we should have criticism and synthesis as well as observation. The situation is well summed up by Arnold Toynbee, in respect of history, in the introductory chapter of his *Study of History*. He says: "The three conditions of criticism, transitoriness, and succession under which the scholar has to do his work . . . are conditions that arise from the nature of scholarship itself, which makes its progress by a rhythmic alteration between two activities—the collection of materials and their arrangement, the finding of facts and their interpretation—just as a physical organism lives and grows by an alternating between eating and digestion. The old fable of the belly and its members points the moral that neither activity is superior or inferior, prior or posterior, primary or parasitic, but that each is inseparable from the other as a part of the same whole, and complementary to the other as a phase in the same recurrent process. For the alternation perpetually recurs in virtue of the very nature of thought. When the mind is employed in finding facts, its sheer success inhibits it sooner or later from fact-finding uninterruptedly and *ad infinitum*. Sooner or later it finds itself so formidably beleaguered by the mass of facts which it has gathered round it that, until it has sorted them out and arranged them in some kind of order, it can no longer sally out into the Universe to gather more. Then the mind changes its activity perforce and employs itself for a season in making syntheses and interpretations."

The season of synthesis and interpretation is long overdue in medical science. We have more facts than we can digest—facts enough, indeed, to make salutary advances in ordered knowledge were we given the time and encouragement to make them. Yet the present climate of opinion is adverse to contemplation and the exercise of critical thought, and cries loudly and unthinkingly for ever more facts: the normal rhythm of thought is suspended and we sit bewildered amid the chaos of facts we are not encouraged to put in order.

There is another point about medical research that seems to require a brief reference, and that is the notion, most tenaciously held by those who know least about clinical work, that good research necessarily means work in the laboratory and experiments on animals. This is a crude fallacy; the medical research worker should be the master of all methods necessary to his problems, and the slave of none. He must be ready to extract from each method what it offers, and to choose the combination of methods essential to the successful prosecution of his task. Knowledge will not be advanced by creating a false antithesis between observation at the bedside and the study of the human subject by whatever means are legitimate and useful, on the one hand, and work in the laboratory and on animals on the other. The observation of human disease has by no means exhausted its resources, and even simple clinical observation may yet provide valuable and essential lines of attack on problems of disease, that cannot perhaps be solved without the additional aid of the laboratory and animal experiment. I cannot believe that any medical research worker can afford to divorce himself from clinical studies. When he does so he invariably loses touch with reality.

External Dangers

If the shortcomings of much medical research that I have indicated really obtain, they are such as can be remedied only by those engaged in that research. Yet there are external dangers that increasingly surround research as it becomes progressively more organized from without by controlling bodies whose paid workers the researchers are. I have ventured to suggest that many more such workers are ready to make observations or experiments than appreciate the necessity for continued thought about their work and its implications. This tendency is not checked when research organizations expect their workers to manifest productivity in terms of published papers. The man who has every year to draw up his annual report showing what he has accomplished can scarcely be blamed if he does not spend much time in contemplation. He will not care to report that he has as yet published nothing, is not ready to publish anything, and has not got very much further than surveying his problem.

Some sacrifices of independence and freedom have to be made when research is widely organized and research workers are paid salaries. Even research foundations have to satisfy their "public" that they are getting results; they have to do some window-dressing. Only an informed and enlightened control can secure for the research worker that freedom from which alone his best work can flow. He must have time to think, and be encouraged to do so, and he must not be haunted by the fear that his productivity is being measured in terms of papers or that his share of the organization's financial resources is grudged him. Under the experienced and sympathetic administration of the more important research foundations he is least likely to suffer in this way, but if and when the State or public bodies—through hospital and other services—take a hand in the matter, and if considerations of political expediency begin to appear, the salaried research worker may end by becoming a kind of scientific helot from whom quick results, in directions not always determined by him, are looked for. Now is the time to safeguard him from this melancholy fate.

One last danger should, it seems to me, be foreseen in the organization of medical research in the new order—namely, the danger that the worker in pure research may be segregated in central institutes remote from hospitals and medical schools. I believe this would be fatal to true progress in medicine. It would take the spirit and the inspiration of inquiry from the schools, wherein alone are to be found the recruits to the ranks of original investigators. It would deprive the student of contact with the research worker, and would deaden the quality of the endeavour of everyone concerned in hospital work and medical teaching. The research worker himself would suffer no less from this isolation from the world of medical endeavour, from the true battle-front of medicine. Thus isolated he would soon lose his sense of reality and of proportion. He would cease to have the necessary vivid awareness of the nature and difficulties of medical problems. It has commonly been so in the past.

Conclusion

It is idle to look back, but how enviable in retrospect was the lot of the physician or surgeon of a past generation who engaged in research work to satisfy his own scientific curiosity! He could think at his leisure, could publish his results when these were ripe and at his chosen moment: he was not harassed by the thought that something was expected from him at stated intervals in the calendar, or by the fear that some organization would begin to think that he was not worth his keep as a research worker. It may be true that we can no longer leave the matter of medical research to his amateur care; but will the subsidized research worker, caught up in the machine of organized research, ever savour the true taste of discovery so fully? It is hard to believe that the human contacts the older workers made in the practice of medicine were not at least one source of their inspiration, or that the time they gave to the treatment of the sick was really the waste some modern advocates of reform would have us think. Therefore, while fully recognizing that the times before us demand a more organized research effort than we have had hitherto, we may yet regret the probability that something of what was most favourable to the best work may be lost in the process, and we may hope that those who are reorganizing the fabric of British medicine will bear all this in mind and will make the conditions under which the salaried research worker has to labour and live most favourable to the free and unhampered development of his powers.

THE PATHOLOGY OF CLOSED INJURIES OF THE CHEST*

BY

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Major, R.A.M.C.; D.A.D.P. of a Command

After two years of continuous war work I shall here attempt to review in broad detail some experiences gained in the routine post-mortem examination of battle casualties, selecting for special analysis thoracic injuries of the closed type. My material has been drawn from both Service and civilian casualties, and it can be claimed to be wide and varied.

By a closed injury to the chest I mean either that the skin and subcutaneous tissue were intact or that, if these were pierced, the course of the missile had been such as to leave the pleura intact and so the pleural space had no contact with the outside air. This study excludes all cases in which a foreign body had entered the pleura or thoracic viscera, and deals with a group of cases that, to my mind, are the most interesting and in some ways the most important of war injuries. The cases may be divided into two main categories—those due to direct violence to the chest and those in which the injury to the thoracic viscera is indirect—i.e., a result of injury elsewhere in the body. Fat embolism is an example of this latter group: here the lung changes are very definite, but are usually the result of injury elsewhere, such as fracture of long bones. The former group includes: (*a*) lacerations, (*b*) contusions, (*c*) blast injuries (pulmonary concussion); it is principally with these cases that I shall deal.

Lacerations

Laceration of the heart or great vessels is of little pathological interest. It rarely if ever occurs in closed chest injuries, and when it results in rupture is rapidly fatal. A case of ruptured aorta due to blast has recently been reported by Wilson and Tunbridge, but I have not seen any further case of laceration of heart or large vessels in my series of war injuries. Laceration of the lung, on the other hand, is of great importance, and has occurred in this series with considerable frequency.

Case 1.—A gunner aged 28 was admitted suffering from shock and complaining of pain in the right chest. A bomb had exploded near his gun position and he had been thrown up against part of the gun. It was not clear whether he had been actually struck by a bomb splinter: the only evidence of external violence was a cut on the forehead about 2 in. long just to the right of the midline and extending upwards from the root of the nose. He was tender all over his right chest and blood was present in the right pleural cavity. Radiographs revealed multiple fractures of the ribs and a large right-sided pleural effusion. He died about six hours after admission.

At the post-mortem examination there was no evidence of external injury to the chest. The 3rd to 10th ribs on the right side were fractured just beyond the neck, while the 6th, 7th, and 8th ribs were also fractured in the mid-axillary line. The right pleural space contained about 1,000 c.cm. of fluid blood and a small blood clot. The right lung was lacerated by the fractured ribs along the line of the angle of the ribs; there were multiple areas of haemorrhage all over its substance, and it was partially collapsed, a deposit of fibrin being present on the diaphragmatic surface and the lower half of the lower lobe. The left pleural space was intact but contained a small excess of serous fluid, the lung itself being congested but with no definite localized areas of haemorrhage. The gunner had been standing about 40 yards away when the bomb exploded, and most of his injuries would appear to have been due to direct violence, either from a flat bomb splinter or from being thrown against a solid object.

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* The opening address at a B.M.A. meeting (Over-seas Branch), April 30, 1942.

Case 2.—An officer was working with a party of men on an aerodrome when a bomb exploded 150 ft. away. He was hit on the right side by a flat piece of bomb splinter and thrown to the ground. There were no external injuries except bruising of the right upper arm and right chest wall. On admission he was shocked and collapsed, and died about an hour later.

Necropsy revealed no external injury to the chest wall, but there was considerable bruising of and haemorrhage into the muscles of the right chest wall, especially posteriorly. The 4th, 5th, and 6th ribs had been fractured posteriorly along the angle of the ribs and again in the anterior axillary line. They had been driven in, rupturing the parietal pleura and intercostal vessels. The right pleural space contained a small amount of air and 4,000 c.cm. of fluid blood—i.e., a pneumohaemothorax had developed. There was no collapse of the right lung, but the mediastinum had been pushed across to the left side. The right lung was the seat of a large haemorrhage which involved the lower half of the upper lobe, the middle and lower lobes except their anterior margin, and extended throughout the substance of the lung. Three large subpleural bullae were present—one on the anterior aspect of the lower part of the upper lobe, one in the interlobar surface of the middle lobe, and a third, which had ruptured, on the posterior aspect of the lower lobe. This lung had been torn superficially on the posterior aspect opposite the angles of the broken 4th, 5th, and 6th ribs. The left lung was congested throughout and there was a haemorrhagic area in the posterior portion of the lower lobe, involving the deeper portions as well as the subpleural area.

These cases illustrate the chief features of lung laceration in closed chest injuries, and it will be realized that their seriousness depends not so much on the actual lung injury as on the development of complications. Laceration of the lung is rarely severe and seldom causes death in itself: a haematoma forms round the actual tear, but, owing to collapse of the lung tissue, haemorrhage soon stops. The neighbouring lung shows congestion, but there is seldom any evidence of gangrene of the torn edges, since the blood supply is so generous.

Complications

The complications which occur and which may prove so dangerous may be grouped as follows: (1) pneumohaemothorax; (2) compression or collapse of lung; (3) infection.

1. *Pneumohaemothorax.*—The degree of pneumothorax present is as a rule very slight. The clot which forms usually seals off the alveoli, and collapse of the surrounding lung helps this process, so that the amount of escaping air is small and would appear to be quickly absorbed. Subpleural bullae are rarely extensive and seldom rupture. It is true that the nature of the lung injury may be such that a valve may be formed and in this way a tension pneumothorax may develop, but in my experience this is extremely rare. Haemothorax, on the other hand, is common, and may be very extensive. There are two possible sources of origin for blood in the pleural space; it may result from:

> (*a*) Bleeding from the intercostal and mammary vessels, which, being systemic, may be very profuse and difficult to stop. (*b*) Bleeding from the pulmonary vessels at the site of laceration. This is rarely severe or fatal in itself. The pressure in the pulmonary vessels is low, the mean arterial pressure in the pulmonary circuit being about one-sixth that of the mean arterial pressure in the aorta, while the pressure in the pulmonary veins is near the zero level. The surrounding lung tends to collapse and the diaphragm on the injured side rises, so that Nature can in most cases be left to deal with this type of bleeding.

The differentiation of these two varieties of injury is important from the point of view of lung surgery.

The pleura is a mesothelial structure and reacts to haemorrhage as if it were a foreign body—i.e., with a mild inflammatory type of reaction. Locally there is an outpouring into the pleural space of a fluid rich in protein, accompanied by fever that is constant and without any evidence of toxaemia and so differs from the swinging temperature in the toxic patient with empyema. The local exudate of fluid not only increases the volume of the haemothorax present but may also cause a mild dehydration, which must be considered in treatment. Its presence and extent can be gauged fairly accurately by comparing the haemoglobin content of the pleural fluid with that of the patient's blood. An interesting fact about haemothorax is that the blood seldom clots to any great extent. A small clot may be present, but the bulk of the blood is still fluid. This may result from either of two factors—it may be due to the fact that there is little tissue destruction and so thrombokinase is absent and hence clotting is greatly delayed, takes place only partially, or does not occur at all; or it may be that clotting does not take place because, by the action of the lung in expanding and contracting, the blood is defibrinated and so in effect cannot clot. From examinations of large numbers of cases it would appear that no single hypothesis can fit every case; but studies of the calcium content and the clotting and prothrombin times of the blood from the haemothorax show that both the above factors play a part, and which of them predominates would seem to depend on the nature of the injury. Often tissue destruction (as in the cases cited) is considerable, ribs may be fractured, and the muscles and the parietal pleura torn, yet the blood may be still fluid. Fibrin in large amounts may be present on the lung surface, and thus defibrination may have taken place. In other cases the tissue destruction may be small and the absence of thrombokinase may be the deciding influence.

It has been stated that the fibrin deposited on the pleura may organize and so prevent the lung re-expanding. This would seem possible in cases in which lung collapse is of some duration, but I have never met with it in this series.

2. *Compression or Collapse of Lung.*—Compression of the lung may be acute as in pneumothorax or may come on gradually as in haemothorax. These cases of haemothorax may not reach clinical significance until 12 to 18 hours, but may finally attain enormous proportions, even as much as 3,000 to 5,000 c.cm. Here the heart is pushed over to the opposite side and the circulation and aeration of the opposite lung are severely impaired. Massive collapse is a rare occurrence; but its possibility should be kept in mind, as early diagnosis is of importance. It would appear to be due to loss of the cough reflex by shock or pain, so allowing mucus to collect and finally block a bronchus, or else a blood clot may find its way from the site of lung injury and likewise cause blockage. When this type of collapse is only temporary no definite pathology may be found in the lungs and complete recovery may take place, but infection or even bronchiectasis is always a possibility if the condition is of any standing.

3. *Infection.*—Even with the introduction of the sulphonamides infection is still the dread of the lung surgeon. In closed injuries of the chest it is rare for the pleura to be infected until later in the course, but pneumonic changes may set in early. They have no special pathological features.

Contusions

This group comprises injuries due to direct violence; these occur chiefly in younger persons whose ribs are still elastic, and so the underlying structures, heart, and lungs can be contused without actual external injury or fracture of the ribs themselves. I also place in this category an indefinite type of lung injury with an intact thorax which has been reviewed by Fallon (1940). He described the case of a medical student who was knocked down when boxing and later developed a cavity in the left lower lobe with a fluid level, a condition which resolved spontaneously and resulted in full recovery. Here the pathology is indefinite, but in this series of war injuries the basic lesion is more easily recognized.

(*a*) Cardiac Contusion

That there can be contusion of the myocardium without any evidence of external injury or fracture of the ribs or sternum has been known for some time, and Barber (1938, 1940) has reviewed the effects of trauma on the heart and discussed the significance of myocardial contusion. He concludes that, while it is a definite pathological entity, the clinical diagnosis is difficult and "more cases of heart disability following trauma are overlooked than are diagnosed by mistake." Anderson (1940) has reviewed the literature on non-penetrating injuries to the heart and reported a new case. He states that injuries to the heart by non-penetrating blows are commoner than has been supposed, and discusses the pathological and clinical picture. Warburg (1938), in his classical monograph, reviews 202 cases of traumatic injury to the heart. Bright and Beck (1935) have also contributed to the literature, while Moritz and Atkins (1938) have made an interesting experimental and pathological study of cardiac contusion. The importance of the subject is thus now generally recognized, and in all cases in which the history may point to injury to the chest wall evidence of cardiac trauma should be sought for clinically and the possibility of a cardiac element in the general picture eliminated. The whole condition may of course be subclinical, and complete recovery may take place. When it is at all severe we get evidence of myocardial damage such as cardiac irregularities or the development of angina pectoris, valvular lesions, or pericarditis.

In my war experience traumatic cardiac lesions have occurred in two definite circumstances—either from direct trauma to the chest or as a feature of blast injury. Owing to the nature of blast and the difficulty of getting an accurate story of the complete incident it is often impossible, when a bomb explodes, to say that the victim is not either hit directly or thrown against a firm structure, suffering direct violence to the chest. Since the difficulty of differentiating the cause exists, and since the subsequent pathological picture of the cardiac lesion is similar, I shall deal with both groups together. Trauma of the heart may cause contusion of the myocardium, traumatic pericarditis, or rupture of the valves and great vessels. Those subjected to war injuries are as a rule healthy persons, and so previous cardiac lesions do not complicate the picture.

Myocardial Contusion.—If we examine a transverse section of the thorax and note the position of the heart in relation to the spinal column behind and the sternum in front we can see how it is possible, especially in young subjects with elastic ribs, for the heart to be damaged without injury to the chest wall itself. Any part of the myocardium may be involved, but it would seem that the anterior surface of the ventricles was most often affected. At necropsy the pericardial fluid may be blood-stained and increased in amount. The myocardium at the site of contusion is dark and haemorrhagic, and has a naked-eye appearance not unlike an infarct. Microscopically, in recent cases there are subpericardial haemorrhages and evidence of tissue disorganization and generalized congestion. If the lesion is extensive and involves a considerable thickness of muscle the softening which occurs before organization may be serious enough to cause rupture of the myocardium as in the case reported by Priest in 1939. Older cases in which organization has taken place are particularly difficult to differentiate from an infarct. The history, the site of the lesion, and the state of the coronary vessels must be taken into account.

Pericarditis.—Traumatic pericarditis is rarely serious, though Warburg (1938) found a purulent pericarditis in five cases of his series, and described a case of Pick's disease occurring two years after an injury. As most of our cases of cardiac injury due either to direct violence or to blast resulted in death soon after the injury, pericarditis was not seen.

Valvular Lesions and Rupture of Great Vessels.—Kahn and Kahn (1928) have shown, by striking the chest of a corpse, that it is possible to rupture a valve and, though I have never actually succeeded in doing this, several workers have recorded similar results. Moritz and Atkins (1938) in their experimental work report no rupture of valves in any of the 32 dogs whose hearts were subjected to trauma. Elsewhere I have recorded a case of ruptured aorta and tearing of an aortic cusp as a result of blast, but this lesion would appear to be rare.

(*b*) Pulmonary Contusion

In these days of blast, when the proper interpretation of the lesions incidental to bomb explosions is so essential, cases of pure pulmonary contusion are very important, and so a description of one may be of interest.

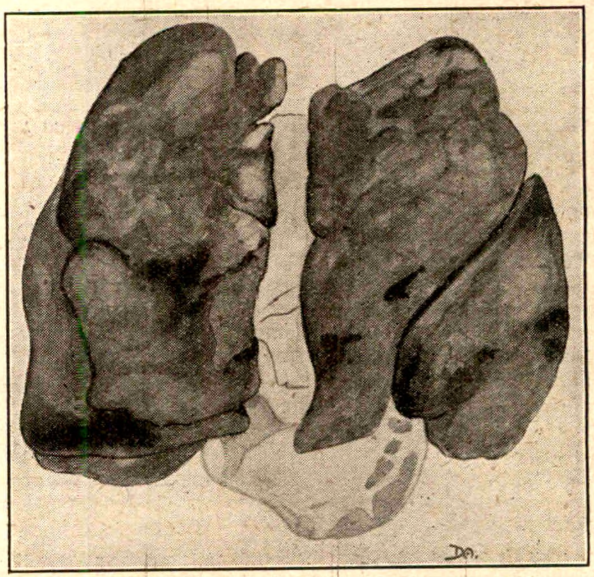
A soldier aged 26 was admitted to hospital, having been shot through the left shoulder with a rifle bullet fired at a distance of approximately 20 yards. The bullet passed over the neck of the humerus, hit the clavicle, fracturing it in several places, and had apparently been deflected up into the neck, passing behind the cervical vertebrae and emerging from the neck posteriorly on the right side. The patient died 6 hours later owing to shock and haemorrhage from the neck wound. The upper four ribs had been driven in without being fractured, and at necropsy the apex of the left upper lobe was contused, the pleura being intact. There was about 100 c.cm. of blood-stained fluid in the left pleural space. The left lung was congested throughout and the apex was the seat of a large area of haemorrhage situated on the lateral and anterior surface—e.g., peripheral rather than central. Anteriorly its border was very irregular and showed linear markings corresponding to the 2nd and 3rd ribs. The right lung was also congested throughout, but no definite areas of haemorrhage were present. There were also suggestions of linear markings on this side.

Histological examination of the left apex (the site of the contusion) showed alveoli packed with red blood cells. The capillaries were congested and a few were ruptured. The alveoli were intact and there was no evidence of oedema. The main feature of the left lower lobe was slight generalized congestion, but the whole of the right lung showed scattered areas of haemorrhages into the alveoli and generalized capillary congestion. Slight oedema was present and some of the alveoli were ruptured.

The interpretation of this case would seem to be that direct trauma affected the left upper lobe, causing haemorrhage throughout that lobe. The left lower lobe apparently escaped, but the right lung suffered contrecoup injuries, which produced naked-eye and microscopical pictures identical with those found in pulmonary concussion. It would thus appear that direct injury can produce all the essentials of a blast injury—an observation the importance of which will be discussed later.

Blast Injuries

Blast injuries, especially as they affect the lung (pulmonary concussion), have provided one of the most interesting studies in this Command during the present war. The weight of the aerial attack and the structure of many of the shelters made its incidence high. I have had the opportunity of examining a number of large and small series of cases, as well as many individual ones, and so have been able to get some idea of their basic pathology and usual clinical course.



Typical appearance of a lung in cases of blast injury. Note the general congestion, with darker areas of haemorrhage. On the right lung these darker areas are located along the interlobar septa, and on the left they have taken on a linear distribution.

In blast the lung picture is usually one of haemorrhage. These areas of haemorrhage are scattered throughout the whole of the organ, and are found deep in the lung substance as well as being subpleural. There is no suggestion of consolidation, and the general feel of the lung is rubbery. Dark linear markings are present in adults just as often as in children, and from a study of the lung position in some of our later cases I regard these, especially in older people, as corresponding to intercostal spaces rather than to ribs. Apart from these intercostal markings there is no special predilection for the areas of severe haemorrhage, but as a rule the regions most affected are those parts of the lung which expand indirectly—i.e., the posterior surface of the lung apex and the posterior surfaces of the lungs in contact with the spinal column and attached segments of the ribs—and laterally the maximum effect is in the middle parts—i.e., opposite the 5th, 6th, and 7th ribs (as shown in the accompanying illustration). The picture is bilateral, though one lung may be affected more than the other. However, there is no general rule as to the position of the body in relation to the source of blast and the severity of the haemorrhage, since other factors operate. Apart from this picture of haemorrhage and emphysema the only other naked-eye appearance of significance is the presence of subpleural bullae. These occur in only a small proportion of cases, but are very definite. The pleural spaces usually contain blood-stained fluid.

The histological picture of those dying early is what one would expect from the macroscopic appearance. There is widespread congestion, often with intra-alveolar haemorrhage to a very marked extent. The alveoli may be ruptured and mild oedema may be present even in the early stages. There is no definite relation between the size of the haemorrhages and the survival period, but most of the bleeding would appear to take place almost at once. Later, fibrin formation and round-cell infiltration occur.

The after-course of these cases is gradually becoming clearer. That many are mild enough to be subclinical throughout their whole course is apparent from post-mortem studies of patients subjected to blast and dying later of a complicating lesion. The incidence of blast lesions of a minor degree among air-raid casualties would appear to be high. They seem to clear up in time with little symptomatology and no sequelae. The clinical cases pass through a stage of bleeding which is probably quite short (4 to 6 hours), then a stage of coagulation, absorption, and repair somewhat as occurs with a pneumonic exudate. Patients who die do so as a rule because of injuries elsewhere, but those subjected to pure blast seem either to die in the first few hours or to recover if no complication sets in. The course of these cases, however, is beset with three dangers: (1) development of pneumothorax; (2) acute oedema and heart failure; (3) infection—bronchopneumonia.

One of my patients developed a pneumothorax shortly after admission to hospital and died within 24 hours. A subpleural bulla which had ruptured was present on the surface of the right lower lobe. The histological picture of the lungs was characteristic of blast injury. He had received no direct chest injury. Cases such as the one described below would appear to be those most liable to develop acute oedema and heart failure.

A man aged 24 was standing at the entrance of a shelter when a bomb exploded 20 ft. away. The blast was considerable and a bomb splinter injured his foot. On admission to hospital he had lost a considerable amount of blood, was shocked, and as amputation of his foot was necessary a transfusion of whole blood was given. He died next day with clinical signs of right-sided heart failure. At necropsy were found dilatation of the heart and extensive pulmonary oedema superimposed on blast changes—a condition confirmed by histological examination.

Finally, since we are dealing with a lung which is full of haemorrhagic areas and with a patient whose vitality is lowered by shock and whose treatment demands a certain amount of immobility, we would expect infection to develop. On the whole, however, a pneumonic process was comparatively rare in this series.

An aspect of blast injuries which has received little attention in the literature is the mediastinal changes which occur. I have found contusion of the myocardium in several cases, and, in one, rupture of the aorta, while many have petechial and small haemorrhagic areas in the anterior mediastinum, all pointing to mediastinal trauma. It is important, therefore, for the physician to examine all cases of blast with respect to cardiac symptoms such as tachycardia, dilatation, and cardiac irregularity.

Two Problems of Blast Injuries

In the elucidation of blast injuries two problems present themselves: What is the mechanism of the production of the *lung damage*? and What is the *cause of death*? Two theories can explain the lung injuries—direct trauma to the chest wall, or a force acting down the trachea and bronchi, causing either a negative or a positive pressure wave. Direct trauma would seem to explain the condition much better than any other theory, and, indeed, is probably the only one which at the same time accounts for the lung damage and mediastinal injuries as well as the abdominal lesions found. It is probable that in pulmonary concussion we are not dealing with a new condition but with contusion of the lung caused by a fresh set of circumstances as a result of war. When a bomb explodes, the body is at once placed in a medium of high pressure such as that in which a diver would find himself if unprotected at a depth; and so the abdominal and thoracic cavities, with their relatively weak walls, give way before the external pressure, and the underlying organs are damaged, especially elastic organs such as the lungs.

Four main theories have been advanced as to the cause of death in these cases. First, since the lungs appear to suffer most, many workers have thought that death might be due to the pulmonary haemorrhages and interference with respiratory function. Examination of blast cases shows that, while this might be true in some cases, the lung injury is usually not sufficient to cause death. Secondly, some have postulated a cerebral cause of death. The lesions in the brain in those dying immediately or soon after injury are very indefinite, but if we postulate a wave of positive pressure coming up from the abdomen and thorax via the blood stream and damaging the vital centres no gross pathological change would be expected. Thus, while positive evidence is scanty still, this theory is the most reasonable one yet formulated. Thirdly, death may be cardiac in origin. I have stressed the importance of injury to the heart in cases of blast, and there is quite a chance that ventricular fibrillation may occur and account for death on certain occasions. Fourthly, air embolism may be a possible cause of death. In blast the body is suddenly immersed in a wave of high velocity and pressure, the picture somewhat resembling that of a diver released unprotected at a depth. The gaseous content of blood and tissue fluids may thus be increased even though the effect of the blast wave is momentary. Then, as the effect of the blast wave passes off, the body is faced with an impossible situation, as in the case of a diver immediately brought to the surface, and air embolism is the result.

Pulmonary Fat Embolism

Reported cases of pulmonary fat embolism have rapidly increased in number in recent years owing to wider recognition of the condition. This is usually a sequel to fracture of a long bone, especially the femur, the fat gaining entrance to the blood stream and being carried to the lungs; thence it passes into the general circulation, causing pathological changes in the brain, kidneys, and heart muscle.

In a series of cases reported by Wilson and Salisbury in 1942 the main macroscopic lung findings were haemorrhage and mild oedema. The congestion and haemorrhage may be considerable, but I did not see the large subpleural haemorrhages described by Robb-Smith. These are much more characteristic of pulmonary concussion. Small areas of subpleural haemorrhage may be present. On cutting into the lung surface the picture is one of extreme congestion with small areas of haemorrhage. Microscopically, fat can be demonstrated in fresh preparations by Robb-Smith's technique, though I have found that staining the lung tissue with Wright's stain gives more convincing results. When stained with osmic acid, fat droplets can be seen in the capillaries. The alveoli contain red cells and oedematous fluid, the red cells being much less numerous than in blast cases, but the oedema is usually much more pronounced.

Summary

The main pathological features occurring in closed chest injuries are outlined.

In laceration the chief danger is haemothorax, the pathology of which is here dealt with.

The pathology of pulmonary contusion is compared with the effect of blast, and the evidence for regarding pulmonary concussion as being due to the direct trauma to the chest wall is outlined.

The importance of cardiac lesions in chest injury is stressed.

Lung changes in cases of fat embolism are briefly discussed.

I wish to thank Col. A. S. Heale for permission to publish this paper. I am also grateful to Prof. Debono for his co-operation; to Prof. Bernard, Director of Public Health, and the authorities of the Central Civil Hospital for allowing me such free access to their wealth of material; to the staff of the General Hospital; and to Majors A. Charles and R. E. Tunbridge, R.A.M.C., for much help and criticism. Major D. J. S. Armstrong, R.A.M.C., supplied the drawing that is here reproduced.

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AN OUTBREAK OF EPIDEMIC CATARRHAL JAUNDICE

BY

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A review of accounts of outbreaks of epidemic catarrhal jaundice occurring in this country shows that the majority have affected rural areas. There have been exceptions, for Morgan and Brown in 1927 described an extensive outbreak in the Midlands in which 200 persons were affected, with one fatality. A previous outbreak in Staffordshire was described by Frazer in 1935, although Barber (1937) regarded this epidemic as one of infective hepatic jaundice. It would appear that the town-dweller has relative immunity from this disease. The following account of an outbreak of epidemic catarrhal jaundice occurring in an urban area may therefore be of some interest; it is published in the hope that other writers may suggest further aetiological factors and effective measures of control.

Incidence

A total of 64 cases occurred in an outbreak which has lasted for eight months. This figure is estimated to represent about 80% of the total number of cases. The outbreak was chiefly among school-children, and the few adults affected were mainly young school-teachers. The epidemic appeared to be confined to one school for several months, but after a summer holiday, during which only a limited number of children attended school, the disease made its appearance at several other schools. Practically all of these schools were in the northern part of the borough.

The seasonal incidence of the disease is usually in autumn and winter, but this epidemic began in the spring and continued over the summer. The sex incidence was about equal. The highest age incidence occurred between 6 and 10 and between 20 and 30 years. It was noted that in no case were more than two members of a family affected. School-teachers were particularly at risk to the disease.

Age	Males	Females
4–5 years inc.	5	3
6–10 „ „	20	22
11–15 „ „	3	3
20–30 „ „	Nil	5 (4 school-teachers)
Over 30 „	1	2 (1 school-teacher)
Total	29	35

Aetiology

The evidence points to a contact at school. The epidemic had not the explosive nature usually associated with outbreaks of food-poisoning due to contaminated food, milk, or water. Further, the water supplies of the borough are chlorinated, and school milk supplies are bacteriologically clean. Again, the infant and junior departments in the school mainly affected received milk supplies from different sources. The disease appeared to pick out the children in twos and threes from each class, and the available evidence pointed to a close personal contact, with droplet infection as the probable means of spread. No bacteriological examinations were carried out, but reports of previous epidemics show that they are negative and that the probable cause of the disease is a filterable and ultramicroscopic virus. There was no particular incidence of sore throats or enteritis. While an epidemic of enteritis occurred in some of the schools of the borough, this was seasonal, and, further, there was no especial incidence of cases of catarrhal jaundice at any of them.

Clinical History

From descriptions given by various medical practitioners, and from visits made to many of the cases, the following clinical report has been compiled.

The spread of the disease suggests that the incubation period varies between three and four weeks. In the prodromal period malaise and anorexia may be present, but more often the disease started with vomiting, sometimes associated with severe upper abdominal pain. The attack of vomiting lasted from a few days up to a week, and resembled cyclical vomiting. Constipation was usual, though a few cases had diarrhoea until the onset of jaundice. In some cases jaundice limited to an icteric tinge of the conjunctiva, and nausea, were the only symptoms, and the illness cleared up in less than a week. With the cessation of vomiting, jaundice appeared first of all in the conjunctiva, and in the course of a day or two spread to the skin of the face, trunk, arms, and lower limbs. The colour deepened to a canary yellow, and the motions became clay-coloured and the urine orange-coloured. Pyrexia was variable in occurrence and in severity. Headache was sometimes severe. There was well-marked enlargement of the liver, with tenderness over the gall-bladder. The spleen was enlarged. The jaundice lasted a variable period from a few days up to two weeks, and gradually disappeared in the reverse order. The faeces and urine became normal a few days before the jaundice disappeared from the skin.

Examination of blood films from five of the cases in the acute stage showed a well-marked leucopenia with a relative lymphocytosis An increase in monocytes was noted in each film. In the acute stage in adults there was sometimes complaint of severe pains in back, arms, and legs. No epistaxis or petechial rashes occurred. Despite the severe jaundice, itching of the skin was present in very few cases. Convalescence was marked by the development of excessive appetite. In a few instances some degree of furunculosis occurred.

Vomiting in the acute stage is usually a feature; Lisney (1937) attributes this to duodenitis. According to Pickles (1930), the severity of the upper abdominal pain may suggest a perforation.

Differential Diagnosis

The diseases to be excluded are Weil's disease, infective hepatic jaundice, simple catarrhal jaundice, enteric fevers, and acute yellow atrophy. Weil's disease is marked by epistaxis and petechial rashes, with high fever, severe nervous disturbance, blood leucocytosis, and the identification of leptospira in the blood. Infective hepatic jaundice is characterized by an absence of pre-icteric symptoms, and the jaundice is less marked. Simple catarrhal jaundice occurs sporadically. The symptoms are very similar to those of epidemic catarrhal jaundice, and this complaint may be an interepidemic type. Jaundice seldom occurs in the enteric group, while acute yellow atrophy is a very rare disease.

Spread of the Disease

The spread of the outbreak is well illustrated by the experience of the junior department of one of the schools.

Class: Boys aged 7
  C. H.—Away Sept. 24
  M. R.— „ Oct. 21
Class: Boys aged 10
  A. H.—Away May 19
  T. W.— „ June 18
Class: Girls aged 9
  B. F.—Away July 27
  J. M — „ Sept. 4
  M. G.—Oct. 3 (3 days' jaundice; not excluded from school)
  Miss S. (teacher of the class)—Away Oct. 10
  B. T. (daughter of Miss S.'s landlady)—Away Oct. 29
    No cases were reported from B. T.'s school at this time.

The evidence suggests a spread of the disease from child to child and from child to school-teacher, and that very close personal contact was necessary.

It was interesting to note that no member of a class of nursery children, in the charge of a school-teacher suffering from the disease, contracted the illness. It was observed that the incidence in children under school age was low.

Clear cases of infection of two school-teachers who were friends occurred at one school, with an interval of three weeks between the illnesses. No children in their respective classes were affected, although the disease was prevalent in the school. It seems that the infective period is a short one, and Pickles (1939) states that further evidence of this is noted in the periodicity of attacks. A two-weeks isolation period was not followed by any return case.

Conclusions

It appears that epidemic catarrhal jaundice spreads chiefly in school-children, but young school-teachers frequently contract the disease.

There is probably among the general public a lack of appreciation that cases of jaundice occurring in children may be infective.

This disease seems to have a short infective period, to be spread by close personal contact, and to have an incubation period of between three and four weeks.

It is spread through an ultramicroscopic virus, notably by way of the upper respiratory tract. No effective measure of control appears available. School closure leads to scattering of the disease over a wider area.

A period of two weeks' isolation seems to be sufficient. This was carried out in the present outbreak, and there were no return cases.

The town-dweller appears to have little immunity from the disease, which spreads in the same manner as in rural areas. Two age groups are chiefly affected—6 to 10 years and 20 to 30 years. It is possible that the former group is affected because children of this age may be more sociable in their habits.

An epidemic of enteritis may occur coincidently with an epidemic of catarrhal jaundice if either occurs out of season.

I wish to express sincere thanks to Dr. R. H. H. Jolly for permission to carry out this investigation.

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PEDICULOSIS CAPITIS AND INTELLIGENCE IN W.A.A.F. RECRUITS

BY

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Recently much interest has been aroused in the question of the correlation of parasitic infestation, particularly scabies, with intelligence. The results so far have been controversial. Hodgson (1941a, 1941b) found that the incidence was higher in men of inferior intelligence, whereas Mellanby *et al.* (1942), attempting to corroborate Hodgson's work, found that men suffering from scabies were mentally an approximately normal sample from the Army.

The Investigation

The opportunity for the present investigation occurred during psychiatric work at a large W.A.A.F. depot when selecting recruits suitable for trade training, those suitable for acceptance in the Service but not for trade training, and those unlikely to become efficient airwomen. Broadly speaking, the problem resolves itself in the main into one of intellectual grading, although obviously other factors, such as personality, temperament, previous work, and social history, enter too. The correlation between parasitic infestation and intelligence therefore has a practical aspect: thus in cases in which doubt occurs, opinion may be, and in fact has been, swayed by the incidence of scabies, pediculosis, or, as sometimes happens, both.

In the W.A.A.F. pediculosis capitis is by far the greatest of all parasitic problems, and because of the relatively large numbers infested the correlation of intelligence and infestation was attempted. All W.A.A.F. recruits on arrival at the depot are examined for pediculosis capitis by specially trained medical orderlies as part of the routine F.F.I. examination. Those found to be infested are detained in "head huts" for treatment, and their intelligence tests, psychiatric examination if necessary, and trade selection are postponed till such treatment is completed.

The intelligence test used on all W.A.A.F. recruits is the "G.V.K." test, devised by Dr. W. Stephenson of Oxford. This consists of three group paper and pencil tests applied by specially trained W.A.A.F. officers and airwomen under standard conditions. They are divided in accordance with the Spearman approach to intelligence into "G" tests (general analytical intelligence), "V" (verbal intelligence), and "K" (practical-mindedness). The raw score on these tests is converted into percentiles expressing in percentage terms the standing of a recruit in relation to other recruits.

Results

The G.V.K. scores expressed in percentiles of 312 recruits after treatment for pediculosis capitis are given in Table I. The percentile G.V.K. scores of 312 unselected recruits found to be free from pediculosis capitis are given in Table II.

TABLE I.—*G.V.K. Scores in Percentiles: Recruits Treated for Pediculosis Capitis*

Percentiles	Number of Recruits		
	G	V	K
90–99	7	6	0
80–90 ..	15	22	0
70–80 ..	26	14	2
60–70 ..	21	15	3
50–60 ..	31	19	8
40–50	28	22	9
30–40	42	31	32
20–30	44	34	47
10–20	41	64	57
0–10	57	85	154
Total	312	312	312

TABLE II.—*G.V.K. Scores in Percentiles: Unselected Recruits free from Pediculosis Capitis*

Percentiles	Number of Recruits		
	G	V	K
90–99	70	53	7
80–90 ..	65	65	17
70–80	44	42	12
60–70 ..	23	19	24
50–60	24	21	33
40–50	25	20	39
30–40 .. .	23	27	44
20–30	25	19	51
10–20	8	27	44
0–10 . ..	5	19	41
Total	312	312	312

A comparison of the two tables shows very clearly that the number of recruits with the lowest percentile scores is greater in all three tests in those treated for pediculosis capitis. Thus, in G, V, and K there were respectively 212 (69%), 236 (76%), and 299 (96%) with percentile scores of between 0 and 50 in recruits treated for pediculosis capitis, as compared with 86 (28%), 112 (36%), and 219 (71%) in those found on initial F.F.I. examination to be uninfested.

Summary

On initial F.F.I. examination 312 W.A.A.F. recruits found to be infested with pediculosis capitis were treated and then given the Stephenson G.V.K. intelligence tests. The scores after

conversion into percentiles were compared with the percentile scores of 312 unselected recruits who were uninfested.

There was a marked difference in the scores of the two groups, the lowest scores in all three tests being found in the infested group, suggesting that pediculosis capitis is more prevalent among the less intelligent recruits.

I wish to thank A.S.O. Comley, W.A.A.F., and Corporal (now Sergeant) Minnitt, W.A.A.F., for their very valuable assistance.

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TREATMENT OF MALARIA IN ENGLAND

BY

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The manifestations of malaria as seen in England are almost protean in appearance and character, so it is probable that many cases are overlooked. In particular this is true of the subtertian, in which the classical periodicity is not always to be found and which may indeed show no fever. Most of the cases seen in England are probably examples of relapse, because patients generally have resorted to some antimalarial drug with the onset of the primary fever in the Tropics. Frequently, however, the dosage which they use is so inadequate that return to a colder climate precipitates an attack.

During a period of a little more than 18 months there have come under observation and treatment at the Seamen's Hospital 60 cases of malaria in which the diagnosis has been confirmed by finding parasites in blood films. The numbers may appear trifling to those who are accustomed to this infection in regions where it is indigenous, but to English practitioners they may seem formidable. In the course of diagnosis and treatment some problems have appeared, but with few exceptions it has proved possible to adhere to a standardized procedure. Certain variations, both in the nature and in the length of treatment, have been unavoidable as a result of exigencies of war; but the main therapeutic scheme has been similar in 57 cases of subtertian malaria. The overwhelming preponderance of subtertian infection was natural, since most of the patients had been infected in Freetown, Sierra Leone, where other species of malaria are almost unknown. In 40 a history of previous quinine therapy was obtained, but, as many of the patients were foreigners and the language difficulty sometimes did not permit of an accurate and detailed statement, it was not always possible to find out whether quinine had been taken prophylactically or therapeutically. Previous quinine therapy had undoubtedly modified the clinical picture very greatly and increased the difficulties of diagnosis. One patient at least, dissatisfied with delay while the diagnosis was being established, continued to take quinine surreptitiously while in hospital, thus rendering the difficulty even greater.

Diagnosis

Throughout the period under review it has been considered essential to demonstrate malaria parasites in the blood film before starting specific therapy, but in order not to overburden the pathological service an attempt has always been made to establish a clinical probability before calling in laboratory aid. Of the patients 44 had fever at the time of admission, while 24 complained either of shivering attacks or of malaria, and in these cases the probability was considered to be sufficiently great to justify blood examination; but during the same period more than 40 men were admitted diagnosed wrongly as cases of malaria either on their own initiative or by the masters of their ships, and among the various causes of symptoms "influenza," bronchitis, cystitis, and tuberculosis were found to be the most important in order of frequency. Any patient who develops a fever after recently returning from the Tropics is, of course, to be suspected of malaria; but it is just as important to recognize the multitude of other febrile conditions which *may* be present as it is to diagnose malaria correctly when it is present. In any suspicious case blood films must be examined on more than one occasion, and the blood should preferably be taken when the fever is at its highest. The use of a preliminary injection of adrenaline half an hour before the taking of blood films is referred to later. The character of the fever was not found very helpful, and only two cases remained undiagnosed for long enough to reveal tertian periodicity.

Among the more baffling symptoms generalized aching pain in the limbs was described in 4 cases, abdominal symptoms in 3—one of which cases was admitted as an acute abdominal emergency and one on account of bloody diarrhoea—and 10 gave headache as their main complaint. One patient was admitted unconscious, with high fever. Cerebral malaria was promptly diagnosed, since it is an established custom to regard all pyrexial comatose patients as suffering from malaria until some alternative diagnosis is established. In 43 the spleen was palpable, but in only 5 was more than a 2-finger enlargement recorded, while in a certain number of cases the organ could be felt only by deep subcostal palpation with the patient lying on his right side. Considerable practice is necessary to detect lesser degrees of splenic enlargement, and it is slight splenomegaly which is most likely to help in diagnosis of doubtful cases. Anaemia of varying degree was present in almost every case, but haemoglobin estimations were made only in those cases in which, on clinical grounds, a severe depression was anticipated. Out of 22 cases in which the haemoglobin was determined 17 gave values below 70%.

The blood examinations for parasites were carried out by Dr. Arthur Davies; he recorded malignant tertian rings alone in 39 cases, rings and crescents in 13, and crescents only in 5 cases. Benign tertian parasites were found in 2 cases and quartan malaria in a single instance. One of the benign tertian patients had apparently been infected either in South America or in Panama, while the other had spent some years in India, although he had been for a few weeks in Freetown also. The quartan infection apparently originated in the Philippines. Out of 60 cases in the series, parasites were found at the first examination in 42 and at the second examination in 13, while in the remainder multiple examinations were necessary. In 2 cases parasites were discovered only in films taken after the injection of adrenaline, given as a simple subcutaneous injection, usually before the second examination. The intravenous technique of Ascoli was not employed.

Treatment

The benign tertian and quartan infections were treated with quinine only. The subtertian infections were treated with a combination of mepacrine (atebrin) and quinine, pamaquin (plasmoquine) being given subsequently to those patients in whom the sexual forms of the parasite had been found. In all cases two equal courses of mepacrine 0.1 g. t.d.s. combined with quinine in varying dosage were given, while in the intervening period quinine alone was used. The original course lasted 15 days, but later the course was extended to 21 days: throughout the series, however, it was divided into three equal periods—two of mepacrine and quinine together and one of quinine alone. In the original course quinine 10 gr. t.d.s. was given, but this was subsequently reduced to 5 gr. b.d. without any adverse effect on the therapeutic result being noted. The total dosage now given in 21 days is 4.2 g. of mepacrine and 210 gr. of quinine. The course is therefore now as follows:

First week: Mepacrine 0.1 g. t.d.s.; quinine 5 gr. b.d.
Second week: Quinine 5 gr. b.d.
Third week: Mepacrine 0.1 g. t.d.s.; quinine 5 gr. b d.

After completion of the above course pamaquin was added in cases in which crescents were present.

The considerable total dosage of drugs was regarded as justified when treating patients in England, where there is no danger of reinfection and where the number under treatment is inevitably so small. No case of quinine sensitivity was encountered, and only 4 developed yellow mepacrine pigmentation. Of these, 3 were but slightly tinged; but the fourth patient, who had been certified as fit for duty, was sent back with a pointed letter about the fitness of "jaundiced" patients.

Fortunately, mepacrine pigmentation scarcely ever tints the conjunctivae, so that differential diagnosis is easy.

The dosage of pamaquin was 0.01 g. t.d.s. for 3 to 5 days. It was given alone subsequent to the routine course. All patients received adequate therapeutic doses of iron.

In a few who were seriously ill on admission, including the cerebral malaria case, intramuscular quinine was injected with dramatic results, but it was never necessary to give more than two doses. The injections are painful and may give rise to necrosis, but they are not often necessary in this country. Since this series was concluded a trial has been made of an almost painless quinine solution, but its therapeutic activity seems to be far below that of the oral course which has here been described.

Results

The clinical results have been most gratifying and there have been no deaths in the series. All the patients were in good health when discharged, none has returned with a recurrence, and we have had no inquiries from other hospitals for clinical notes of these patients. However, sailors are nomadic persons, and it may well be that relapses have indeed occurred.

In the 44 patients who had fever on admission defervescence occurred on an average less than 24 hours from starting treatment, and the longest time fever persisted was 72 hours, in two cases only. The average stay in hospital was 27 days, but in most cases a part of this time was spent at our convalescent home, and some of the patients required treatment for other conditions. If the length of detention should require further justification, it may be found in the imperative need to restore seamen to complete health before permitting them to return to their arduous duties, and, finally, in the need to restore their haemoglobin to normal level.

Summary

A series of 60 cases of malaria, of which 57 were subtertian, is described.

Clinical examination has shown that neither fever nor splenomegaly can always be relied upon to suggest diagnosis, but anaemia is generally present.

A course of treatment combining mepacrine and quinine was found satisfactory.

The results of treatment were uniformly good, but no extensive follow-up was possible.

My thanks are due to Sir Philip Manson-Bahr and to Dr. Arthur Davies for their constant help and advice.

Medical Memoranda

A Case of Extreme Exomphalos

Exomphalos is a well-recognized congenital malformation which is said to occur once in every 6,000 births. It is due to the non-closure of the abdominal wall, presenting a picture which, normal in early development, has persisted to term. The case described is one in which the defect was carried to the extreme.

CASE HISTORY

Mrs. A., aged 20, a primipara, was admitted to hospital in labour. Medical assistance was sought on account of a loop of intestine being delivered with the shoulders. This belonged to the foetus (not to the mother, as the midwife at first thought). Delivery was completed. The child, a female, was in good condition apart from a mass consisting of coils of intestine lying on the abdominal wall. This mass was gangrenous and distended. Removal was the only course open.

Operation was performed an hour after delivery. The object of the laparotomy was to remove the dead tissue and to see the exact nature of the lesion. No anaesthetic was given; and a right paramedian incision was made. The gut appeared alongside the umbilical cord, on the inferior aspect; the latter was normal. The exit was small, approximately an inch across, and the parietal peritoneum ended at the edges of the opening. At the upper end viable intestine was found at the end of the second part of the duodenum, and at the lower end the pelvic colon. At each end the gut was divided and a small tube ligatured in and brought out through the abdominal wound. Apart from a large liver no other abnormalities were seen. During the operation the child did not give any cause for anxiety. It lived for six days, at the end of which death occurred from peritonitis. No other congenital defects were found at the necropsy.

The Specimen.—This consisted entirely of intestine. It began at the third part of the duodenum and ended at the beginning of the pelvic colon.

Small Intestine.—The upper part was discoloured small intestine surrounded by a mass of myxomatous tissue. The mesentery was twisted on its axis, forming a volvulus: from the appearance of the gut it was a recent development, but was not considered viable. Below this the ileum was lost in the large intestine and was found to be an intussusception of the ileo-caecal variety. This was reduced with difficulty.

Large Intestine.—This was very dilated and the taeniae coli were not evident. The contents were fluid and contained much vernix caseosa. The mesentery was very thick, consisting of myxomatous tissue. At the lower end there was a constriction where it was obstructed at the exit from the abdomen.

The intestine thus presented a picture of obstruction of the large bowel with an intussusception and volvulus of the small bowel.

COMMENT

It is considered that the foetus *in utero* had a marked exomphalos containing the major part of the bowel. During the descent in the second stage of labour, lasting four hours, the peritoneal covering was torn off and the large bowel was compressed between the uterus and the foetal abdominal wall, obstructing the blood supply. Ensuing peristalsis resulted in the intussusception. The volvulus, as mentioned, was recent, and was formed towards the end of the second stage of labour.

There has been much discussion as to the absorption of glucose from the stomach. In this case part of the duodenum was present; but it was considered worth while to investigate the blood sugar after a known dose of glucose. 10 g. of glucose was given by mouth, and the blood sugar was estimated at half-hour intervals, the blood being taken from the anterior fontanelle. The result showed a curve which approximated to the normal adult curve, though the basic level was very low; the fasting level was 44 mg. per 100 c.cm. Considering that the child lived for six days on glucose given by mouth, good evidence is afforded that glucose is absorbed from the stomach and upper duodenum.

I wish to express my thanks to Dr. Daley, Medical Officer of Health, County Hall, for permission to publish this case; to Dr. E. Moore, obstetrician, Lambeth Hospital, for calling me to see the case; and to Dr. R. F. L. Hewlett, group pathologist, Lambeth Hospital, for the blood-sugar estimations.

Lambeth Hospital. R. F. HENDTLASS, M.R.C.S.

Interstitial Emphysema during Labour

The following case is reported in view of its unusual character and rarity.

A primipara aged 17 was admitted to hospital in the early stages of labour and suffering from acute nasal catarrh with severe bronchial cough. Her previous medical history was good, with the exception of her grandfather, who had died of pulmonary tuberculosis, and her father, who had died at the age of 38 from meningitis. Labour started at 2 a.m. on Oct. 13; the membranes ruptured at 11.35 a.m. on the same day, and there was full dilatation of the cervix at 11.15 p.m. The second stage was characterized by really severe pains. The baby was born at 1 a.m. on Oct. 4.

At 12 midnight, one hour before the baby's birth, it was noted that the right side of the mother's face was rapidly swelling, and she complained of stiffness on that side of the neck. Within a quarter of an hour the face was completely unrecognizable: the eyes were quite closed and the cheeks had merged flush with the nose, and the lips were so swollen that the patient had difficulty in speaking. The swelling involved the head, including the crown of the scalp, the neck, and the upper part of the chest; in diminishing severity it also involved the whole area back and front of the chest down to the costal margins. The diagnosis of interstitial emphysema was made, all areas emitting the characteristic crackling crepitus and the skin giving the resonance to light finger-tapping similar to that of the surface of a sorbo ball. The pelvic measurements were not unduly small, and the baby at birth weighed 7 lb. 8 oz. The total length of labour was 23 hours 10 minutes. On clinical examination no chest lesion could be detected, neither could the patient recollect any special sensation in her chest before the onset of emphysema. An *x*-ray examination of the pulmonary fields was negative and the blood sedimentation rate normal. One week after labour the greater part of the swelling had subsided and the only crepitus that could be elicited was situated over the upper part of the chest on each side of the sternum. The puerperium was uninterrupted, and at no time did the patient appear to be affected by her condition.

ROGER STANLEY.

E. E. Katwinkel (*New Engl. J. Med.*, 1942, **226**, 419) records a case of typhoid fever in a woman, aged 59, in whom sulphathiazole and sulphanilamide in no way influenced the course of the disease and failed to clear the stools of *Bact. typhosum*. The stools, however, became and remained negative after eight days of intense sulphaguanidine treatment.

Reviews

ANATOMY OF THE CENTRAL NERVOUS SYSTEM

Neuro-Anatomy. By Walter R. Spofford, B.S., Ph.D. Oxford Medical Outline Series. (Pp 110. 12s. 6d) London, New York, Toronto: Oxford University Press.

That there is a demand for books dealing in detail with the complicated anatomy of the central nervous system is evidenced by the appearance of two volumes of very different character, published within the last year and bearing the same title, *Neuro-Anatomy*. One of these, a large work by F. A. Mettler, superbly illustrated, and concerned with the topography and microscopic anatomy of the nervous system, was reviewed in these columns on Aug. 29 last (p. 246); and the other now appears as one of the Oxford Medical Outline Series. This has been written by Dr. W. R. Spofford with a view to aiding students who are starting the study of this subject and also to assisting both students and practising physicians to extract from the "vast array of factual data" the fundamental principles underlying the structure of the central nervous system. The author has certainly succeeded in bringing together in a concise form the more essential details of the various tracts and nuclei of the central nervous system, and provision has been made for supplementary notes or drawings by the insertion of blank pages alternately with the text pages. The value of the book, which is wholly lacking in illustrations, would, however, be more than doubled if carefully labelled outline drawings were supplied, so as to enable the beginner to visualize the various centres and nerve tracts in their relation to one another. On the whole the volume is an accurate statement of the accepted facts of neuro-anatomy, but there are some mistakes which require correction, more especially in the spelling of certain proper names (pp. 19, 20, 47) and in the description of the intrapontine course of the fibres of the facial nerve. Except for these minor defects, which can be remedied, the work in its present form will be of value in revising earlier studies and as a book of reference.

THE HOSPITAL BALANCE SHEET

The Hospitals Year-Book, 1942. (Pp. 276.) London: Central Bureau of Hospital Information, 12, Grosvenor Crescent, S.W.1.

The twelfth issue of *The Hospitals Year-Book*, which in addition to its statistical tables relating to voluntary hospitals includes a useful directory of all hospitals, voluntary and municipal, is unavoidably late in publication, and the figures it presents are for the year 1940. That was a highly eventful year in hospital history, owing to many hospitals being put out of action by the enemy, while the demand on others was excessive. But the figures, of course, do not admit of a very close comparison with those of earlier years. One notable feature is the increase shown in the receipts by voluntary hospitals for public services, which in London rose to £1,320,500, or double the figure for 1939, which again was double the figure for 1938; and an even more marked rise was seen in the Provinces and in Scotland. On the other hand, there was a drop in payments by patients. A remarkable feature, all things considered, is the steadiness of legacies. The amount received in this way by the voluntary hospitals of Great Britain from 1936 to 1940 was round about one and three-quarter millions a year, with no more than £100,000 difference between the highest figure and the lowest. Post-war changes are discussed, in particular the question whether the voluntary hospital method of administration, with usually a layman as chief administrator, or the municipal hospital method, with a medical man in that position, is the more likely to be preferred. The writer of an article included in the annual, Mr. Clayton Fryers, house-governor of the General Infirmary at Leeds, puts the case for the retention of the lay administrator method on the ground that a hospital is a complex business undertaking with an annual expenditure (in the larger hospitals) up to a quarter of a million, and a medical man, unless he has had special business training, cannot adequately supervise this side of the hospital's activities.

ENDOTRACHEAL ANAESTHESIA

Endotracheal Anaesthesia. By Noel A Gillespie, D.M., B.Ch, D A (Pp. 187; illustrated. $4.00.) Wisconsin: University of Wisconsin Press.

This comprehensive monograph is a good augury for the future of anaesthesia. More of such excellence is needed. The administration of anaesthesia by the endotracheal route is one of the most valuable of the many arrows which every anaesthetist must now carry in his quiver, and countless lives are made safe every year by its employment. Dr. Gillespie has gathered in small compass most of what is known about this subject, and much of it will be new to his readers. The historical section is of particular interest, and points the moral that advances in anaesthetic technique take place *pari passu* with advances in physiological knowledge. The author gives his personal opinion wherever a variety of views obtains, and his early training in this country shows itself in the ready acceptance most of his views find among British anaesthetists. The experienced anaesthetist will turn the last page of this book with regret, and the novice will find sound advice wherever he reads. One small point for criticism, which stands out only because of the general high level of the rest, is that the description of blind intubation, which is, after all, at the very kernel of the affair, might have been more simple and not made to appear to the uninitiated such a complicated and difficult procedure. Most of the illustrations are good and of great help, but that on page 91 is a little obscure, and that on page 149, perhaps by a fault in printing, appears somewhat strange. Dr. Gillespie's book will be a valuable addition to every anaesthetist's bookshelf.

Notes on Books

The appetite of the general public for books and talks on health is insatiable. It is essential therefore that it should be properly supplied. Dr. HUGH CLEGG's pamphlet *How to Keep Well in Wartime* (issued for the Ministry of Health by the Ministry of Information, H.M. Stationery Office, price 3d.) is a marvel of compression, packed with sound advice and devoid of sentimentality. One's only regret is that the cover should depict a two-child family as typical of our day.

Dr. A. SPENCER PATERSON, psychotherapist in the department of psychological medicine, Middlesex Hospital, has prepared two handy case-taking schemes for the psychoses and neuroses. Each is printed on one side of a card, and they are sold together in a transparent envelope by H. K. Lewis and Co. Ltd., price 1s., postage 2½d. These cards have for some years been issued to medical students during their psychiatric training, and the schemes were reproduced for a wider audience in the *Practitioner*.

Preparations and Appliances

A MERCURIAL DIURETIC

A grain of powdered digitalis three times a day has kept many a patient with auricular fibrillation on his legs for years, and a weekly injection of a mercurial diuretic will often do the same for the patient with heart failure with normal rhythm. Considering the thousands of injections given, serious reactions are few and they are largely confined to patients with renal disease. Mersalyl is the *B.P.* preparation, and this is now being supplied by Boots Pure Drug Co. Ltd. in ampoules of 1 c cm. and 2 c.cm and in tablets which can be taken by mouth in mild cases.

ACETARSOL VAGINAL COMPOUND

Acetarsol vaginal compound (Boots) is a preparation of acetarsol with boric acid and carbohydrate supplied in tablets for local application in the treatment of leucorrhoea associated with *Trichomonas vaginalis* and also with the monilia group of infections. One or two tablets are inserted once or twice daily high up in the vagina. Usually an initial treatment of from two to four weeks is recommended. Remission may occur, even when symptoms are cleared up, and it is therefore advisable to use tablets for two or three months during the three or four days following menstruation, when relapses tend to occur. Samples and literature may be had from the Medical Department, Boots Pure Drug Co. Ltd., Station Street, Nottingham.

BRITISH MEDICAL JOURNAL
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A PANEL ON PEPTIC ULCER

The "Panel Discussion on Peptic Ulcer" at the last meeting of the American Medical Association[1] gives rise to chastening reflections on our ability to treat a disease which, as war enlistment has shown, begins at an earlier age and occurs with greater frequency than we realized four years ago. Duodenal ulcer is our main concern, for duodenal ulcer is both more common and less tractable than gastric ulcer. The patient with duodenal ulcer presents a distinctive pattern, which is localized not only in the duodenum but also in the digestive tract and the constitutional behaviour of the patient. The pattern is characterized by hypersensitivity, hyperirritability, and hyperactivity, which involve both the alimentary tract and the total personality. This psychosomatic make-up tends to run in families. We do not know whether it is inherited or acquired from early influences, but, if acquired, it must be regarded as a reaction formation of the whole personality and therefore unlikely to be amenable to the type of psychotherapy at the disposal of the average physician. Medical treatment is restricted to simple means of relaxing tension, a non-irritating diet, and medicaments to neutralize the corrosive gastric secretion. Owing to the difficulty of controlling the interdigestive secretion, particularly during the long night interval between feeds, the continuous intragastric drip was introduced, with the use of alkaline milk or the newer non-absorbable alkalis such as aluminium hydroxide gel. Winkelstein, who has employed this method for ten years, claims good results in the most resistant cases and has trained hospital patients to carry out the therapy at home. Nevertheless, the most enthusiastic advocate could hardly describe the intragastric drip as either a simple or a permanent cure of peptic ulcer.

The Panel agreed that there was only a limited field for the surgeon in the treatment of peptic ulcer. Operation should be restricted to ulcers which do not respond to routine medical treatment—about 15% of the total. Any procedure that does not remove the pylorus and the duodenal ulcer is inadequate. Gastro-enterostomy is unsuccessful in more than half of the resistant ulcers, and there is a high incidence of jejunal ulceration. The mortality of subtotal resection cannot be reduced much below 5%, and some 10% of the survivors will suffer from post-operative jejunal ulceration or haemorrhage. There are about 20% of recurrences when cases of gastro-enterostomy complicated by jejunal ulcer are treated by gastric resection. Thus a virulent ulcer diathesis can outwit the most painstaking surgery. Kiefer describes these figures as a challenge and an indication for the need for further advance in the surgical treatment of duodenal ulcer. They are an even louder challenge to the research worker. Operation should not be encouraged by the mere suspicion of malignant disease, though American results in the treatment of cancer of the stomach are more favourable than the average physician might have expected from his clinical experience. Walters, Gray, and Priestley[2] report that 10,890 cases of cancer of the stomach were seen at the Mayo Clinic in the period 1907–38 inclusive; 2,322 were fit for resection and survived operation, and of these 28.9% lived 5 years or longer. Thus 7% of the whole series survived 5 years or longer. Recent analysis also indicates that if frank ulcerating carcinomas are excluded, pre-pyloric ulcers are not more often malignant than gastric ulcers elsewhere in the stomach, and the tendency to refer these ulcers at once to surgery should be revised.

In so-called stenosing or obstructing duodenal ulcer, operation should not be advised without preliminary medical treatment, as the changes are usually inflammatory. After control of spasm and oedema and healing of the ulcer, many of these patients may go for years without a recurrence. Operation has little place in the treatment of haematemesis and melaena. The mortality in bleeding peptic ulcer is a direct function of the age. There are few deaths under 45, but thereafter the mortality rises rapidly. Contrary to general belief, more than three-quarters of all fatalities occur after the first haemorrhage, often before there is time to rush the patient to hospital or to institute active treatment. Series of cases for comparison should therefore be arranged in age groups, and not according as the bleeding is single or recurrent. Post-mortem study nearly always shows a large arteriosclerotic eroded artery in the base of the ulcer. Some patients will die whatever treatment is carried out. In a series of cases reported in the discussion conservative medical treatment of bleeding peptic ulcer resulted in a mortality rate of 7.2% irrespective of the age of the patient and the severity of the haemorrhage; among patients with bleeding ulcer treated by resection the total mortality rate was 22.2%. Among patients of 45 and older the medical treatment of peptic ulcer with severe haemorrhage resulted in a mortality rate of 21%; among similar patients treated by resection, the rate was 42.8%. There was no fatality among patients under 45 treated medically for severe haemorrhage, but surgical treatment resulted in a mortality of 30%. The contribution which surgery can make to the treatment of haematemesis and melaena is essentially prophylactic. Two out of every three fatal haemorrhages originate in a gastric ulcer, despite the greater frequency of duodenal ulceration. Post-operative ulceration is almost unknown after resection of the stomach for gastric, as distinct from duodenal, ulcer. There should therefore be no great delay in advising surgical removal of a gastric ulcer which resists medical treatment in a patient over 45. For duodenal ulcer, however, the indications for surgery appear to be limited to perforation, cicatricial obstruction, or persistent pain due to adhesion to a neighbouring viscus.

It has taken the medical profession a long time to learn that neither the dramatic intervention of surgery nor the elaborate ritual of the alkaline diet can banish the constitutional tendency to peptic ulceration. To separate the ulcer patient from his diathesis is like severing the fisherman from his soul, and until we learn some new secret of Nature we must be content to try to teach the patient how best to live at peace with his ulcer—and to do this he must probably learn how to live at peace with himself.

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[1] *J. Amer. med. Ass.*, 1942, 120, 733, 811.

[2] *Carcinoma of the Stomach*, Philadelphia, 1942.

MINIMUM STANDARDS OF FEEDING

It is a brave undertaking of the Economic Intelligence Service of the League of Nations to attempt a survey of rationing in European countries.[1] Even if a super-statistician could accomplish it adequately, a super-publicist would be needed to make the findings comprehensible. Here are more than a score of countries, each with a different kind of rationing system, appertaining to different groups of foodstuffs, and differentiated according to the needs of various groups within each national community. So many qualifications are attached to the tables in which the rations are worked out in terms of grammes per week that the explanatory footnotes, indicated by letters, run nearly twice through the alphabet. Behind it all is the big uncertainty whether legal rationing corresponds to actual consumption. In some countries it is known that large groups of consumers cannot afford to buy their full rations; in others some of the rationed articles are unobtainable. The absence of rationing of certain foodstuffs, such as bread and flour in the United Kingdom, means a genuine lack of restriction, but in others, like the absence of meat rationing in Norway, it means that there is next to nothing to distribute. Milk is still nominally unrationed in Denmark, Sweden, Switzerland, and the Balkans, but this does not necessarily mean that there is no scarcity. Again, who is the "normal consumer"? Consumption varies with age, sex, health, and occupation. The "normal consumer," who represents the minimum standard of adult requirements, must surely be as elusive as the "hypothetical tenant" in the law of estate agency. In parts of Poland under the German heel Jews are not considered to be normal consumers; they are allotted not much more than one-third of the bread, flour, and sugar allowed to the "Aryan." On the whole, the ration card must be held to represent maximum rather than average consumption, even allowing for the fact that, no doubt, many people, by means legitimate or otherwise, are able to supplement their rations. The figures so painstakingly worked out by the compilers of this pamphlet thus furnish only the roughest inventory—and an optimistic one at that—of the bare larders of Europe.

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[1] *Wartime Rationing and Consumption.* Economic Intelligence Service of the League of Nations. (London: Allen and Unwin, Ltd 3s. 6d.)

Rationing during the last war was worked on the crudest basis. Except for some extra allowance to those engaged in heavy labour, almost all countries distributed food strictly per caput. This time there is a high degree of differentiation. The principle on which rationing is carried out in different countries may be said to follow one of two policies. In the United Kingdom there are basic rations intended to cover the average need of the average family for most of the important articles of food, but these are extended by canteen and municipal feeding schemes and by the priority system for children and mothers in respect of milk. The British method has the advantage of flexibility, though it does mean that some people in favoured situations get more than on a strict apportionment basis they should. The other policy is the much more rigid one which obtains in Germany, where rationing covers almost the entire field of consumption, so that hardly anything can be had without the ration card. This entails an elaborate differentiation between the rations of various occupational and other groups. Thus, while the allowance of bread and cereals, meat, and fats for a normal consumer is reckoned at a little less than 1,200 calories a day, for heavy workers it is 1,900, and for very heavy workers 2,650 calories. To take meat and meat products alone, in Germany the heavy worker receives twice, and the very heavy worker almost three times, the normal consumer's ration. Canteen feeding is organized in Germany, too, but there the workers appear to have to surrender coupons for factory meals. On the whole, the British method seems to be preferable, but here, as in almost all countries, there is some discrimination between classes, and quite a high degree of it in regard to milk for children, for expectant and nursing mothers, and for invalids, which is as it should be.

Some of the results which appear in the tables in this pamphlet are surprising. Thus, apart from Great Britain, Ireland, and Switzerland, where bread and flour are free of coupons and "points," the country of Western Europe with the most abundant bread and flour rations is occupied Denmark, and the country with the sparsest is neutral Spain. Germany lowered her bread ration and introduced potato rationing just a year ago (April, 1942). Until then the level of consumption was apparently maintained, but now some sections of the population may be slightly, though not critically, short of energy-building foods Potato rationing was followed by a decline in bread and cereal consumption of something less than 20% on pre-war figures. In Norway and the Netherlands there has been a fall in these foodstuffs of between 20 and 25%; in Belgium and Czechoslovakia the situation is worse; in Poland and Italy the consumption of bread and cereals is down by one-half or more; and a still more serious state of affairs prevails in Spain, and actual famine in Greece. The consumption of sugar has been cut down most drastically in France and Switzerland. In the United Kingdom the tables show a reduction of about 50% on pre-war figures. In Germany more sugar appears to be consumed, but the pre-war figure for this foodstuff was low. The United Kingdom has the highest meat rations, and Switzerland the next highest; those for Germany and Sweden are only about one-half the British allowance, and in Italy and occupied France the legal ration is much lower. For fats the highest rations in Western Europe are to be found in Denmark, with the United Kingdom and Germany coming next, but the composition of the fats group of foods varies so much from country to country and from period to period that it is useless to seek comparative figures. The milk ration for children under 3 in the United Kingdom is given here as 570 grammes a day, and 750 grammes in Germany, but for older children the British rations exceed the German. The egg ration represents in the United Kingdom 29% of pre-war consumption, and in Germany 17%.

The consumption of foods yielding animal proteins remains relatively high in Denmark, Sweden, and Switzerland, owing mainly to the high consumption of milk; in the United Kingdom, where milk consumption in peacetime was low, it is satisfactory, and in Germany, the Netherlands, and Czechoslovakia it is far below pre-war standards. Total protein consumption, taking the League of Nations standard of optimum allowance,[2] is up to or above that standard in all the countries just mentioned; in France, Belgium, Norway, and Italy it is at minimum level, and in Poland and some countries further east, below it. Serious shortages of vitamin C are reported in Norway, Belgium, the Netherlands, and Poland, and the vitamin A position is unfavourable, though probably not critical, in Germany. The general deduction is that under-nourishment and malnutrition are prevalent in Italy, France, Belgium, Norway, Finland, and Spain, while Poland, Greece, and parts of Yugoslavia, especially Serbia, are in a state of, or bordering on, famine.

That is the broad picture, but to speak in terms of whole countries is highly misleading. A closer picture would show large differences, even within the same country, between urban, semi-rural, and rural communities, and between smaller groups and families. Rationing has not levelled out consumption, even though it has imposed a universal restriction. The important thing is the extent to which it has effected its larger purpose, not merely to limit the consumption of articles of which there is a temporary shortage but to ensure a minimum living standard for the population. Rationing is thought of as a withholding, but ideally it is a form of even-handed distribution which largely ignores individual purchasing power and is based on the physiological needs of the various members of the community. From that point of view the coupon in some form or other may remain as a passport in the post-war world and may be an instrument for ensuring freedom from want.

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[2] The protein intake for all adults should not be less than 1 gramme of protein per kilogramme of body weight, the protein to be derived from a variety of sources, and a part of it to be of animal origin.

PENICILLIN

Prof. Florey and his collaborators at Oxford have already demonstrated the great potential therapeutic importance of penicillin, an extract from the culture fluid of the mould penicillium. The principal clinical interest of penicillin is, of course, that it will kill certain bacteria, such as *Staph. aureus*, for which there was previously no satisfactory remedy, and (unlike the sulphonamides) even in the presence of pus. Two different lines of investigation have been started as the result of this discovery. First, attempts are being made to purify penicillin itself in the hope that knowledge of its structure will lead to a less laborious and expensive method of preparation than fractionation from the crude extract. Incidentally this should also show how penicillin inhibits bacterial growth. Secondly, the antibacterial activity of large numbers of moulds other than penicillium has been examined with considerable success. According to Florey and his co-workers[1] the crude penicillin extract has a yield of about 4 Oxford units per c.cm. of culture fluid, but by means of absorption, distribution between solvents, and reduction a barium salt has been obtained, with an activity of 450 to 500 units per mg., which appeared homogeneous by chromatographic analysis. By elementary analysis an empirical formula has been suggested for this salt, but its structural formula is necessarily more difficult to ascertain. This purified penicillin completely inhibits the growth of *Staph. aureus* at a dilution of 1 in 24,000,000 to 30,000,000, and is free from toxic reactions as judged by its effect on leucocytes or on mice into which it has been injected. It is very unstable, and is readily inactivated by treatment with acid, alkali, or boiling. In the form of the dried barium salt, however, it keeps its antibacterial power indefinitely.

Among other substances having bactericidal properties and isolated from bacteria or fungi are: pyocyanase from *Pseudomonas aeruginosa*; tyrothricin (gramicidin and tyrocidin), isolated by Dubos and Hotchkiss from *Bacillus brevis*; actinomycin A and B, isolated by Waksman from *A. antibioticus*; and pro-actinomycin. Gardner and Chain[2] were led by their discovery of the last named to investigate a large number of saprophytic actinomycetes, and found that of a total of 52, 10 were bacteriostatic in some degree to the Gram-positive cocci. There is obviously a great deal of work to be done in the classification of these derivatives and the selection of those most suitable for therapeutic trial. Some of them, such as tyrocidin, pro-actinomycin, or claviformin (isolated by Chain, Florey, and Jennings from *Penicillium claviforme*[3]), although their antibacterial activity is high, are unsuitable because they are toxic to mice and stop the movements of leucocytes in high dilution after only a few minutes. The bactericidal activity of such substances is, perhaps, only one expression of a general toxicity to living tissues. Gramicidin,[4] which is now known to be a complex polypeptide and has been crystallized, has limited use in therapeutic trials, for similar reasons. Though much less reactive than tyrocidin, it is relatively insoluble: its antibacterial activity is readily reduced by cephalin, and it is toxic on intravenous injection. However, it is so much less dangerous when applied locally or injected subcutaneously or intramuscularly that it may yet come to be of practical importance. The search among these "bacteriostatics," which will attack the bacterial infection without harming the patient, has already produced a large number having fastidious inclinations—for example, they will inhibit the growth of one strain of staphylococcus without affecting others. Therein may lie future difficulties for the clinician, but the advantages which these new therapeutic substances offer are so great that their future development is clearly a matter of the first importance.

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[1] *Brit. J. exp. Path.*, 1942, **23**, 103, 120.
[2] Ibid., p. 123.
[3] Ibid., p. 202.
[4] *Trans. & Studies Coll. Phys. Philadel.*, 1942, **10**, 11; *Proc. Mayo Clin.*, 1942, **17**, 321.

SLOWER NEUTRONS

The destructive action of fast neutrons on living tissue is known to be due to the recoil nuclei, especially hydrogen nuclei, projected by neutron impact; as with *x* rays or gamma rays, the biological effect is a result of absorption of energy by the tissue from charged particles of high energy. In all cases the destructive action occurs throughout the irradiated tissue, but the passage of slow neutrons through the body is not accompanied by the production of such energetic recoil protons, and there is thus little or no resulting damage. Fast neutrons have been used in cancer therapy,[1] but we commented four years ago on the possibility of locally increasing the absorption of energy by neutron-capture reactions with light elements such as boron.[2] Zahl and Cooper,[3] realizing that direct hypodermic injection of slow neutron-capturing materials into tumours was not clinically feasible, substituted lithium for sodium in certain acid dyes which Ludford had shown were selectively absorbed by tumour tissue after intravenous injection. In tumour-bearing mice the concentration of lithium after intravenous injection of lithium-carmine was found to be three times greater in the tumour than in the blood, and in the experiments performed a lithium content of 0.03% was attained in the tumour. This concentration of lithium will capture 10% of the available slow neutrons, and results in an absorption of energy which is nearly three times that in tissues not containing lithium. If the isotope Li^6 is used in place of Li^7 the capture of neutrons goes up to 55%, and the energy absorbed is then more than ten times greater than in tissues not containing lithium. It is not, however, the total energy absorbed but the difference in energy between tumour and healthy tissue which determines the optimum treatment condition. This "dose-differential" depends not only on the difference in the concentration of lithium in the tumour and in the adjacent tissues—the "localization factor"—but also on the absolute quantity of lithium in the tissue, since the "dose-differential" passes through a maximum as the quantity of lithium is increased. So far a localization factor of 2.0 has been attained, giving a gain of 43% in the radiation dosage of the tumour over that of the other tissues; but if the localization factor could be increased to 10 the gain would be 125%.

Zahl and Cooper have so far concerned themselves with establishing the physical and biological facts on which any clinical attempts at therapy with slow neutrons must be based, but they point out that much greater biological effects may be expected than the physically determined dose-differentials would suggest. While the relations between biological damage and density of ionization along the path of a particle are not clearly understood, it seems fairly certain that the biological effectiveness of heavy particle ionization (such as is produced by neutron-capture) is greater than that of electrons (resulting from *x*-ray absorption) by a factor ranging from 2 to 10 or more.

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[1] *British Medical Journal*, 1941, **1**, 447.
[2] Ibid., 1938, **1**, 292.
[3] *Radiology*, 1941, **37**, 673.

If such a factor is found to apply to the present experiments, the dose-differential of 43% would be considerably increased.

CONTROL OF MOSQUITOES IN BRITAIN

A second and revised edition of the "Memorandum of Measures for the Control of Mosquito Nuisance in Great Britain," with a prefatory note by its Chief Medical Officer, Sir Wilson Jameson, has recently been issued by the Ministry of Health. The authors are Lieut.-Colonel J. A. Sinton, V.C., I.M.S., Adviser on Malaria to the Ministry, and Mr. P. G. Shute, Assistant Malaria Officer, Ministry of Health. Dr. P. G. Stock has been responsible for revising this publication, and in this he has received help from the Keeper of Entomology, British Museum (Natural History). Though the account given in the memorandum of 32 pages, costing 6d., is necessarily concise and condensed, very little of importance in connexion with the mosquitoes of Great Britain and their habits and methods of control is omitted. The memorandum will be found a most useful source of knowledge by those whose interests or responsibilities bring them into touch with this aspect of the public health. In addition to what was given in the previous edition (1940), the present one provides some new and useful information on the control of mosquito breeding in static water tanks. There has also been added a short appendix, giving some notes on other biting flies than mosquitoes which may at times be troublesome in this country. We have already commented, when reviewing the first edition,[1] on the fact that, besides the common house mosquito, *Culex pipiens*, which breeds mostly in outdoor water butts and other open collections of water, and which incidentally rarely bites man, there is a very similar-looking species, *Culex molestus*, only recently recognized as distinct from *C. pipiens*, which bites man freely. *C. molestus*, it now appears, selects as its breeding places water which is in continuous darkness or semi-darkness, and has so far not been found, according to the memorandum, in static water tanks above ground. Larvae, however, are to be found everywhere in the stagnant water in the inverts below the station platforms of the Underground railways and in sumps along the railway line. It does not follow, however, that the mature insects do not occur above ground, and they may be a source of nuisance in houses in urban areas. Other species of culicine mosquito occur and may be troublesome under rural and semi-rural conditions, and such species are briefly described, with their habits and breeding places. More important than the culicine mosquitoes, since they may be actual carriers of disease, even in this country, are mosquitoes of the genus *Anopheles*. One variety—that known as the *atroparvus* variety of the common *A. maculipennis*—is the cause of indigenously contracted malaria, especially under war conditions, when many soldiers and others returning from abroad provide the necessary sources of infection. During the last war some 500 cases of malaria proved on investigation to have been locally contracted in this country. In the text of the memorandum are two very interesting maps comparing the distribution of malaria in England in the eighteenth century, when, under the name of ague, malaria was relatively common, with that of indigenously contracted cases recorded during and after the last war. The areas—chiefly south of the Humber, in an extensive area about the Wash, on the Essex coast, in the Thames valley, and in parts of Kent—are almost identical. It is in these areas that local bodies and medical men should be particularly alive to the possibility of locally transmitted malaria and the importance of taking such precautions as are desirable.

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[1] *British Medical Journal*, 1941, **1**, 408.

SIDE-TRACKING THE LIVER

New methods of administering drugs are always of interest, and modern therapeutic requirements, which postulate the slow, steady liberation of a substance within the body over a period of months or even years, as in pernicious anaemia, Addison's disease, and other hormonal dyscrasias, have led to a number of ingenious devices. Thus "replacement therapy" may be attempted by the implantation of tablets subcutaneously or by the injection of an oily solution from which the active substance is slowly liberated. The patient with myxoedema is fortunate because the missing substance is not destroyed during digestion, but the diabetic must resign himself to his daily injection. Sublingual therapy—the absorption of a drug from a tablet which is placed beneath the tongue and is slowly dissolved in up to half an hour—has the advantage that it is simple and not unpleasant for the patient. Though still mainly in the experimental stage, it has already been found useful in the treatment of Addison's disease. While there is reason to believe that desoxycorticosterone acetate is not as efficient as the crude extract of the adrenal cortex, sublingual administration has proved valuable in patients whose condition has become stabilized, and who can be discharged on a diet and maintenance dose.[1]

Sublingual therapy is now being tried with some success with the sex hormones. It is well known that many of these compounds (except, of course, synthetic analogues such as stilboestrol) are relatively ineffective by mouth. But, as Miescher and Gasche[2] have shown, alcoholic solutions of testosterone, methyl testosterone, and oestradiol are far more effective in encouraging the growth of the secondary sexual characteristics in castrate albino rats when administered sublingually than when given by stomach tube. It has been suggested that this difference is due, not to inactivation by digestive juices or failure of absorption, but to inactivation of these compounds as they pass by the portal circulation from the intestines through the liver. Burrill and Greene[3] found that testosterone and methyl testosterone were very active when implanted subcutaneously in castrate rats, as judged by the increase in weight of prostate and seminal vesicles over castrate controls. When the pellets were implanted in the spleen, so that the androgens were carried directly to the liver on absorption, methyl testosterone still had a little effect but testosterone was completely ineffective. (Even when orally administered methyl testosterone is active to some extent, so perhaps the methyl side-group may delay its destruction by the liver.) If the liver naturally detoxicates these sterols sublingual administration will side-track the liver, and the sterol will be absorbed directly into the peripheral blood stream. Spence[4] has already detected this difference clinically, for in the case of a eunuch sublingual administration daily of two tablets of 5 mg. each was sufficient to maintain normal potency, whereas when the substance was swallowed three such tablets were required. This side-tracking of the liver is an unusual advantage to be claimed for any method of treatment, but there is evidently sufficient value in sublingual therapy for an extensive trial.

Sir Henry Dale, P.R.S., has been awarded the Harben gold medal by the executive committee of the council of the Royal Institute of Public Health and Hygiene. This medal, which is international in character, was instituted in 1894 and is conferred every third year for "eminent services rendered to the public health."

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[1] *Schweiz. med. Wschr*, 1942, **72**, 768.
[2] Ibid., p. 490.
[3] *Endocrinology*, 1942, **31**, 73.
[4] *British Medical Journal*, 1942, **1**, 668.

MILITARY ORTHOPAEDICS

At a special meeting of the British Orthopaedic Association, held in London under the presidency of Mr. G. R. GIRDLESTONE of Oxford, Lieut.-Col. St. J. D. BUXTON, after first describing the organization of the orthopaedic service in the Middle East, went on to discuss the clinical work done out there. Primary suture of wounds, he said, especially those complicated by fracture, was to be avoided in the Western Desert. Foreign bodies should not necessarily be removed at forward operating centres. When amputation was carried out in the forward area the stump should be dressed with sulphanilamide powder and a loose vaseline gauze pack. A stitch or two might serve a useful purpose, but closure of the wound was to be condemned. If a wound was packed in a forward area, care must be taken that this packing was loose and did not act as a plug. There was ample evidence that limitation of change of dressings and the use of plaster-of-Paris splinting were an advance in the treatment of gunshot wounds of the limbs. Out of 200 cases of gunshot wounds causing fracture of the femur deaths at the base numbered 13, and amputations also 13. Of 273 wounds of the knee-joint 178 were non-suppurative and 95 suppurative; five patients died from various causes and 12 amputations were carried out. Of 51 wounds of the elbow-joint 12 were complicated by injury to one or more nerves; two arms were amputated; no death was directly due to the lesion of the joint.

Col. E. C. CUTLER, U.S. Army Medical Corps, emphasized that there was no place in the forward areas for the limited specialist; men there should have had adequate general surgical training. He emphasized the value and probable importance of air transport for the wounded in modern campaigns, so that cases requiring special treatment could at an early date be evacuated to the general hospitals where full orthopaedic facilities were available. In his view, orthopaedics had an important part to play in the application of its principles to the problems of trauma: lessons which could well be carried back to the medical schools and the benefit ultimately of civil practice.

Finger Injuries in Tank Crews

Major FURLONG, discussing four "minor" injuries, dealt first with a type of finger injury commonly seen in tank crews—a crushing of the tip of one or more digits by the sudden closure of roof-flaps. He emphasized the need for conservatism in regard to end-tissues, and described satisfactory results obtained by covering the ends of the fingers by whole-thickness skin grafts, with loose dressings to avoid rigid immobilization and consequent stiffness. In fractures of the metacarpals the surgeon should regard the injury as a contusion of the hand rather than a fracture, and so should pay attention to the restoration of function in soft tissues rather than to splintage. Return to duty after Bennett's fracture was quicker and more satisfactory if reduction was not attempted. For fractures of the clavicle he advocated auto-reduction by the soldier employing the "hips-firm-shoulders-braced-back" attitude, during which a figure-of-eight bandage should be applied over both shoulders without padding. The patient's whole effort should then be to maintain the position actively. Early movements and return to light duty with his unit at the end of three weeks were the rule.

In a paper on the surgical treatment of osteomyelitis the result of penetrating wounds, Major G. PERKINS said the osteomyelitis pursued one of five courses: (*a*) the inflammation might resolve and never again trouble the patient; (*b*) it might continue as persistent acute osteomyelitis; (*c*) the acute inflammation might subside leaving a sinus down to the interior of the bone; (*d*) it might heal but after months or years might recur—the wound had flared; (*e*) there might be a persistent sinus associated with recurrent "flares" of acute inflammation in the bone. In persistent acute osteomyelitis surgery was rarely necessary to cure the inflammation; drainage because of the wound was usually adequate. Later amputation might be advisable, either to save life or because an artificial limb would be of more use to the patient than his own crippled leg in cases with an ununited fracture or serious nerve lesions which could not be sutured, or soft-tissue loss. In the next group of cases the sinus might remain (1) because of the presence of a foreign body or sequestrum, or (2) because of continuation of mild chronic infection of the bone. In (1) the cavity should be exposed carefully without excision of the track which had been opened up, dead fragments should be removed, followed by light suture without drainage. Careful judgment was required because sequestra and foreign bodies were not always revealed radiographically, and also because of the difficulty in deciding when inflammation had sufficiently subsided to permit such interference. When operating for continued infection without sequestra the procedure was different as the object was to remove all infected bone. This, of course, might not be entirely practicable. Here the obliteration of cavities was important; no more than half the circumference of the infected bone should be chiselled away, care being taken not to fracture the bone. The immediate sequel was acute inflammation of the bone that was left; therefore there must be free drainage by light packing with paraffin-soaked gauze, which should be removed as soon as a "safety valve" was no longer needed. Major Perkins emphasized the need for conservatism in recurrent attacks of acute osteomyelitis, the essential treatment being rest; surgery was not indicated unless an abscess formed, and then only an exit for pus was necessary. Cases in which there was a sinus associated with recurrent flares as a rule defied treatment; usually there was a continuous grumbling inflammation in a bone that was riddled with organisms. The more serious cases in the lower extremity amply justified amputation, which first should be done through the lowest limit of healthy bone. When all sepsis had been eliminated the final amputation was done at the site of election.

Knee-joint Injuries

Major T. T. STAMM, discussing injuries to the knee-joint, said that in civil practice the operation for the removal of a torn semilunar cartilage had always been regarded as one of the most satisfactory of all surgical procedures. Those who had had the opportunity of dealing with large numbers of troops would agree that in general the results of this operation in the soldier were most disappointing. The men themselves had come to regard it with increasing suspicion, and not without reason, having observed bad or indifferent results among their fellows. Bad results following surgery were doubly unfortunate in the Army, for not only did they render the individuals concerned inefficient fighting units but they might cause others to refuse operation when they could have been cured. Inexpert operative technique was rarely the cause of these poor results, which could usually be traced to inaccurate diagnosis or mistaken judgment in immediate or post-operative treatment. He stressed the need in diagnosis for examination of the joint under intravenous anaesthesia. The injury most often missed was a lesion of the anterior cruciate ligament, which was probably the commonest of the injuries sustained by the knee. It might be the only lesion present, and in such cases it was nearly always possible to lock the joint and unlock it while performing a diagnostic test which had been elaborated by Mr. Lambrinudi. All degrees of damage to the ligament were encountered, from a simple sprain to a complete rupture. It was in cases with minor degrees of damage that mistakes might result, since the knee was held flexed by spasm of the hamstrings, which might be mistaken for locking of the joint. In late cases there were two groups of symptoms: first, those due to the lesion itself—a feeling of insecurity and of the knee "coming forward" suddenly when under load in the semiflexed position: there was no actual locking; secondly, those due to slipping of one or other cartilage, usually the medial: momentary locking was the main feature. In spite of the symptoms, no lesion of the cartilage would be found at operation. While operation might be justified in a few selected cases where repeated attacks of locking caused severe disablement, as a general rule it should be avoided, as the results were not good and did not permit the individual to be up-graded.

Discussing true cartilage tears Major Stamm emphasized the importance of differentiating between tears of the substance of the cartilage and peripheral detachments of the cartilage from the capsule. The former occurring in the non-vascular material produced less reaction but did not heal. In the latter the reaction (haemarthrosis, tenderness, etc.) would be severe, because of the vascularity and sensitivity. Paradoxically, therefore, those injuries which appeared more severe did best with conservative treatment and healed as well as any other.

In the apparently less severe cartilage lesions operation would more often be necessary. Major-General **Munro** and Prof. **Harry Platt** emphasized the need for thorough investigation by medical officers at the time of the first injury, when details of the mechanism involved could be ascertained, the nature of the lesion determined with accuracy, and correct prognosis given. Major **Stamm** agreed that patients with internal derangement of the knee should be treated like fracture cases and sent to hospital at once.

The need for early, accurate diagnosis was stressed in a discussion of another common injury—namely, fractures of the carpal scaphoid. Major G. D. **Rowley**, reviewing 450 cases, said difficulties were experienced not only because of delay in diagnosis but because of imperfect suspension and immobilization. In fractures occurring in the proximal third and those with displacement of fragments the prognosis appeared to be poor. It seemed questionable whether a graft was ever justifiable in a private soldier. A certain number of delayed unions would unite if immobilized over a long enough period. For recent strains in old-standing lesions plaster immobilization for four to five weeks would often relieve symptoms. If there was not a perfect result a soldier would have difficulty in handling a rifle or ammunition as a member of a gun crew. These facts must be considered when advising treatment or in making recommendations for medical category.

Mr. C. **Lambrinudi** brought forward important new evidence concerning the mechanics of the carpal joints in relation to displacement of the scaphoid fragments, which he showed to be associated with a minor degree of subluxation of the lunate bone The "cystic" appearance seen in some fractures of the scaphoid was due to "opening" up of the fracture gap. He stressed the need for accurate reduction of all scaphoid fractures and of the intercarpal subluxation before the application of plaster fixation. Major **Soto-Hall** of the U.S. Army Medical Corps also emphasized this and the method of impaction to be achieved by a manœuvre which he demonstrated. In fractures of the right scaphoid the surgeon's left hand provided counter-pressure against the lower end of the humerus with the elbow flexed, while pressure was exerted by the first interosseous space of his right hand against the interosseous aspect of the patient's first metacarpal, whose wrist was forced into slight dorsiflexion and radial abduction—plaster being applied in this position and including the interphalangeal joint of the thumb. Over 90% of perfect results should thus be obtained.

Future Civil Accident Services

During the meeting Mr. R. **Watson-Jones** presented a report on behalf of the executive committee dealing with the future of accident services, which was approved by the association.

1. The B.M.A. Fracture Committee in 1935 and the Delevingne Committee in 1939 recommended the development of special fracture services based on the principles of segregation of cases and continuity of treatment and after-care under a unified control.

2. The comprehensive accident service of the future is a natural development of organized fracture services which was foreshadowed by the B.M.A. and Delevingne reports It should embrace the treatment of soft-tissue injuries, infections of the hand, burns, tendon injuries, nerve injuries, and indeed all injuries of the locomotor system. These injuries are no less incapacitating than fractures, their importance to industry is just as great, and numerically they outnumber fractures in the proportion of five or ten to one.

3. In general the problem will be solved more readily by the reorganization of accident departments of general hospitals than by the formation of special accident hospitals. The accident department must be reorganized, replanned, and often rebuilt. There must be a separate organization, and even a separate door of entry for accident cases on the one hand and acute medical and surgical emergencies on the other.

4. The director of the accident service should be a surgeon who is first trained in every branch of surgery, is then experienced in orthopaedic surgery, and is specially trained in the problems of trauma. He will collaborate with surgical colleagues who treat visceral injuries, and with physicians, bacteriologists, and representatives of other special branches of medicine.

5. It would be very inadvisable to propose the development of a new branch of surgery—"traumatology"; or to train "traumatic surgeons" whose skill would be disseminated over the vast fields of locomotor, abdominal, thoracic, facio-maxillary, ophthalmic, and cerebral surgery.

6. Since the accident unit must provide a twenty-four-hour service, it is considered essential that the director should be aided by two first assistants, in addition to the usual resident surgical officers, house-surgeons, and house-physicians. There must be full secretarial and clerical assistance, and almoners or social service personnel. A close liaison must be established with industrial medical officers in the area served by the accident unit

7. The rehabilitation of sedentary and light industrial workers can usually be completed within the hospital itself by physiotherapy, occupational therapy, and recreational therapy; but for the rehabilitation of more seriously injured patients who must return to heavy industry the accident service must have a special rehabilitation annexe with playing fields, swimming pools, and gymnasiums. Such special centres are essentially medical units where treatment is continued by the same team, and they must remain under the same administration and surgical control as the parent hospital

COMMITTEE ON NUTRITION SURVEYS

Investigation on certain aspects of nutrition is at present handicapped by lack of co-operation. Investigators may be ignorant of other work similar or related to their own; they may have difficulty in finding others who could co-operate in making their work complete; they may use different methods, the results of which are not comparable. The most striking example is that of estimations of haemoglobin levels, which have been made by a variety of methods, some of which are by no means satisfactory. In this particular case the Medical Research Council has set up a committee with the object of co-ordinating surveys of haemoglobin levels and some other blood examinations.

There remains, however, a wide field that is not covered by any existing organization. In view of the importance, at the present time, of a thorough knowledge of the state of nutrition in the country, the Nutrition Society has set up a committee on Nutrition Surveys, with Sir Joseph Barcroft as chairman. The terms of reference are the co-ordination of nutrition surveys dependent on (*a*) clinical, physiological, and biochemical examinations of human subjects; (*b*) examinations of food budgets; and (*c*) chemical analyses of food and meals (including collective meals). It will put investigators in touch with others who are working on the same lines or would co-operate; it will supply information, recommend methods, and make periodical summaries of the results of investigations. The committee has the support of the Ministries of Health and of Food and the co-operation of the Services. Prof. J. R. Marrack has been appointed as a director serving under the committee. All who are engaged on or undertaking investigations covered by the terms of reference are invited to communicate with him at the London Hospital, Whitechapel, London, E.1.

Reports of Societies

SULPHONAMIDE THERAPY

At a meeting of the Fever Hospital Medical Service Group of the Society of Medical Officers of Health a discussion on chemotherapy was opened by Dr. B. **Barling** (L.C.C.), who, after tracing the development of the sulphonamide group of drugs, pointed out that hundreds of preparations had now been synthesized but only some six were in common use in this country. An effective blood concentration of 3 to 15 mg. % depended on (*a*) regular intake of the drug and (*b*) the output of urine. During treatment sulphonamide was found in all normal tissues except fat and compact bone and in all normal and pathological body fluids. Most drugs in the group passed into the cerebrospinal fluid, some more readily than others.

In discussing the mode of action of the sulphonamides, Dr. Barling pointed out that their bacteriostatic action could be blocked by para-amino-benzoic acid or substances clinically allied thereto, which included a number of local anaesthetics in common use. In this way sulphonamide might be rendered virtually inert. Large-scale experiments in gonococcal cases showed that sulphonamide resistance could appear as (*a*) an absolute resistance, (*b*) a relative resistance, or (*c*) an acquired resistance due to the use of too small a dose. This last, he felt, was a real danger which was not new to chemotherapy; it already had been often encountered in the specific treatment of trypanosomiasis. Dosage, therefore, must be adequate, and he suggested 1 gramme of sulphonamide for every 20 lb. of body weight in an adult; this amount to be multiplied by two in the case of children and by four in infants. The total amount thus obtained should be divided so as to administer the drug at regular four-hourly intervals throughout the twenty-four hours. Given adequate dosage, the next important step was to choose a preparation of the drug to which the infecting organism was known to be sensitive. If no obvious response was obtained it was quite wrong to persist with the drug for longer than 7 to 10 days. Another common fault was to attempt sulphonamide therapy of deep abscesses or infected wounds without preliminary surgical treatment.

Chemotherapy in Pneumonia

Dr. THOMAS ANDERSON (Glasgow) thought it could be assumed that the value of chemotherapy in pneumonia had been proved, but there were important aspects of the results of chemotherapy which might be discussed. Pneumococcal pneumonias generally, for example, showed a considerable variation in severity and mortality when treated with sulphonamides, depending on the serological type involved. The results of chemotherapy in Glasgow, where the commonest type of pneumococcus has been Type II, were much less impressive than in the South of England, where the more benign Type I infection was prevalent. The results in Type III infections varied principally with the age of the patient. During 1939-40 and in the early part of 1941 Type III cases were predominantly among the older age groups and carried a high fatality rate. Since then, among younger persons, Type III cases had been much milder. Age appeared to be of increasing importance in assessing results obtained by chemotherapy in pneumonia. Taking Type II infections alone, he found that the fatality rate in persons under 40 years had fallen as a result of chemotherapy from 22 to 4%, whereas in the older age groups the fall was from 46 to 25%. Further, an analysis of 69 consecutive pneumonia deaths in cases treated by chemotherapy showed that 81% were in persons over 40 years of age. Bacteriaemia was another important factor in determining the outcome of an attack of pneumonia, and there was some reason for believing that the risk of bacteriaemia increased with age. The relative failure of chemotherapy in those over 40 with bacteriaemia was probably due more to the impoverished defences of the host which permitted bacteriaemia than to the presence of the organism itself in the blood stream. One of the most disturbing features about pneumonia cases treated by chemotherapy was the prolongation of convalescence by delayed resolution. The incidence of this was again greatest in those over 40 years and in those with bacteriaemia, which also appeared attributable to lack of tissue resistance.

Generally, Dr. Anderson felt that the introduction of the sulphonamides had not removed pneumonia from that group of diseases which required intensive study. Could the factors described, which influence the outcome, be related to treatment? He was not convinced that better results could be obtained in the "bad risk" groups by increasing the dose of the drug, and there was no evidence that the drug was less well absorbed by persons in the older age groups. Combined treatment with chemotherapy and serotherapy, using specific serum, produced no better results as judged by fatality and delayed resolution than chemotherapy alone. Nor did vaccines as an adjuvant appear to influence the course of the disease. In conclusion, he suggested that the lack of specificity of drugs of the sulphonamide group, which were effective against a wide variety of organisms, argued in favour of the view that the drug acted principally by rendering the organism more susceptible to the natural defences of the host. That being so, tissue resistance was a more important factor in promoting recovery from and resolution of pneumonia than the presence of specific antibodies or neutralizing substances.

Meningococcal Infections

Dr. H. STANLEY BANKS (L.C.C.) considered sulphathiazole the drug of first choice for meningococcal infections. Comparing 200 cases treated with sulphapyridine with 300 treated with sulphathiazole he found the latter drug apparently more potent and much better tolerated. The use of this drug or sulphadiazine made all the difference to the comfort of the patients. Supplies of sulphathiazole had recently improved and were soon likely to be generally available. The cost at present was about double that of sulphapyridine, but with increasing demand should soon be reduced. Sulphadiazine was the drug of second choice, but at present was very expensive and had to be imported. As a practical compromise, until supplies were normal, all but the most severe cases could be treated with one or the other of these drugs for the first three or four days and the course completed with sulphanilamide. A standard of dosage based on body weight was fallacious if applied to all ages. Infants excreted the drugs rapidly and required 2 to 3 times the adult standard in proportion to body weight. No infant should be given less than 3 grammes daily during the first two days of treatment. For adults during this period 9 grammes daily was an appropriate dose, and for children an intermediate amount according to age. The mortality had been greatly reduced by chemotherapy. In 1940 and 1941 approximately 20% of notified cases died, compared with about 60% in pre-sulphonamide years. Judging by certain large series of hospital cases in which the case-fatality rate was as low as 6 to 8%, he thought that the mortality of this disease in the country generally could be still further improved. The chief types in which a high fatality rate was unavoidable were those (1) with adrenal involvement, (2) with encephalitis, (3) with ordinary meningitis undiagnosed and untreated till a late stage. Age should be only a secondary factor in fatality. Quite low fatality rates in infancy and over the age of 45 years had been achieved.

Acute Gastro-intestinal Disorders

Dr. W. GUNN (L.C.C.) classified acute gastro-intestinal disorders into three categories: (1) enteral causes due to specific organisms; (2) parenteral causes in which the intestinal upset is due to a focus elsewhere, frequently the upper respiratory tract; (3) causation unknown, commonly called acute gastro-enteritis or infective enteritis, but numerous designations had been employed at different times. Routine use of highly enriched or selective media (desoxycholate citrate agar for dysentery-salmonella group and Wilson Blair media and tetrathionate broth for enteric group) and rectal swabs as well as faeces had greatly improved diagnosis in the last few years. The employment of sulphaguanidine (3 grammes t.d.s. for 3 days and b.d. for 4 days, making a total of 51 grammes in 7 days) in 23 cases of Flexner dysentery resulted in more rapid clinical recovery (diarrhoea 2.6 days against 5.8 days) and elimination of organisms (6.8 days compared with 15.1 days) than in an approximately equal number of controls observed at the same time. No such beneficial effect was observed in 7 cases of salmonella (Thompson) food-poisoning and 7 carriers compared with controls. The total admissions of acute gastro-enteritis to a fever hospital during 1942 were analysed; the case fatality of unselected cases was 20.3%, but in the severe group accompanied by dehydration it rose to about 50%; of 22 severe cases treated with succinyl sulphathiazole or sulphasuxidine (supplied from the M.R.C. through the courtesy of Sir Henry Dale) 12 died. The case fatality was 45.5%. The rationale of the treatment was a reduction or elimination of coliform organisms allowing earlier oral administration of sugar than was possible without the drug. The verdict on the measure must for the present remain one of not proven.

Sulphonamides in Measles

Dr. R. SWYER (L.C.C.) recorded the results of an experiment carried out with sulphanilamide and sulphapyridine during the 1940-1 measles epidemic. One or other drug was administered for a period of four days after admission to 324 children suffering from measles. A further 869 children were observed as controls. No significant effect could be demonstrated either on the initial phase of the measles attack or on the incidence of complications. He felt, therefore, that the indiscriminate use of these rather toxic drugs could not be justified prophylactically in measles. Used therapeutically for certain complications, the results were better; the complications most likely to benefit being those due to streptococci or pneumococci, particularly bronchopneumonia. The fatality rate among measles-pneumonia cases treated with sulphonamides was 11.2%, compared with a 30% mortality experienced in a pre-sulphonamide epidemic. The results of chemotherapy in established measles-otorrhoea were less satisfactory, but he felt that his series was too small for any definite conclusion to be drawn. There was a danger, he thought, in using sulphonamides in the early stage of otitis media, unless the patient was under expert and continuous observation, because the symptoms of onset of mastoiditis could be masked thereby.

PSEUDOHERMAPHRODITISM

At a recent meeting of the Section of Obstetrics of the Royal Academy of Medicine in Ireland Dr. EDWARD SOLOMONS reported a case of pseudohermaphroditism due to hyperplasia of both adrenals. The patient, aged 18 years, had never menstruated and was suffering from generalized hirsutism and had a very enlarged clitoris. There was no vagina and the breasts were undeveloped. Laparotomy revealed the presence of underdeveloped female internal genital organs. The adrenals were symmetrically enlarged. The only other noteworthy feature was the urinary excretion of enormous amounts of 17-ketosteroids.

Dr. O'DONNEL BROWNE said he had a patient, aged 22, who had never menstruated and was probably a case of pseudohermaphroditism. She had definite ovaries, no testicles, no vagina, well-marked clitoris, and good distribution of hair Findings were identical with those of Dr. Solomons's case. On laparotomy definite enlargement of both adrenals was found, in particular in one. Mr. Gill tried to remove what could be removed of the adrenals. Examination of the specimen showed that the tissue which was removed was malignant. The ultimate result he could not tell as it was too recent to report fully.

Correspondence

Gastro-enteritis in Infants

SIR,—After reading the interesting article by Drs. Elaine Field, D. MacCarthy, and W. G. Wyllie (March 27, p. 371), I turned up our records to find that, barring Sonne dysentery and enteritis complicating fevers, we have in the past eight months treated for "gastro-," "infective," or "zymotic" enteritis 146 children under 2 years of age with 21 deaths. Of course no comparison with the Great Ormond Street group is possible or intended. Our series was more heterogeneous, nor do I doubt that it was diluted with a number of instances milder than any of those dealt with in the article; still we did encounter very severe cases, including many with the deadly coffee-ground vomit and occasionally even frank haematemesis (three only recovered; but what is the cause of this evil symptom?).

The point I should like to see stressed is the importance of the nurse in the management of these cases. A ward full of such infants imposes a great strain on the whole staff, but a skilled and conscientious sister can work wonders with most unpromising material. Our medication was simpler and less systematized than that of the G.O.S. series, relying more on simple subcutaneous infusion, less on intravenous drip. Some did receive intravenous infusions on the lines laid down in the article, but none benefited, for all treated in this manner died ultimately of starvation. Another point is the use of Benger's food when restoring the starved babies to a milk diet. No mention is made of this product in the article, though our most experienced nurses swear by it. At the very least our results are no worse than anyone else's.

It is worth noting that the majority of our cases were admitted directly from their homes, for here is another point of some public importance. On several occasions the arrival in hospital of a sick baby has been quickly followed by the appearance of enraged parents accusing some day nursery, residential home, hospital, or what-not of poisoning their child, of incompetence, of neglect, etc.

Now anyone experienced in this disease knows that infection of the milk has little or nothing to do with the matter; indeed, when a recognized pathogen is found in stool or vomit the prognosis is thereby improved. Our cases were uniformly negative. Though doubtless, in the words of Jeremy Taylor, "we long for perishing meats, and fill our stomachs with corruption" (for how could we digest the incorruptible?), in this condition surely some more volatile essence, probably a virus, must be sought. In many of our cases there seemed to be a well-defined prodromal period, followed in three or four days by a rise of temperature and an exacerbation of symptoms suggesting that we are dealing with an acute fever. And the toxicity—that "flat-outness" with eyes wide open as though staring at some devil—is in strong contrast to the remarkably negative post-mortem appearances. Where, you ask yourself, is the "gastro-enteritis" which killed this baby? Moreover, has not the severity of this mysterious "gastro-enteritis" in recent months marched cheek by jowl with an influenza-like disorder in adults and older children? I think it has. At any rate here is an illness quite other than the old-fashioned "summer diarrhoea" of infants, and one not likely to be overcome by anything less than a great combined operation.—I am, etc.,

The Grove Hospital, Tooting. J. B. ELLISON, M.D.

SIR,—The apparent success in the treatment of infantile gastro-enteritis with sulphaguanidine reported by Dr. J. L. Henderson (April 3, p. 410) is encouraging, but it is unfortunate that his clinical experiment was inadequately controlled. As we have already explained (March 27, p. 371) the mortality from this disease depends to a large extent on the severity of the infection. This varies enormously in different epidemics. It is difficult to estimate accurately the severity of the disease therefore it is most important when assessing the value of an individual treatment to use an equal number of controls, preferably only giving alternate cases the specific remedy, the remainder of the treatment being standardized. Only under these conditions can a comparative assessment of various treatments be formulated and ultimate progress in the prophylaxis and treatment of gastro-enteritis be made.—We are, etc.,

C. ELAINE FIELD.
London W. G. WYLLIE.

Flavines as Surface Antiseptics: Influence on Healing

SIR,—We regret that Prof. C. H. Browning should have concluded his opportune review of the aminoacridines (flavines) as surface antiseptics (March 20, p. 341) by authoritatively perpetuating the opinion that "retardation of granulation and healing tends to follow continued use of the flavines"; and this despite and contrary to the cited findings of his co-workers (1922). He also states that "Bennett did not experience it in over 600 cases. In tissues from this series Blacklock found mitoses of various cell types at levels of 1/50 to 1/5 mm. below the actual growing surface."

This prompts us briefly to restate here our conclusions *qua* proflavine and the rate of healing, based on our observations and measurements during the last three years on the continuous use of depots of proflavine in occlusive emollient dressings for treating infected granulating areas—burns (*Lancet*, 1942, **2,** 527). These depot dressings permit of a free and steady diffusion of antiseptic dyestuff in optimum and slowly diminishing amount, and replace entirely the useless *B.P.C.* acriflavine emulsion, in the cera alba of which the acriflavine is almost completely immobilized (*Lancet*, 1942, **1,** 347). The initial concentration of proflavine yielded by the depot dressing is about 1/500, slightly more than half the maximum concentration in serum, 1/300, obtaining in the wounds treated by Mitchell and Buttle, who used proflavine powder; the concentration available from depot dressings after 4 to 8 days' application varies from 1/5,000 to 1/20,000 and 1/2,000 to 1/4,000, according as the proflavine is in the water phase of a buffered (pH 6.2) isotonic oil-in-water emulsion or in an oily preparation of proflavine oleate in liquid paraffin and petroleum jelly (*Lancet*, 1942, **1,** 347; 1943, **1,** 159).

Using these depot dressings for infected granulating 2nd and 3rd degree burns and changing them at intervals of 4 to 8 days:

1. "All cases treated with proflavine sulphate have healed within what are to be regarded as 'normal limits'—that is, within average times ascertained from parallel observations and measurements in comparable, non-infected cases of burns treated by tannic acid and gentian violet coagulation methods."

2nd-degree Burns of Foot and Leg

Non-infected Control.—Tannic acid "tan" separated 30th day Area burned 367 sq. cm. Overall rate of healing (injury—epithelization): 0.815 sq. mm. per mm. circumference per day.

Infected Case.—Area 431 sq cm. Epithelized 26th day. Proflavine-urea o/w emulsion 19 days, 4 changes, Overall rate of healing 0.85 sq. mm. per mm. circumference per day (injury—epithelization, including infected period).

2. Proflavine does not inhibit fibroblastic activity and epithelization in the healing of large granulating areas where the rate of healing is great. Thus in areas of the size of a sheet of foolscap paper, when infection is terminated by proflavine, the healing edge

may advance inwards at the remarkable rate of 0.5 cm. per day, *under continued proflavine applications.*

2nd-degree Burns of Arm and Forearm (Infected)

A.—Area 636 sq. cm. Epithelized 26th day from injury. Proflavine–urea o/w emulsion 14 days, 3 changes. Rate: 5 sq. mm. per mm. circumference per day.

B.—Area 534 sq. cm. Epithelized 32nd day from injury. Proflavine oleate–petroleum jelly 27 days, 4 changes. Rate: 4.2 sq. mm. per mm. circumference per day

3. Proflavine sulphate has no inhibitory influence on fibroblastic activity in exuberant granulations resulting from simultaneous hyperosmotic action of urea 5%. Thus in Case 5 (*Lancet*, 1942, **1**, 347) granulations were exuberant even in the 6th week of application of proflavine–urea emulsion.

All our dressings have been of an emollient nature and changed only at intervals of 4 to 8 days or longer. This is essential for the preservation of recently healed tissue. The daily or twice-daily changing of wet dressings become dried destroys newly formed tissue and delays healing If such wet dressings must be employed in granulating wounds they should be wetted with warm normal saline before removal. As well as preserving new-grown tissue, this minimizes the air-borne dissemination of organisms from exudate in the wound and in the dressings (unpublished work).

We would add that our experience is in agreement with Prof. Browning's final point on the capacity of flavines in practice to prevent or control infection, for while one initial treatment with acriflavine 1/1,000 may prevent infection in burns treated with tannic acid for 2 to 7 days, as compared with 5 to 10 days after mercury perchloride 1/5,000 (*Lancet*, 1942, **2**, 664), proflavine depot dressings have completed and maintained the sterility of granulating areas moderately infected previously. This experience led us to commend the use of proflavine depot dressings in first-aid measures for the numerous 2nd-degree burns of mobile warfare, to cover the 2- to 4-day period of evacuation, and thus prevent the high (90%) incidence of infection and the consequent delay in healing in such casualties (*Lancet*, 1943, **1**, 159).—We are, etc.,

R. M. HEGGIE.
J. F. HEGGIE.

Vitamins and Physical Efficiency

SIR,—In his letter (March 27, p. 394) dealing with the subject of our paper Sir Adolphe Abrahams stresses the difference between his experience and ours. We are not surprised at this. (1) The subjects we dealt with were healthy young men already selected by the Services after making their own tests. They were not record-breaking athletes, highly trained for some particular test of athletic performance. (2) Sir Adolphe quotes only "general experience" as his evidence, whereas we think it clear from our results that the differences we observed in the two groups with and without vitamin supplements would have been revealed only by careful statistical examination.

The R.A.F. breath-holding and endurance tests are designed not to measure ability to perform specialized muscular exercise but to afford indications of the stability of the respiratory and circulatory centres and the resolution and general power of endurance of the subject (H. G. Armstrong, *Principles and Practice of Aviation Medicine*, p. 47). Sir Adolphe expresses dissatisfaction with the records of these tests in our paper on the ground that our subjects averaged practically a minute in the endurance test at their first examination, whereas he has no record of any man exceeding 50 seconds in this test, and has examined athletes who "faded out at 20 to 25 seconds." Since "the average time in a large number of cases tested is between 50 and 60 seconds" (Wing Cmdr. T. S. Rippon, *British Encyclopaedia of Medical Practice*, **2**, 229), it would seem that it is Sir Adolphe's rather than our results which require justification and explanation.

We should like to stress that on the basis of our work we could not recommend the administration of vitamins to all would-be champions in the hope that they may become real ones. That achievement depends on many other things besides the general state of nutrition. Finally, Sir Adolphe is not able to accept the significance of the results on the resting pulse rate. We can but repeat that statistical examination is the only way to reveal whether such differences are significant. In a single person examined at different times and under different conditions it is possible that a variation of 10 beats per minute is within normal limits. But such variations occur in only a few of the subjects in our groups, and it is the uniformity of the changes of the remaining individuals in each group which really establishes the significance of the result by reducing the probable error of the mean change.—We are, etc.,

A. A. HARPER. H. S. RAPER.
The University, Manchester. IAN F. S. MACKAY. G. L. CAMM.

The Word "Rehabilitation"

SIR,—The word "rehabilitation" is subjected to much abuse in both medicine and law. I would attempt to define it. The rehabilitation of an injured or sick workman may be effected in three distinct ways: by prosthetic measures, by resettlement, and by reconditioning.

Prosthesis : where some extraneous, artificial aid is needed. This strictly applies to artificial limbs, etc., but it is no abuse of the term to include such things as spinal jackets, spring trusses, and pattened boots.

Resettlement : where ability to resume the regular trade or occupation is outside the bounds of reasonable probability. This applies to such medical states as heart disease, advanced phthisis, etc., and to any surgical condition where prosthesis is impossible or very inadequate—i.e., where there is a substantial measure of permanent incapacity.

Reconditioning : where resumption of suitable modified work is desirable or essential to secure a full or substantial measure of recovery. This applies to the majority of the Workmen's Compensation Act cases.

In my experience, the word "rehabilitation" has come to have such a laxity of definition that it now possesses no concise scientific or legal meaning. I would suggest that its use be discarded in industrial medicine and all medico-legal work, and that the three words (prosthesis, resettlement, and reconditioning) be substituted so as clearly to convey which form of rehabilitation the writer has in mind. Perhaps a discussion on this matter in your columns would give rise to an even better nomenclature.—I am, etc.,

Manchester. JOHN D. BYRD.

Staffing of Miniature Mass Radiography Units

SIR,—I feel indebted to Dr. J. V. Sparks for his observations (March 27, p. 398) and for endorsing some of my suggestions that have appeared previously in these columns. We seem to share agreement on most points.

One aspect of this subject, however, has not been fully considered (except for a short reference I made to it at a recent meeting of the Royal Society of Medicine), and that is the role of the "static" or stationary unit as compared with the use of the motor mobile portable unit in miniature mass radiography. When stationary units are employed the patient must travel to the examination centre and back again to his work. Distances must vary and the loss of time from work accordingly, while the necessary transport for these workers will further tax the public services, already overtaxed. Assuming that one *x*-ray unit carries out 5,000 examinations per week and that only 30 of these units are operating throughout the country: allowing 30 passengers to a bus for a double journey to and from the centre, then some 10,000 bus loads per week will be proceeding throughout the country to cope with this new form of medical examination. As time goes on this figure must increase, and sooner or later business firms may complain of the loss of man-hours, while the question of feeding these workers while away from work will arise; and who pays for the transport? During the war numerous new factories have sprung into being, situated over the countryside and often long distances from towns, which may mean that travelling to and from the centre will occupy the best part of a day or more.

It seems to me, as I have previously indicated in these columns (Aug. 29, 1940), that the solution will eventually prove to be the motor mobile portable miniature mass radiographic unit. The first of these units, which I had constructed through the British Red Cross in 1939, was eventually presented to the R.A.F. Medical Service, where it has done much useful work. This unit, however, was essentially an experimental one, and subsequent models are greatly advanced. The features and performance of the mobile portable unit as compared with the static unit are practically identical, except that the mobile units possess a distinct advantage in a shorter exposure time for making the actual *x*-ray exposure. This has been achieved by increasing the electrical cycles to the neighbourhood of 100, instead of retaining the customary 50 to 60 cycles which predominate on the average electrical mains. The power for the mobile unit is derived from a rotary coupled by a special fitting to the car engine, and the power led by a long cable, fed from a rotating drum (on the side of the car) to the *x*-ray unit, which has been assembled in the factory, office, or other place on the premises where the examinations are to be carried out. The *x*-ray tubes, the camera, lens, and transformer are the same on the mobile portable unit as on the static unit. The remainder of the machine, however, is constructed lightly and in sections, which permits rapid assembly or dismantling in a few minutes. The inside of the van is constructed as a dark-room to carry out development of full-size *x*-ray films or for miniature radiography work. Enough space is left in the centre of the van to load the portable unit and so transport it to the required destination. On arrival it is unloaded and quickly assembled in the factory or on the site of operation. The examinations are not carried out in the motor van itself, and thus the patients are not exposed to the rigors of the British winter, which they might be if they had to pass from the building to the van and back again.

In brief, we bring "the mountain to Mohammed," and what a saving of time, transport, man-hours, and money a fleet of these cars would effect if they were sent out into the country to visit the factories, warehouses, and stores instead of the masses of workers that will travel about the country in 10,000 bus loads a week under the present scheme for static machines! Further, the use of motor mobile portable units must be apparent for the examination of troops in outlying districts, civil population in rural areas, or in such places as the prairie provinces of Canada. While the present policy of the Ministry favours static machines, I feel convinced that before this new branch of work is much older this policy will be revised and the mobile units come into their own. Also for the static units that do have their place in the scheme, a much vaster organization will become necessary with specially designed centres, with large dressing halls on either side of the examination room capable of coping with hundreds of people at one time and permitting a properly organized one-way traffic system, so keeping the units properly fed with patients. These departments will also embrace all the customary conveniences Dr. Sparks has referred to (March 27, p. 398), reporting rooms, storage, and an extensive filing system.

I would welcome any criticism, destructive or constructive, concerning the use of the motor mobile portable miniature mass radiographic unit.—I am, etc.,

London, W 1. NORMAN P. HENDERSON.

Appointments System at Fracture Clinic

SIR,—Mr F. S. A. Doran's article on out-patient organization (April 3, p. 420) describing the appointments system employed in the fracture clinic at Manchester Royal Infirmary is most interesting; I know from personal experience at that clinic that the system works well in practice. I would criticize the following two points in it, however.

Although return cases are not kept waiting, new patients are kept waiting until 2 p.m. suffering from apprehension if not also from some degree of pain for the whole of the morning. The appointments record demands the co-operation of a clerk and the surgeon, and "the time, day, and date must all be written on the patient's appointment card." In spite of all these precautions one in every five patients fails to keep his appointment.

At the fracture clinic at the Glasgow Royal Infirmary over 7,000 new cases are now being treated each year. Most of the cases are fractures, dislocations, or sprains, and therefore the patients have to make subsequent attendances. The medical staff consists of a surgeon, first assistant, second assistant, and two house-surgeons, and the clerical staff of one secretary and one shorthand-typist: all are full time. On his first visit the patient is given his attendance card, which states that on subsequent visits he must attend at 10 a.m. (A–H); 11 a.m. (I–Mc); noon (M–Z). The letters refer to the initial of the patient's surname, and the two inappropriate times are deleted. For this area of Scotland such a division spaces patients equally throughout the morning, and each patient is automatically given an appointment as regards the hour for all subsequent attendances.

The case notes are filed in three cabinets, and so if the clerk has to go into cabinet 1 for an 11 a.m. patient she can reprimand him for having come late. Afternoon appointments are only made for special cases. As regards the day of subsequent attendance, the doctor seeing the case decides this and tells the patient: at the same time he marks it at the end of his notes as so many days hence—e.g., 7 indicates that the patient should report back in a week. At regular intervals the files are examined and all non-return cases weeded out; if necessary the department's almoner investigates the reason for the patient's absence. Most new cases arrive at 9 a.m. and so 9 to 10 a.m. is reserved for dealing with them, but two of the doctors are always detailed to carry out the treatment of a new case as soon as an *x*-ray is available. I feel that it is wrong to have to consider an appointments system for new cases as Mr. Doran suggests. So far as possible patients with different classes of fractures are asked to return on different days of the week. These groups of fractures are arranged so as to equalize the number of return cases each day.

By using this automatic system of appointments based on averages most patients are seen within half an hour, and no patient is kept waiting for more than an hour, and the cost in time and energy of the medical and clerical staff is reduced to a minimum. In practice the number of patients attending at the wrong time is certainly not more than the 20% which is the figure given for the Manchester Royal Infirmary fracture clinic. The greatest difficulty is in getting patients from a distance to complete their attendances. About 3,000 of our cases come from Lanarkshire, and the only way in which we have got over this difficulty has been to transport a mobile team and the patients' records to a local clinic which we have opened in Motherwell, the central town in the area of Lanarkshire served by this hospital.—I am, etc.,

Glasgow Royal Infirmary. JAMES PATRICK

SIR,—Mr. Doran, in his article on the out-patient organization of the fracture clinic at the Manchester Infirmary, shows how an appointments scheme can be applied in the case of old patients attending a department dealing with about 2,500 patients a year.

At Guy's Hospital for the last fifteen months an appointments system for all patients, both new and old, has been in force in the out-patient department, which dealt with 75,000 cases in 1942. So far as new cases are concerned, the patient or his doctor may book an appointment by personal visit, by letter, or by telephone to the sister-in-charge of the out-patient department. Old patients at each visit book appointments for their next attendance. Appointments are made in hourly blocks, one batch of patients attending, say, between 9.30 and 10.30 a.m. and the next between 10.30 and 11.30 a.m., so that no patient should have to wait longer than an hour before seeing the doctor, and some may see him within a quarter of an hour of their arrival. The number of patients booked for each hour varies in different clinics and was determined by analysis of the previous habits of each clinic.

Mr. Doran seems to express some doubt as to whether teaching can be undertaken in clinics which have adopted an appointments scheme. But his scheme aims at seeing patients at the rate of 15 to 20 every half-hour; obviously this does not permit teaching. In our scheme the number of appointments made per hour for the members of the teaching staff, both senior and junior, is considerably less than those made, for instance, for the house officers. We have not found that teaching renders the appointments scheme impracticable, and on the whole it has actually been of benefit to the teachers.

Our experience has been that the appointments scheme presents more advantages than objections. It certainly succeeds in its main object of curtailing the period of waiting. It represents an attempt to increase the efficiency of the out-patient department. It gives the patient the desirable impression that he is an individual and not one of a crowd. It relieves congestion in the out-patient hall. It permits the nurse to prepare more efficiently for the management of the session. It allows alterations in the out-patient time-table, unfortunately occasionally necessary in these difficult days, to be made at very short notice. It makes it possible to restrict the number of cases seen at any one session, and therefore assists a member of the visiting staff to plan his day with reasonable accuracy.—I am, etc.,

Guy's Hospital, S.E.1 P. M. F. Bishop, Deputy Superintendent.

Trichlorethylene Anaesthesia

Sir,—I read the two papers on trichlorethylene anaesthesia (March 27, p. 380) with great interest, as I have been using this agent for some time, both for routine work and for maxillo-facial and neurosurgical cases. While my own observations agree to a large extent with those made by Drs. Gordon, Shackleton, Howarth, and Duff, I do not think their conclusions do justice to a valuable and relatively harmless anaesthetic agent.

Of the cases quoted by Drs. Gordon and Shackleton 76% were intubated, and it seems at least possible that many of the cardiac irregularities reported may have been caused (or aggravated) by the presence of the tube in the trachea while the patient was in a light stage of anaesthesia. It has been conclusively demonstrated by Reid and Brace (*Surg. Gynec. Obstet.*, 1940, **70**, 157) that the insertion or removal of an endotracheal tube under light anaesthesia frequently gives rise to auricular and ventricular extrasystoles, with delayed conduction time and slowing of the heart, probably due to reflexes from the upper respiratory tract to the heart.

As anaesthetist to an E.M.S. maxillo-facial clinic, I consider that the original technique of Magill has yet to be surpassed. This consists of nitrous oxide and oxygen, with or without carbon dioxide absorption, and supplemented by a minimal amount of warmed ether vapour administered by the drip-feed method. For those cases in which diathermy is used, or when for other reasons ether is contraindicated, trichlorethylene is used to supplement the nitrous oxide–oxygen with excellent results. Although many patients can be intubated without difficulty, better results are obtained in the robust "Service" type of patient by preliminary induction with pentothal–nitrous oxide–oxygen–ether until the patient is well established in the third or surgical stage of anaesthesia. As in the case of chloroform, this procedure eliminates the "dangerous" period of light anaesthesia when cardiac irregularities are liable to occur. Subsequent anaesthesia may be maintained by trichlorethylene, so that by the end of the average plastic operation the ether will have been eliminated from the patient's system.

It is true that trichlorethylene does occasionally give rise to various forms of cardiac irregularity, but with suitable precautions and technique this complication should not be unduly prominent. During the past nine months I have administered trichlorethylene to about eighty patients undergoing operation for brain tumour, trigeminal neuralgia, and other neurosurgical affections. Although nearly all these patients were induced and intubated without ether, cardiac irregularities have been observed in only six cases, three of which were classified as bad risks before operation. All cases undergoing intracranial operations were anaesthetized by the open T-piece technique which I described some years ago (*Lancet*, 1937, **1**, 561). Anaesthesia is maintained in the first plane of the third stage for long periods up to six hours, and the results have been so satisfactory that trichlorethylene is now used as a routine for neurosurgical operations. After induction and intubation the nitrous oxide is set at 2 to 4 litres and the oxygen at 2 litres a minute, the gases being passed over the surface of the trichlorethylene; when the bone-flap has been turned down, the nitrous oxide is usually discontinued and the oxygen flow increased to 4 litres a minute. With the T-piece technique a certain proportion of air is admitted to the circuit, which may account for the fact that the respiratory rate rarely rises above 25 to 30 a minute. About 1½ to 2 ounces of trichlorethylene is used during an operation lasting four hours, and, not infrequently, the patient is able to answer questions when the endotracheal tube is removed at the end of the operation.

While no one would suggest that trichlorethylene is a universal anaesthetic agent, nevertheless it is a most useful one for suitable cases, especially in the presence of the diathermy or thermocautery. In my opinion it should not be administered when gross toxaemia or cardiac irregularities are known to be present, or to very young children; nor should it be used if there is a marked and progressive rise in the rate of respiration during operation.

By the way, can anybody tell me why the respiratory rate increases during trichlorethylene anaesthesia?—I am, etc.,

Newcastle-upon-Tyne Philip Ayre.

Peptic Ulcer a Deficiency Disease?

Sir,—As a contribution to Dr. J. J. O'Mullane's view (March 6, p. 302) on the subject of peptic ulcer as a deficiency disease may I report on two cases of my own. They concern two female patients, aged 19 and 25 respectively, under my care early in 1937 in Vienna, who suffered from gastric ulcer, confirmed by *x*-ray examination, and whose histories were very alike. Neither of them responded to the usual treatment, for in spite of rest in bed, strict diet, etc., for many months they kept on having pain after food, and occult blood in faeces. In the course of their illness they developed classical signs of scurvy. Put on vitamin C, in addition to ample lemon and orange juice, not only did the scurvy clear up completely after four weeks but there was a remarkable improvement of the gastric condition as well; and kept on the vitamin for another six weeks they made a perfect recovery from the ulcer. Radiographs taken a few months later showed no pathological changes.

Whether the scurvy was due to the diet—the liberal Meulengracht diet not yet being adopted, and the ulcer diet at that time being not only insufficient in calories but deficient in, almost devoid of, vitamins—or whether the ulcer itself was the result of vitamin deficiency (the girls came from working-class families, for years unemployed and their food conditions poor) I leave undecided. But the striking effect of the vitamin therapy in those two cases, the definite, although less dramatic, improvement in other cases of gastric ulcers which I had to deal with subsequently, and, further, the clinical experience that both acute and chronic ulcers are more frequently met with during spring, when vitamin-containing foods are getting scarce, strongly suggest a connexion between peptic ulcer and deficiency of vitamin, probably vitamin C.

If we regard the peptic ulcer as a disproportion between acid production and resistance of the stomach mucosa, it might be supposed that lack of vitamin presents one of the factors which leads to devitalization and eventually to digestion of the mucosa. Vitamin deficiency may also be the explanation of the well-known fact that although the single defect may heal up, or at least be reduced to a state of latency, yet the tendency to recurrence—the "ulcus diathesis," as H. Strauss puts it—remains.—I am, etc.,

Manchester B. Kohn.

Houses to Live In

Sir,—I am wondering if it may not be in proper place for me to comment on the article in your *Journal* entitled "Houses to Live In" (Jan. 30, p. 136). I have thought a great deal about the inadequacy of houses constructed during my lifetime. Over large portions of the United States they are hideous and, in many respects, unsuitable for the usual domestic arrangements. However, we have succeeded, in the last decade at least, and are succeeding in a larger degree to-day, in building successfully designed dwellings.

There is almost nothing in your comment on the memorandum of the Royal College of Physicians which would indicate that a suitable dwelling had been recommended, or indeed could be constructed from the outline given in your columns. Why, for instance, should communication between the bathroom and bedroom be forbidden? In this country the bathroom at the end of the hallway belongs to the Dark Ages. One bathroom should be placed between every two bedrooms. If a maid's room is constructed it should have, as it does in the United States, a separate private bath; if the maid lives out, there should be at least a toilet and wash bowl off the kitchen. The cost of bathroom installations in this country is so low that it need not be considered an obstacle in correct planning.

Nothing in your editorial indicates adequate planning as to convenient arrangements for housekeeping even should it envisage a standard of living compatible with a very low wage

Nothing is said about the durability of construction materials, particularly finishing materials, and their relation to sanitary arrangements and attractiveness. Why should there be a discussion about a dustbin? In this country I don't think we know what it is. Is central heating never coming to the English dwelling? The comments about housing for "the dirty and the anti-social" sound primitive. Why not either exclude them from communities where decent standards prevail or let education and the attitude of their neighbours contribute to making them more desirable tenants?

The College's three-story house brings up an unsavoury and unattractive picture. It seems too bad that the members of the College could not visit the United States and see some of the community dwellings which have been constructed over the past several decades by various philanthropic foundations and more recently by the Government itself. They provide separate dwellings in attractive style and with well-considered household arrangements, the buildings being "hooked up" so as to give some of the constructional advantage of a multiple dwelling.

The contrast between the sanitary arrangements now available in Europe, or even considered possible in Europe, and the everyday accommodations in this country needs to be remedied. I remember how astonished a British lady of distinction was several years ago to find that she could take a bath in the bathroom adjacent to her bedroom where she was a guest without having to make way for the next bather. To her it was unheard of that in a multiple-room dwelling there should be a bathroom with every bedroom.—I am, etc.,

New York. H. SIDNEY NEWCOMER, M.D.

What of the Patient?

SIR,—In the letters that you have so far published about the future of medicine in this country I have seen very little that deals with the part the patient will have to play. A comprehensive health scheme is much more than a matter of professional organization and free choice of doctor. The sick and the potentially sick will come into quite a different relationship with the State once any such service is initiated. It is most unlikely that the State will waste money on the treatment of conditions caused by gross neglect or deliberate ignorance. Clearly the patient will have to "toe the line" quite as much as will the medical profession.

While the free choice of doctor might conceivably be kept, the choice will have to be confined to a registered practitioner and the unorthodox will have to go out of business. The scheme will be made into a farce if the organization of the medical profession merely results in a gross increase in the number of "quacks." Self-medication and the scandals of the patent medicine business will have to be dealt with, for if anyone needs medicine he should get it through the doctor and the Government pharmacist. Treatment of socially dangerous diseases will have to be made compulsory. Many more positive steps will have to be taken to prevent ill-health. It should be a serious offence for parents to neglect to give a child pure milk in adequate amounts or to neglect to give vitamin supplements or such other substances as are deemed necessary. The disgustingly filthy houses that one sees, and not all in the poorer parts of towns and cities, must be cleaned up and kept clean. The laws relating to the supply of foods and drink will have to be tightened up. All these, and many other points that will readily occur to medical men, have their place in any real plan for the future health of this country.

Further, as measures of more immediate import, the whole field of animal research and of prevention of disease by vaccines and sera will have to be reviewed. Inoculation against diphtheria and such other types of preventive treatment as wide experience shows to be desirable will have to be made compulsory. This will raise opposition, but I think that this should be met with now. Illness that is preventable must be prevented, otherwise the idea of raising the standard of health of the country becomes a mockery.

There are many doctors who fear that the only result of the agitation that is now going on will be the coercion of the medical profession and its organization into a State-controlled body that will then be expected to do wonders in improving the health of the people. What is the public going to do as its share of this great work? There will be great changes in the habits of the people when these plans are brought to fruition, and it is time that this was brought to the attention of the general public.—I am, etc.,

Bristol. J. N. P. DAVIES, M.B., Ch.B.

Artificial Respiration

SIR,—The knowledge of physics required by the medical curriculum is admittedly elementary, but it is distressing that so many of our profession have forgotten even the rudiments of the subject. In artificial or any other respiration the force with which we are dealing is atmospheric pressure. This force, a result of gravity, differs from its parent in that it is exerted in all directions.

In respiration the problem is not to get air into the lungs,—atmospheric pressure does that—but to get it out. Eve's method uses the effect of gravity, in moving the liver and spleen (total 36 lb.) down an inclined plane, to push the air out of the lungs. Schafer calls for compression of the abdomen to force the diaphragm into the thorax. The actual measure of efficiency is the volume of tidal air produced in a moribund body. Eve's method demands at least a plank and a fulcrum; it cannot be used at low tide on the Solway: Schafer's can.—I am, etc.,

E. J. THOMSON.

Scientific Freedom and Social Medicine

SIR,—Mr. Somerville Hastings (March 27, p. 392) has misunderstood my paper. He has assumed that it is an attack upon State medicine, and, in defence, he has rallied a rather unrelated mixture of statements, opinions, and criticisms. I attempted to demonstrate, by analysis, that the medical superintendent system is unsatisfactory as compared with that of management of a hospital by a properly constituted medical committee. The prospect of State medicine raises this issue to a position of paramount importance, and it is essential that medical men be made aware of the bad points of an autocratic system and of the danger of instituting it.

Mr. Somerville Hastings has therefore been belabouring the wind, and I must apologize to him for having caused such a waste of his energy. In so far as he touches upon the question of the control of medical affairs within the hospital, he makes no defence of the medical superintendent system, and brings forward no argument against government by committee. He pleads for specific examples of bad superintendents, but I am sure that he, as a Socialist, would not base his rejection of the principle of absolute monarchy entirely upon the examples of Nero, James II, and their like. He cites the great improvement of the L.C.C. hospitals, which I heartily endorse, but again I cannot follow his train of argument. I seem to remember British reactionaries praising the punctuality of the Italian railways under Fascism. The logic is parallel.

In plain fact, the medical superintendent in council and municipal hospitals has absolute power as regards medical affairs, as well as administratively. Mr. Hastings's statement that "the work of junior medical officers in municipal hospitals is under a degree of supervision and even control by senior officers" is a tribute to his belief in human benevolence, but is misleading. In fact, every medical officer, junior and senior, in every council and municipal hospital is under the complete autocratic control of one man—the medical superintendent. The superintendent can impose treatment upon, or withhold treatment from, the patients who are under the direct care of the other medical men in his hospital. He can remove patients from any wards, and, if he has surgical aspirations, submit them to any form of specialist surgical procedure at his own hands, remaining above all criticism respecting the results. Should a junior desire to write an M.D. thesis, access to cases may be made conditional upon his consent to bracket the superintendent's name with his own in the event of publication. These things can all be done, and the nature of the system conceals them from the public and from the profession. But the sterilizing effect in an autocracy is produced less by the rare major misdeeds than by the minor misdemeanours, which are more frequent in proportion to their lack of sensationalism. So long as this state of things is confined to one small section of active medicine it matters little, but if the autocratic system were made universal under State medicine the result would be sterilizing to initiative and to research.

Mr. Hastings thinks that there is freedom of scientific publication in a municipal service. I would like to refer him to the Standing Order 303 (Sections *a, b,* and *c*) of the London County Council. He will find that scientific papers have to be submitted to a higher authority, which will determine whether any question of policy is involved. Now, the central authority can define and impose the limits of policy, and the paper in question may well be one dealing with the details of medical or surgical treatment, blood transfusion, immunization, and so on *ad infinitum,* and a reversal of policy, even if it were beneficial to the patient, might throw discredit upon the lay or medical initiators of the policy. My view of politics is, perhaps, less roseate than that of Mr. Hastings, but I suspect that many men in authority rather dislike being proved wrong by their juniors, and this is especially true of politicians and of scientifically rusty administrators.

Mr. Hastings does believe that "at every hospital there should be a committee of the medical staff through which individual and collective viewpoints can be expressed and transmitted to the governing authority.". He does not state whether he thinks that these committees should exist, like the present Reichstag, as emblems and gestures only or whether they are to be regarded as responsible bodies empowered to transmit the opinions of the staff as a whole to the lay power. If the progressive parties in the State do not quickly formulate their policy upon this matter, they will forfeit the support of a large mass of medical opinion which honestly desires to see the best possible medical treatment administered as widely as possible.

In conclusion, I would like to ask Mr. Hastings the following questions:

1. Does he believe in democracy in science—that is, in real unrestricted freedom of speech and criticism?
2. Is he in favour of retaining the autocratic power as regards medical affairs in the hands of the medical superintendent?
3. If medical committees are instituted, does he think that these should have local freedom to elect their own chairman and officers, and to express their opinions to their lay bodies without other intermediary?

If his official position makes it impossible for him to reply, I suggest that he ascertain the answers from his lay authority with their permission to make them public. Failure to do this will carry its own implication. Medical men throughout the country should ask similar questions of the municipal bodies and councils with which they are or may be concerned.—I am, etc.,

London, W.1. GEOFFREY BOURNE.

SIR,—Having, with but four years' break, been in the service of the Council or its predecessors since 1908 I write to endorse what Mr. Somerville Hastings (March 27, p. 392) says of the improvement in the general hospitals of the L.C.C. since April 1, 1930. That they can learn from the voluntary hospitals I agree, but I am also confident that voluntary hospitals could learn from them.

The suggestion that some hospital is "run exclusively for the benefit of the doctors or its staff" has previously only been made in jest or in pique, usually by a tired surgeon in reference to the nurses when all the theatre staff have been changed on one day, but this is the first time I have ever heard it suggested that the administration of any hospital should be under its medical staff. Either there is a hospital board to which two or more members of the medical staff may be appointed or, as at Guy's, the staff form a medical committee which acts as the advisory body to the Governors in all expert matters affecting the care of the patients, but has no say in the general administration, including finance, works, supplies, intercommunication, and the nursing, radiographic, and massage departments and schools. There may be different views as to how a hospital should be run—and I believe there is room for two systems competing in friendly harmony, and each doing the work suited to it—but everyone conscientiously thinks that what he does is in the interest of the sick. Even the traditional tyrannical medical superintendents believe this; but shall we gain anything by producing concrete examples of their failings? Had we not better thresh the matter out on principle and so avoid the bickerings of personalities, while setting up an organization that will prevent such a man making the life of everyone in the place miserable when he gets into power? We cannot prevent one such being appointed from time to time. We do not know enough about the psychology of the power complex. Its possessor may not know he has it, or it may not enter into him until he attains to the position where he can use it. Alternatively, he may so mask his true nature from those appointed to appoint him that they think they have made an excellent selection, though all who have previously worked with him shiver at the announcement. No doubt concrete examples will be forthcoming if they must, but Mr. Somerville Hastings will be the last man in the medical profession to hear of them because of the political post that he holds.

There is a principle well recognized in the fighting Services, and we need to make sure of it in the civilian medical services as they develop. It is based upon the rule of English justice that anyone is entitled to be judged by his peers. A sailor is tried by a sailor, a lawyer by a lawyer, and a doctor by a doctor in all matters of professional behaviour. Let us apply that principle to Mr. Somerville Hastings. He is the chairman of the Hospital and Medical Services Committee of the L.C.C., but he holds that post as a politician and not as a doctor, and the last person to whom we want our professional differences to go is a politician. If concrete cases are needed they will be asked for by those appointed to make the "further immediate investigation" (Beveridge report, para. 437), the organization for which is at present being set up, but if the whole matter can be settled on first principles so much the better.—I am, etc.,

Guy's Hospital, S.E.1. T. B. LAYTON.

SIR,—There are few who will disagree with Dr. Geoffrey Bourne's resolutions regarding a State hospital service (Feb. 20, p. 227), but some of his arguments reveal a point of view which, I think, cannot go unchallenged.

He says: "Doctors have, or should have, as their only professional objects the provision of the best possible preventive measures against disease, the best possible administration of treatment, and the most rapid improvements possible in the technique of treatment. They are concerned greatly in the facilities given them for this purpose and demand that they shall be the best procurable, but *care little by what machinery these facilities are paid for.*" (The italics are mine.) If this last-quoted sentence is true it indicates a peculiar gap in the mental horizon of doctors. The machinery by which payment is made profoundly affects the relationship between doctor and patient, and has a bearing on the standard and type of treatment received, or may even determine whether a patient is treated or not. Even if the statement were true about most doctors (which is very doubtful), it is certain that the leaders of the profession care a great deal by what machinery the facilities they supply to the wealthy patient are paid for.

The attitude towards patients is different in voluntary and municipal hospitals, precisely because treatment is paid for in different ways. A voluntary hospital is provided *for* the patient, but not necessarily *by* him. Expressed somewhat crudely the attitude taken by the hospital towards him is, "Take it or leave it." The hospital is run, not as Dr. Bourne says by a democracy, but by an oligarchy, whether intentionally or not and however "democratic" the leaders may appear to be towards their juniors. This is partly due to the high professional (and often social) position of these leaders. It results in patients being regarded as "good cases," "opportunities for practice," "means of building a reputation," or "material for research"—a statement which casts no slur on the efficiency or humaneness of the treatment they receive individually. It means that selection of cases can be exercised for teaching or research purposes or for reasons of personal interest.

A municipal hospital is owned by the patients. They pay for its construction, upkeep, staffing, and management, so they cannot be regarded in quite the same way. They can demand treatment there, and the staff, as a whole, cannot exercise selection. This system has involved the establishment of medical superintendents, who are placed in a very responsible position between the patients and the lay committees, to whom complaints are reported. This is why a medical superintendent feels that he must have some control over any scientific work done in his hospital; the "material" for such work is not only paying for it, but is the owner of the means by which it is done. Similarly, the remark of a lay member, quoted by Dr. Bourne, to the effect that "I will not have *my* people taught upon for the benefit of medical students," simply indicates an acute consciousness of the position of the patient in the system.

Looking at the matter historically I cannot see any way by which the magnificent series of publicly owned hospitals, exemplified by those of London and Middlesex, could have been brought to their present standard of efficiency except by perpetuating for a time the already existing machinery. It could not have been effected by transferring the "voluntary" type of oligarchy to the municipal hospital, because the method of working would not have fitted in with the rate-paying system.

But if the modern medical superintendent is the natural successor to the one who "ran" the infirmary, he is usually a very different type of person. Many superintendents have been doing first-rate clinical work, besides performing their arduous administrative duties and in addition to their efforts in building up efficient hospitals and staffs. I have no experience of L.C.C. hospitals, but, having attended staff meetings at a Middlesex county hospital every week for the last 3 years, I can assure Dr. Bourne that he is wrong in saying that these meetings were "a great concession," started in order to "divert criticism," that they are "devoid of power" and have "no power of initiation." Proposals from members of the staff at these meetings are, where possible, carried out or attempted, and on occasions the medical superintendent is overruled, either by force of numbers or by a single authoritative voice.

I should like further to draw Dr. Bourne's attention to the fact that the Middlesex county hospitals have had for some years a flourishing medical society. This body has recently formed a research committee, which is at the moment making plans for the co-ordination of clinical research within the Middlesex county hospitals. The initiative for this enterprise has come from the medical officers forming the society and has in no sense been "dictated" from above; it has, however, received the warm support and encouragement of the medical superintendents of the several hospitals. It is a free movement within a socialized system and is to my mind indicative of the sort of team activity which is going to be a feature of the municipal hospital system. But I agree with Dr. Bourne that the "dictator" must disappear and the hospital system become democratic. In order to make it so, however, there must be removed from the present hotch-potch not only the dictator element of the municipal hospitals but also the oligarchy of the "voluntaries."—I am, etc.,

South Mimms V. C. ROBINSON.

Anatomical Nomenclature

SIR,—In a well-known journal the reviewer of a book on surgical anatomy deplores the use in the book of the Birmingham anatomical nomenclature in preference to the old terminology. His justification seems to be that the latter is still the more generally known, and from that fact he argues that it is the more valuable in practice and therefore ought to survive. This attitude of mind to new developments has been manifest throughout the history of man, and has been one of the principal deterrents of the advance of scientific knowledge. Nearly all discoverers of new principles have had to run the gauntlet of criticism by those in whose minds was rooted the conviction that what they had been taught was correct, and who would not bestir themselves sufficiently to give serious consideration to the new ideas. In the same way the reception of the different changes in anatomical nomenclature has been hostile and even derisory in many quarters. These critics all have one thing in common, however, and that is that they have not troubled to study the newer terminologies. Had they done so, they would surely have recognized that each change represented an advance towards the rationalization and simplification of a difficult subject. The object of those concerned in making the changes has been progress, and the same can hardly be said of the rigid-minded critics.

Thus, the Basle nomenclature was introduced as an international one, and surely none can deny that such a step as its adoption was in the right direction, both to breaking down the nationalism which has been so largely responsible for the present world chaos and to the avoidance of having to learn a completely new anatomical terminology for every language in which medical works were read. But its Latin terms were cumbersome and difficult for most British medical men, and the Birmingham revision represented a further advance for British anatomy because it resulted in a more rational terminology which, for English-speaking people, was easier to learn and to remember. It is true that the names of the early describers of the different structures are absent from the modern terminology, but this is no bad thing. Such proper names, applied to anatomical structures, give no indication of the position or nature of the structures concerned, while the modern names in most cases are descriptive and are thus, so far as possible, an aid to memory instead of an additional burden on it. Medical students should have some knowledge of the history of medicine, and the pioneers should therefore be known to them not just as names, which in themselves signify nothing, but as personalities.

At the present day the unsatisfactory position exists that many students are taught the modern anatomical terminology during their anatomical studies, and yet when they begin to study clinical subjects they find that they cannot understand the terms used by their teachers and vice versa. Since the teachers are not prepared to change their terminology the students must, in their own interests, set about learning a completely new nomenclature just at the time when their memories are being taxed with the many and varied details of the clinical subjects. It seems likely that this handicap will be imposed on students until the clinical teaching is done by those who have been taught the new terminology and who realize its advantages over the old.

The same type of difficulty is encountered by the student in the use of weights and measures. In the pre-clinical years he is trained to use the rational and admirably simple metric system, and great is his confusion when, on reaching the clinical subjects, he is plunged into the intricacies of the curious and haphazard British system (if it can be called a system) of weights and measures. In this respect medical science is slow in following the lead of the other sciences in using the best form of expression, and it is for the teachers of medical subjects to cut short the time lag in the adoption of a rational system both of measure and of anatomical terminology.—I am, etc.,

University of St. Andrews HERBERT HAXTON.

Venereal Diseases

SIR,—In your issue of March 13 your correspondent Dr. E. A. Chartres raises matters which are of vital importance to the health of the nation. At the V.D. Conference on Feb. 26 the fundamental issue of prevention by scientific means was carefully avoided by nearly all the speakers, while the practical application of prevention, such as that now being carried out by the Bournemouth Town Council, was not touched upon at all. The Archbishop left the matter in a position in which it cannot be allowed to remain, and the official policy of the Ministry must be challenged on the scientific aspect of the problem.

From the scientific point of view the position is amazing. The provision of additional sex education generally, and about V.D. in particular, is being urged, while all the time every opportunity is taken to prevent the scientific facts about prevention becoming known. Prevention is being prevented. The scientific research upon which V.D. prevention is based is as brilliant and as conclusive as any on record, and experience in the last war abundantly proved its reliability and added to our knowledge. Fanatical obstruction is such that it is demanded that this vitally important knowledge should be withheld from men and women. Although the Archbishop says, "an immense amount of sheer ignorance and error is to be dispelled," he deplores the spread of scientific truth about preventing V.D.

Fanatical opposition knows no limit. The Services are charged with "deliberate condonation of fornication" by giving instruction in the use of prophylactics. In other words, it is suggested that the responsible heads of the Services, knowing full well that venereal disease can be easily prevented, should deliberately fail to use that knowledge, and thereby allow thousands of our young people to fall victims of the disease. By forbidding any mention or use of prophylactics these opponents would condemn "sinners" *unnecessarily* to grave physical injury, with probable spread to numerous innocent persons. Fortunately, our Services are run on more enlightened principles. These same opponents of prevention urge the provision of more and more clinics where the infected "sinners" can be cured at great expense to the community. In fact, their case boils down to a demand that "sinners" must run the risk of catching the disease, but, once infected, they must be given the advantage of scientific discovery in order to be cured. The use of other scientific discoveries which can and will prevent these diseases would not be allowed if such people had their way.

Properly organized and administered, a crusade against V.D. by scientific prevention could and would eliminate these foul scourges from our midst. Suitable posters and cards of simple directions for men and women have been prepared by the National Society for the Prevention of Venereal Disease, 47, Nottingham Place, W.1, and are now being circulated to all local authorities. In Bournemouth hundreds of these posters have been displayed, and thousands of cards with clear and concise instructions have been distributed by the Health Department. This is sound practical prevention.—I am, etc.,

R. A. LYSTER,
Chairman, N.S.P.V.D.

Bournemouth.

Irritant Spectacle Frames

SIR,—I believe I have made the acquaintance of a new form of allergy which may become fairly widespread. Two of my patients, who are, luckily, neighbours, have discussed with me their experience after obtaining new spectacle frames of wartime "tortoiseshell." Both have obtained their spectacles from the same optician within recent weeks. Both have noted intractable itching behind the ears, accompanied by serous discharge of considerable volume. Mrs. A. has also found a slight reaction on the bridge of the nose, while Mrs. B. has to-day a linear erythema across the temple, exactly where the sidepiece of the spectacles lies.

I write in the hope that this observation may help others. —I am, etc.,

H. THISTLETHWAITE.

Preserving Medical Freedom

SIR,—In view of the present interest in the question of hospital organization we thought it might interest your readers to know of the following resolution which was passed at the last meeting of the Medical Council of St. Bartholomew's Hospital. This resolution has been considered by the treasurer and governors of the hospital, who have expressed themselves in full agreement therewith.

"The Medical Council regards it as essential that freedom of expression in medical matters, freedom of speech, and freedom of medical practice in hospitals must be preserved in any post-war reconstruction and that a medical committee should be the advisory body to the governors of an institution on medical matters."

—We are, etc.,

REGINALD M. VICK,
Chairman.
F. C. W. CAPPS,
Hon. Secretary.

St Bartholomew's Hospital.

The Services

Prob. Temp. Surg. Lieut. J. A. Oddie, R.N.V.R., has been awarded the D.S.C. for bravery and skill in the hazardous operations by which the Allied Forces were landed in North Africa.

NAVAL MEDICAL COMPASSIONATE FUND

A meeting of the subscribers to the above Fund will be held on April 30, at 3 p.m., at the Medical Department of the Navy, 64, St. James's Street, S.W., to elect six directors of the Fund.

CASUALTIES IN THE MEDICAL SERVICES

Died from the Effects of Wounds.—Capt. G. M. Calder, R.A.M.C.

Previously reported Missing since the Fall of Singapore, now officially reported Prisoner of War.—Major G. O. Gauld, R.A.M.C.

Obituary

E. W. G. MASTERMAN, M.D., F.R.C.S.

The death took place in Jerusalem on March 29 of Mr. E. W. G. Masterman, who both began and ended his career as a medical missionary in Palestine and Syria, but in his middle years served as medical superintendent at a London hospital and took a prominent part in the central work of the British Medical Association.

Ernest William Gurney Masterman was born on Jan. 2, 1867, the son of James William Masterman of Rotherfield Hall, Sussex. He derived his third Christian name from his mother's family. He was the elder brother of the Right Hon. C. F. G. Masterman, one of the principal builders of the national health insurance system and the first chairman of the Insurance Commission, whose functions were taken over by the Ministry of Health. Ernest Masterman was educated at Clifton College and at Monkton Combe School. He turned to a medical career only as incidental to a missionary one. He began his professional training at Edinburgh University in 1884, and in Edinburgh his ambition to be a missionary was reinforced by contact with C. T. Studd, the well-known evangelist. But family circumstances brought about an interruption in his studies, and for a time he became a schoolmaster. In 1887, however, he entered St. Bartholomew's Hospital, where he was Brackenbury surgical scholar, qualifying in 1891. In the following year he found his way out East, on appointment as assistant medical officer of the Jerusalem Hospital of the Church Missions to Jews. From that time onwards, for fifty years, the Holy Land was the great interest of his life. He worked at Jerusalem, Safed, and Damascus, and again at Jerusalem, until the outbreak of the war in 1914 caused his return to England. In 1916 he was given the charge of St. Giles's Hospital, Camberwell, now one of the L.C.C. hospitals, and served there until his retirement in 1933 under the age limit. He then returned to Palestine, this time under the aegis of the Church Missionary Society, and had charge of hospitals in Es Salt, Transjordan, and in Gaza and Hebron. At the age of seventy-one he was made medical superintendent of the 60th General Hospital in Palestine, and in 1939 he was appointed medical adviser for the Near East to the Church Missionary Society.

During his years in London Masterman identified himself with the work of the B.M.A. He attended every Annual Representative Meeting from 1920 to 1934. In 1931 he came on to the Central Council, of which he was a member for four years. He had previously done good service on the Public Health and Hospitals Committees, and he also served on a number of special committees, including one set up in connexion with the Indian Medical Service. In the Camberwell Division and the Metropolitan Counties Branch he also did good work. He was chairman of the Division in 1928-9, and, after serving for three years as joint honorary secretary of the Branch, he became its president in 1934-5. In all that he did he was a "good B.M.A. man,' and his common-sense counsel and special experience were highly valued. The subject of maternity services specially interested him, and in this field he served as a member of more than one committee. He had taken the Fellowship of the Royal College of Surgeons in 1892, a few years later he took the Cambridge D.P.H., and in 1909 the M.D. of Durham.

His interest in Palestine, its past and present, never slackened. For many years he was secretary of the Palestine Exploration Fund. To return to Jerusalem and be able to spend his closing years there in useful and happy activity gave him much satisfaction. For some time, however, he had been in failing health, and his son, who was serving in the R.A.M.C. in West Africa, was able, with Mrs. Masterman and other members of the family, to be with him at the end.

The following well-known medical men have recently died abroad: Dr. ALLEN GREENWOOD, emeritus professor of ophthalmology, Tufts College Medical School, Boston, aged 76; and Dr. BERNHARD FISCHER-WASELS, professor of morbid anatomy at Frankfort-on-Maine, president of the German Pathological Society, editor of the *Frankfurter Zeitschrift für Pathologie*, and well known for his work on cancer research.

Universities and Colleges

UNIVERSITY OF LONDON

The following candidates have been approved at the examination indicated:

Academic Postgraduate Diploma in Medical Radiology.—*Part I:* Patricia Franklyn, H. H. Hermann, D. D. A Jayamanne, Elspeth M. Ledlie, T. S. Leedham, M. G. Magan, B. Sandler, L. M. Shorvon.

The title of Reader in Medicine in the University has been conferred on Clifford Wilson, D.M., B.Ch., in respect of the post held by him at the London Hospital Medical College.

UNIVERSITY OF SHEFFIELD

The following candidates have been approved at the examinations indicated:

M.D—T R. Forsythe

Final M B, Ch B.—*Parts II and III:* L. Anderson, H. J Dooley, Marie France, G. L. Hermitte, P. B H. Howarth, R. A McFadden, D. S. Mall, R. B Peasegood, Ethel W W. Sharrard, H. J. Whiteley, J. Wilbush; Elena Zadik.

UNIVERSITY OF EDINBURGH

A graduation ceremony was held on April 5, when the following degrees and diplomas were conferred:

M.D—[1]G R. Lunn.

Ph.D—M. Y. Ansari, M B, B S

M.B., Ch.B.—H. Ali Ud-Din, [1]D. St. J. Bowie, I. A Brooks, G. Davidson, K G S. Davidson, R. A M Hamerton, T A Hope, H J. Mackay, A H MacKinnon, I. G. Maclean, J. M. G. Parker, R. W Pettigrew, T. M. Pole, J Rifkind, A E Smith, Margaret M. Timpany.

[1] *In absentia*

Prof. A. T. Jurasz conferred the first degree of M.D. in the Polish School of Medicine.

Medical Notes in Parliament

The Nation's Milk

During a debate in the House of Lords on April 1 on the remuneration of milk distributors, Lord **Perry** said the Ministry of Food now told the consumer that he must buy his milk from a particular tradesman and could only get the sort of milk which that tradesman sold. Tuberculin-tested milk continued to be produced; he himself owned a farm where it was produced. Clean milk, however, produced under ideal conditions in premises frequently inspected was tipped into a common pot along with dirty milk produced by less competent people. That was bad management and an outrage on the consumer. Lord **Bledisloe** said that if methods of production were economized and disease eliminated from the cattle, this country could produce the whole of the liquid milk consumed. In many countries besides Northern Ireland there had been an almost total elimination of bovine tuberculosis as the result of careful and drastic Government administration. Tuberculosis from bovine sources was practically unknown in New Zealand to-day. Lord **Geddes** said he feared the Ministry of Agriculture could not deny that clean tuberculin-tested milk was mixed with milk known to be infected with bovine tuberculosis and *Brucella abortus*, the cause of undulant fever, in the Government milk depots. It should be stated in the House that the children's milk was being deliberately contaminated by the Government.

Lord **Woolton** said he was not satisfied with the present position. The tuberculin-tested milk that could find a market was sold as such. The T.T. milk which could not find a market was mixed with other milk. When Lord Geddes had suggested that all other milk which went to children contained those germs he had been too pessimistic. Lord **Geddes** intervened to say there had been a statement by the B.M.A., and also, he thought, by the Royal College of Physicians, on this contaminated milk. It was proved by the medical profession that much of the milk produced in this country was infected with bovine tuberculosis and *Brucella abortus*. That milk was being mixed and, without pasteurization, was sold to the children. Lord Geddes added that, as Lord Woolton was to make a statement at an early date, he would not press the matter.

Nurses Bill: Position of Scotland

Mr. **Hannah** inquired on April 6 when it was proposed to introduce a Nurses Bill for Scotland. Mr. **Johnston** said the main purpose of such a Bill would be to establish a roll of assistant nurses, a proposal which the Alness Committee reported against in 1938. In view of the altered conditions since that date he was having discussions with the Scottish nursing and other organizations concerned. He hoped to make a statement shortly.

Medical News

The Ministry of Food announces that from April 18 capsules and tablets made from specially concentrated fish-liver oils will be available for expectant mothers under the vitamin scheme. Each capsule (or tablet) contains 4,000 i.u. of vitamin A and 800 i.u of vitamin D. They will not be available to children receiving fruit juice and cod-liver oil under the vitamin scheme. The capsules and tablets are to supplement the vitamin A and D intake of expectant mothers. The Ministry has recognized that many mothers could not take the cod-liver oil provided for them and their young children. They will be distributed through the existing chain of distributing centres (welfare centres, clinics, and food offices). Expectant mothers will use the cod-liver-oil coupon sheets obtainable from many food offices in order to get the capsules or tablets. They may take them or cod-liver oil, as they wish. Future supplies of cod-liver oil under the scheme will contain double the present quantity of vitamin D The new oil will therefore have a minimum vitamin D potency of 200 international units per gramme.

The House of the British Medical Association will be closed from Thursday, April 22, 6 p.m., to Tuesday, April 27, 9 a.m

The inaugural lecture under the general title of "The Health of the Child" will be given on Wednesday, May 5, at 5 p.m. in King's Hall, King's College, Newcastle, by Prof. J. C. Spence, M.D., F.R.C.P., first holder of the chair. Through the generosity of the Nuffield Provincial Hospital Trustees, Durham is the first university in the Kingdom to establish such a chair. Tickets of admission may be obtained from the Registrar of King's College, Newcastle-upon-Tyne, 2.

At a meeting of the Medico-Legal Society to be held at 26, Portland Place, W., on Wednesday, April 21, at 5.30 p.m., a joint paper will be presented by Drs. J. C. M. Matheson and J. D. N. Hill on electro-encephalography in medico-legal problems.

At a meeting of the Middlesex County Medical Society on Tuesday, April 20, at 3 p.m., at Staines County Hospital, Ashford, Dr A. G. Signy will speak on "Some Problems in Macrocytic Anaemias" and Dr. D Court on "The Health of Nurses." Visitors, especially members of the American, Canadian, and other oversea Forces now in this country, will be welcome.

A meeting will be held at the Medical Society of London, 11, Chandos Street, London, W.1, on May 5, at 2.30 p.m., with the object of forming an Association of Physical Medicine. All members of the profession who are interested are invited to attend.

At the meeting of the Medical Society for the Study of Venereal Diseases to be held to-day (Saturday, April 17) at 2.30 p.m., at 11, Chandos Street, Cavendish Square, W., Major. Marjorie Bolton, R.A.M.C., will read a paper on the sulphonamide treatment of gonorrhoea in women; and on May 29 Fl. Lieut. J. H. Morton, R.A.F., will discuss infestation by *Trichomonas vaginalis*.

The Royal Victoria Infirmary, Newcastle-upon-Tyne, has sent a circular letter to all medical practitioners in the North-East Region announcing that arrangements have been made for out-patients to be seen by appointment, on the same lines as the system which exists for private consultation. For this purpose an appointments bureau has been established at the Infirmary (telephone No. 21151). Full information is given in the circular. Cases of accident or sudden illness will be treated, as hitherto, at any hour of the day or night. Destitute patients, who have no doctor or no ready means of obtaining one, will be advised and treated according to their needs.

The appointment is announced from Washington of Dr. James A. Crabtree as chief medical officer of the Office of Foreign Relief and Rehabilitation Operations; and three U.S. public health service medical officers have been assigned to North Africa.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* there was little change during the week in the trends of infectious diseases, the only fluctuations of any size being rises in the notifications of acute pneumonia 201 cases measles 152, and dysentery 26.

The increase in acute pneumonia was general throughout the country, and the incidence has reverted to the high level of the end of January and beginning of February. The only local rise of any size was that of Staffordshire, 38 cases more.

Only small fluctuations occurred in the county totals of scarlet fever, whooping-cough, and diphtheria: the largest were in Lancashire, where increases of 51, 58, and 18 respectively were reported.

The higher incidence of measles was due to a rise in the South. The largest increases recorded during the week were Suffolk 215, London 177, Surrey 173, Glamorganshire 130, Northants 128, Kent 125, Devon 120, Middlesex 114; and the largest declines were those of Yorks West Riding 172, Warwickshire 169, Yorks East Riding 116, Essex 125, Sussex 111, Bedfordshire 105, Durham 87, Leicestershire 82.

Although the number of cases of dysentery rose by 26, only one local outbreak of any size was reported—Birmingham C.B. 10 cases. The largest of the county totals were Lancashire 14 (Manchester C.B. 6), Surrey 14 (Godstone R.D. 7), London 10, Yorks West Riding 9.

In *Scotland* a further large rise, 80 cases, was recorded in the notifications of measles. The outbreaks in Edinburgh and Glasgow fell by 21 and 24 cases respectively. The notifications of diphtheria went up by 27, while the figures for scarlet fever and whooping-cough dropped by 26 and 29.

In *Eire* typhus has reappeared after an interval of three months: 7 cases were notified in the rural district of Carrick-on-Shannon No. 1, Co. Leitrim. There were 75 cases of whooping-cough, compared with 29 in the preceding week, the rise being due to outbreaks in Co. Waterford, Waterford C.B. 19, Co. Clare, Kilrush R.D. 15, Co. Wexford, Enniscorthy R.D. 15. In Dublin the cases went up from 13 to 18.

Cerebrospinal Fever

The incidence of cerebrospinal fever during the present year has been the lowest for this period since the outbreak of war. The trend of this disease has been steadily on the downgrade since the large outbreak in 1940. The peaks in the early spring have progressively diminished in size and the intervening endemic level has fallen. A comparison of the notifications for the first twelve weeks of the year is:

Week	Average of 1936–9	1940	1941	1942	1943
1	30	53	232	149	88
2	37	107	266	178	94
3	30	144	287	132	89
4	29	184	307	152	111
5	33	299	332	183	106
6	29	406	345	166	121
7	38	557	376	186	100
8	29	585	430	165	101
9	40	617	406	216	92
10	33	603	365	227	86
11	31	541	332	281	93
12	33	476	334	197	104

Quarterly Returns for Northern Ireland

The birth rate for the fourth quarter of 1942 was 21.8 per 1,000 and was 3.5 above the average rate for the December quarters of the five years 1937–41. Infant mortality was 74 per 1,000 births registered and was 1 below the five-year average. The general death rate was 12.8 per 1,000, compared with 13.0 for the average of 1937–41. The number of deaths attributed to the principal epidemic diseases was 139, compared with 196 for the average of the five preceding fourth quarters. Deaths from pulmonary tuberculosis numbered 204, which was the same as the average, but other forms of tuberculosis accounted for 73 deaths—16 above the average. Of the 4,162 deaths registered during the quarter 12.7% were in persons under one year of age and 50% in persons aged 65 and over.

Quarterly Returns for Eire

The birth rate during the fourth quarter of 1942 was 21.2 per 1,000 and was 3.7 above the rate for the December quarter of 1941. The infant mortality rate was 78 per 1,000 registered births, being 4 above the rate for the fourth quarter of 1941. The general death rate was 13.7 per 1,000, an increase of 1.5 on the rate of the December quarter of the preceding year. The principal epidemic diseases accounted for 502 deaths, compared with an average of 336 for the fourth quarters of 1937–41. There were 745 deaths from pulmonary tuberculosis and 175 from other forms of tuberculosis, compared with averages of 589 and 157 for the five preceding fourth quarters.

For the whole of 1942 the birth rate was 22.3 per 1,000, being 3.3 above the rate for 1941. The infant mortality rate was 68 per 1,000 registered births and was 6 lower than in the preceding year. The general death rate was 14.0 per 1,000, being 0.6 below the rate of 1941. The principal epidemic diseases caused 1,639 deaths, or 280 more than in 1941. Deaths from pulmonary tuberculosis were 3,464 and from other forms of tuberculosis 811; the numbers for 1941 were 2,882 and 829.

The Week ending April 3

The notifications in England and Wales during the week included scarlet fever 2,213, whooping-cough 2,078, diphtheria 798, measles 19,568, acute pneumonia 1,494, cerebrospinal fever 108, dysentery 109, paratyphoid 3, typhoid 15. Influenza deaths in the great towns numbered 67.

No 12

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended March 27.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	101	8	31	3	5	198	13	55	2	7
Deaths		2	2				1	3		
Diphtheria	816	37	207	91	25	894	32	199	46	33
Deaths	21	2	1	1	—	23	—	3	3	—
Dysentery	92	10	37		1	125	11	40		—
Deaths		—	—	—	—		—	—	—	—
Encephalitis lethargica, acute	1	—	—		—	6	—	1		—
Deaths		1	—				—	—		
Erysipelas			50	15	3			50	7	3
Deaths		—	—				—	—		
Infective enteritis or diarrhoea under 2 years				18						
Deaths	56	5	3	15	7	34	5	10	7	2
Measles	19,561	1,329	718	27	117	3,188	224	280	109	40
Deaths	18	6	5	—	—	4	1	—	—	
Ophthalmia neonatorum	96	5	27	—	—	105	3	25	1	—
Deaths										
Paratyphoid fever ..	1	—	3	—	1	5	—	1	—	
Deaths	—	—	1	—	—	1	—	—	—	—
Pneumonia, influenzal*	1,505	80	12	16	—	1,258	76	14	4	33
Deaths (from influenza)	73	7	2	1	—	42	5	7		2
Pneumonia, primary ..			281	33	9			270	25	
Deaths		—		19	15		55			10
Polio-encephalitis, acute	1	—				3	—			
Deaths		—					—			
Poliomyelitis, acute ..	4	—	—	1	—	5	—	—	1	2
Deaths		—	—				—	—		
Puerperal fever ..		1	5	2	—		1	32	—	1
Deaths		1					—			
Puerperal pyrexia ..	191	7	10		1	181	8	21		—
Deaths										
Relapsing fever ..	—	—			—	—	—			—
Deaths										
Scarlet fever ..	2,185	156	262	53	39	1,307	45	194	42	24
Deaths	4	—	—	—	—	—	—	—	—	—
Small-pox	—	—	—		—	—	—	—		—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever† ..	6	—	5	5	2	9	—	1	5	2
Deaths	—	—	—	—	—	2	—	1	—	—
Typhus fever	—	—	—	7	—	—	—	—	—	—
Deaths			—	—	—			—	—	—
Whooping-cough ..	1,982	186	224	75	32	1,504	173	46	61	13
Deaths	19	1	1	2	2	10	2	—	2	1
Deaths (0–1 year) .	469	55	62	40	42	371	49	75	44	17
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	5,269	889	606	252	143	4,948	700	714	246	127
Annual death rate (per 1,000 persons living)			13·7	16·6	‡			16·1	16·4	‡
Live births .. .	6,410	786	897	410	349	6,373	691	936	578	256
Annual rate per 1,000 persons living .			18·3	27·0	‡			19·4	38·6	‡
Stillbirths	252	19	37			251	31	37		
Rate per 1,000 total births (including stillborn)			40					38		

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* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes paratyphoid A and B for Northern Ireland.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

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ANY QUESTIONS?

Diphtheria in the Immunized

Q.—*A child of six was inoculated with 0.2 c.cm. of alum-precipitated diphtheria toxoid. Three weeks after the injection he developed an acute sore throat with a few punctate septic spots on the tonsils. The boy vomited occasionally; the temperature was 103.5° F.; knee-jerks were present, and there was no albuminuria. Diphtheria bacilli were obtained from a throat swab. I should be grateful for answers to the following questions: (1) In the early days of inoculation against diphtheria is the risk of diphtheria infection increased—i.e., during a negative phase? (2) Granted that the two immunization injections have been given, and that a Schick test is negative, what course should a practitioner follow when presented with a case of sore throat from which diphtheria bacilli are isolated—that is, if no typical membrane is present? (3) Is the appearance of the throat in the case of diphtheria in an immunized person different from the ordinary diphtheria throat in the non-immunized?*

A.—(1) There is no convincing evidence that the immediate risk of diphtheria infection is increased by immunization. Many immunologists regret that the phrase "negative phase," in this connexion, ever escaped from the laboratory, where it is of scientific interest. (2) The practitioner without ready facilities for repeat Schick tests and tests for virulence of the bacilli reported as "positive" would be wise to inject antitoxin as a precautionary measure and to keep the child under observation. With the Pope-Parfentjev modern "enzyme-treated" antitoxin the risk of serum-sickness has become minimal. "If a throat is suspicious enough to demand a swab it is suspicious enough to demand antitoxin." Where a recent Schick test, properly carried out, has been negative the sore throat is probably a streptococcal tonsillitis in an immune diphtheria carrier, and one of the sulphonamides should be prescribed. (3) True clinical diphtheria infection in children who have been properly immunized is rare and mostly trivial in its local and general effect, but typical severe infection with sore throat has been reported in people whose immunity is too low.

A Toxic Eruption

Q.—*A man aged 67 has developed vesicles above the ankles in the area of the socks. They are rather large, with inflammation, swelling, and itching (slight) of the skin. They are exactly like a burn of the first degree. What is the name of this condition? Is it pemphigus? There has been frequency of the bladder for some time, with cloudy and acid urine. Alkalis have been taken for this, with resorcin and hexamine at intervals. What would the best treatment for the condition be?*

A.—Symmetrically disposed large vesicles above the ankles in a man aged 67 are most likely due to a toxic condition; if the patient has frequency he may have retention, with overflow, and it would be wise to have his blood urea estimated. The condition may also result from contact with an irritant, such as a liniment applied to a stiff ankle, so that an external factor must be excluded. When this has been done, and the factors likely to produce toxaemia attended to, the local treatment consists in pricking the blisters with a sterile needle and painting the areas with liq. pic. carb. ♏xv, tannic acid gr. x, aq. ad ʒj; and dusting on simple talcum powder.

Irregular Menstruation

Q.—*Irregular menstruation worries many young adults. What can be done to establish a normal menstrual cycle?*

A.—Irregular menstruation in young adults usually takes one of two forms. The more common one these days with so many girls entering the Services and factories is for amenorrhoea to occur. If the previous menstrual history is normal and the patient fit it is advisable to reassure her and do nothing for three or four months. Many patients when reassured menstruate normally soon afterwards. If the menses do not return give intermittent oestrogenic stimulation. 5 mg. stilboestrol daily for 14 days will usually be followed by bleeding. When bleeding ceases give 1 mg. daily for another 14 days, and repeat this for two or three months. If there is any evidence of thyroid deficiency small doses of thyroid, 1 gr. a day, sometimes give dramatic results. The less common type is when periods come too frequently, possibly with heavy losses. These are more difficult to treat. If the pelvis is healthy the best results are likely to be obtained by giving gonadotrophic hormone. Serum gonadotrophin, 200 to 400 units weekly for three or four weeks, should be tried. Between losses iron should be given, but must be discontinued when bleeding occurs. Excessive losses occasionally require curettage and even transfusion. It should be noted that stilboestrol is more likely to cause harm than benefit in this type of case. Good results can be obtained from male hormone, but its use must be carefully controlled and is better not adopted in general practice.

Treatment of Disseminated Sclerosis

Q.—*Which of the suggested treatments for disseminated sclerosis has the best justification—arsenic, liver injections, vitamin A therapy, etc.?*

A.—Organic arsenicals are widely used to-day in dosages similar to those employed in treating syphilis. It cannot be said that any form of treatment has a specific or certain effect upon disseminated sclerosis, but one gains the impression that cases treated regularly with organic arsenic over a long period progress more favourably than others. Give courses of weekly intravenous injections totalling 5 g. N.A.B., with two-monthly intervals between courses, over a period of 12 to 18 months. Each course should consist of the following weekly injections: 0.15, 0.3, 0.45, 0.6, 0.75, 0.9, 0.9 g. Patients with disseminated sclerosis are particularly liable to sharp febrile reactions after arsenic injections, which should therefore be small to begin with. There is no evidence that liver therapy has any effect and vitamin extracts are of no direct benefit. It is very important in this disease to keep general health and resistance as high as possible to reduce the risk of exacerbations. These are often provoked by intercurrent illness or injury. Vitamin extracts may play their part in this general treatment. In addition to organic arsenic, colloidal gold injections are often used, but with inconclusive results.

INCOME TAX

Housing on Transfer

"DELTA" rented a house when taking up E.M.S. duty at a hospital in 1939. In 1941 he was transferred to another locality, which "necessitated taking a furnished house there," and let the previous house furnished. The authorities claim income tax on the "profit" made on that letting, though owing to the high cost of the furnished house which "Delta" now rents he is at least no better off.

*** There is legal justification for the assessment, as the "profit" is assessable without any deduction for the cost of living elsewhere. (The point was settled by judicial authority in 1912—Wylie *v.* Eccott). The fact that the transfer was compulsory does not assist the taxpayer.

LETTERS, NOTES, ETC.

Enterospasm and Spastic Colitis

Dr. D. M. C. CHURCH (Edinburgh) writes: The answer to the question about enterospasm and colitis (March 27, p. 402) is excellent. I find that if the diet is attended to as suggested a tablespoonful of freshly powdered charcoal taken after the midday and evening meals gives complete relief. Purgatives are forbidden, but if quite essential a small enema containing about a drachm of magnesium trisilicate does no harm.

Treatment of Scabies

Dr. E. D. SPACKMAN (Worthing) writes: As I had a little spare time last evening I picked up the *Journal* for April 3 and the April number of the *Practitioner*. I read carefully Dr. J. R. Graham's article on scabies in the *Journal*, noting his experience in 1,000 cases and his "conclusion" (p. 414): "One treatment with benzyl benzoate will cure over 99% of scabies if efficiently applied. Disinfection of clothing and bedding is unnecessary." Then I opened the *Practitioner*. I read a very detailed article on "Scabies in Children," seven pages, by Dr. Brain, a dermatologist. On p. 236 I read: "Then comes the third essential for success, which is *the disinfection of the clothing*" (the italics are Dr. Brain's, not mine). As the views of two specialists on scabies appear diametrically opposed over the question of clothing disinfection it would be helpful to hear the experience of general practitioners on this matter.

Correction

The strength of the emulsion of benzyl benzoate used for the cases of scabies described by Dr. John R. Graham (April 3, p. 413) was that of the *N.W.F.* emulsion—namely, 25% not 20%.

BRITISH MEDICAL JOURNAL

LONDON SATURDAY APRIL 24 1943

CEREBROSPINAL FEVER

ANALYSIS OF 3,575 CASE REPORTS, WITH SPECIAL REFERENCE TO SULPHONAMIDE THERAPY

BY

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AND

ETHEL WESTERMAN

(American Red Cross-Harvard Field Hospital Unit)

Many articles have appeared within the past five years showing that sulphonamide therapy has effected a considerable reduction in the number of fatalities due to cerebrospinal fever. These reports, most of which are based on groups of less than a hundred cases, are not in agreement on certain matters, such as the sulphonamide compound of choice, its proper dosage, and the value of serum as an adjuvant to chemotherapy. Such differences in experience with cerebrospinal fever are to be expected, since the disease is notoriously variable in severity and in its effect on persons of different ages. In the present communication an attempt is made to obtain information on some of the points in question by means of an analysis of a large number of case reports.

The study is based on 3,575 reports of cases of cerebrospinal fever which were submitted to the Ministry of Health by more than a hundred widely scattered hospitals of England and Wales during the two-year period June, 1939, to June, 1941. A large proportion of cases (2,738, or 76.6%) occurred during the first six months of 1940. The total number of cases notified in England and Wales during the same six-months period was 9,184. The reports under consideration appear to be a representative sample from the general population, urban and rural. Standard forms drawn up and distributed by the Ministry of Health were used for reporting. Nearly 4,000 case reports were submitted, but a number were excluded because of doubt as to correctness of diagnosis. In more than 90% of the 3,575 cases finally accepted for analysis the diagnosis had been confirmed bacteriologically. Some reports were incomplete with respect to certain particulars, such as age, sex, or details of therapy; for this reason several sections of the study are based on smaller numbers of cases.

Age and Sex Incidence

Age.—It is well known that cerebrospinal fever tends to occur most frequently in young persons. In the present series 45.5% of the patients were children under 15 years of age (see Table I). The preponderance in young persons is not as great in this series as in some other large groups of cases. For example, in the Detroit epidemic of 1928-31, 60% of the patients were children under 15 years old (Gordon, 1932), while in the German epidemic, 1905-7, approximately 80% were in this age group (German Health Reports, quoted by Ledingham and Arkwright, 1912).

TABLE I.—*Age Distribution: 3,557 Cases**

Age in Years	Cases	Percentage of Total	Age in Years	Cases	Percentage of Total
0	255	7·13	25–29	306	8·55
1	209	5·84	30–34	243	6·73
2	205	5·73	35–39	181	5·06
3	164	4·58	40–44	130	3·63
4	127	3·55	45–49	92	2·57
5–9	358	10 01	50–54	80	2·23
10–14	300	8·39	55–59	75	2 09
15–19	426	11·91	Over 60	76	2·12
20–24	330	9·23			

* 18 cases in which age of patient was not specified were not included in this table.

Sex.—The ratio of males to females in the whole group was 6 to 4 (59.5% and 40.5%). The sex distribution at different ages (Table II) shows more males than females in every age group below 50 years. The highest ratio of males to females was in persons between the ages of 20 and 34 years. This may be attributable in part to the large numbers of young men recently entering military service, in which the incidence of meningococcal infections is regularly high. On the other hand, the sex distribution closely resembles that found in the Detroit epidemic, which involved a civilian population (Gordon, 1932).

TABLE II.—*Fatality Rate by Age Groups in Males and Females: 3,555 Cases**

Age in Years	Males			Females		
	Cases	Deaths	Case Fatality Rate (%)	Cases	Deaths	Case Fatality Rate (%)
0	154	51	33·11	101	28	27 62
1	126	26	20 63	83	17	20 48
2	129	21	16·27	76	19	22 36
3	84	19	22 61	80	19	23 75
4	71	18	25 35	55	5	9 09
5–9	185	24	12 97	173	26	15 02
10–14	154	13	8·44	146	13	8 90
15–19	271	14	5·16	155	10	6·45
20–24	238	13	5·46	92	7	7·60
25–29	213	19	8·92	92	8	8 69
30–34	165	13	7 87	78	15	19 23
35–39	114	20	17 54	67	13	19·40
40–44	73	11	14·93	57	11	19 29
45–49	48	9	18 77	44	11	25 00
50–54	30	7	23 33	50	15	30 00
55–59	32	13	40 62	43	17	39·53
Over 60	33	19	57·57	43	24	55 81
Total	2,120	310	14 62	1,435	256	17 84

* Not included in this table: 18 cases in which age was not stated, 2 cases in which sex was not stated.

Case Fatality

Among the 3,575 patients 570 deaths occurred, a fatality rate of 15.94%. This figure is lower than that for all notified cases in England and Wales during 1940 (2,584 deaths in 12,767 cases, a rate of 20.24%), although the general fatality rate is probably falsely high, since certification of deaths from any disease is likely to be more complete than notification of cases.

Fatality in Relation to Age.—It has long been appreciated that the prognosis of cerebrospinal fever depends to a considerable extent on the age of the patient. The fatality is usually highest in infants under 1 year old and in adults over 40. The present data show that the use of sulphonamides has not lessened the influence of age; in fact, the age of the patient is perhaps more significant now than before (Fig. 1). Results of treatment were poorest at the extremes of life, and best in persons of the second and third decades. The age group 15–19 years had the lowest rate (5.6%); in infants under 1 year of age it was nearly six times as great (31%); while in persons over 60 years of age it was ten times as high (56.6%).

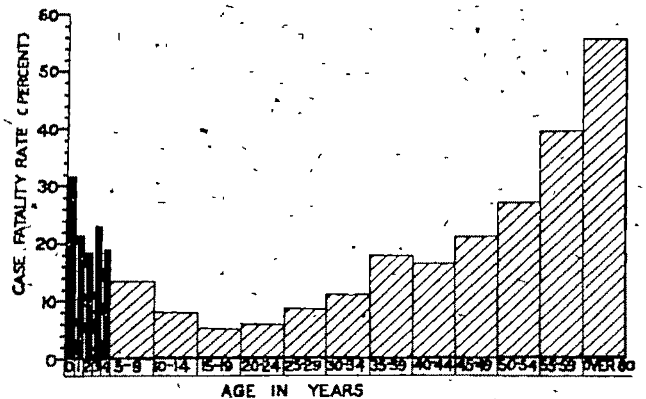

Fig. 1.—Cerebrospinal fever case fatality rate according to age; 3,557 cases.

Fatality in Relation to Sex.—Fatality was greater among females (17.8%) than males (14.6%). Comparing rates for both sexes at different ages (Table II), the lower average rate for all males can be seen to be due in part to the high proportion of males at ages 20 to 34, a time of life at which the probability of recovery from cerebrospinal fever is greatest. When adjusted for age the average rates for the two sexes do not differ significantly.

Severity and Complications

A request for the attending physician's estimate of clinical severity was included in the forms used in this survey. On the basis of these estimates cases were divided into three grades—mild, moderate, and severe. Of the 3,308 cases in which this classification was possible, 1,568 (47.4%) were severe, 1,297 (39.2%) were moderate, and only 443 (13.4%) were mild.

Cranial nerve paralysis, arthritis, and deafness were the commonest complications. The cranial nerves most often involved were the third, fourth, sixth, and seventh, leading to strabismus or facial weakness. Table III contains all complications mentioned in the reports. Conditions which had disappeared or were terminating at the time the patient was discharged from hospital are classed as transient; those still present at the time of discharge are designated permanent. While this undoubtedly includes the common complications of cerebrospinal fever, with some indication of their relative frequency, the actual incidence is probably greater, owing to the fact that the forms used did not contain a specific request for enumeration of complications. No indication of the incidence of late sequelae could be obtained from this material.

Table III.—*Complications Noted in Hospital: 3,005 Non-fatal Cases*

Complication	No. of Cases	Duration		
		Transient	Permanent	Not Stated
Cranial nerve paralysis	97	53	21	23
Arthritis	82	40	13	29
Deafness	63	9	43	11
Urinary retention ..	14	14	0	0
Abscess (injection) ..	13	13	0	0
Paralysis, extremities	13	6	6	1
Pneumonia	13	13	0	0
Conjunctivitis ..	7	6	0	1
Hydrocephalus ..	7	0	4	3
Blindness	6	1	4	1
Corneal ulcer	5	1	0	4
Lymphadenitis	5	2	0	3
Otitis media ..	5	4	0	1
Orchitis	1	1	0	0
Pericarditis	1	1	0	0

Cases terminating Fatally within 24 Hours of Admission to Hospital

For the purpose of evaluating therapeutic measures patients who died within 24 hours of admission to hospital were separated from those whose death took place after more than one day of hospital treatment. Of all fatalities 217, or 38%, were in the less-than-24-hour group. Their incidence according to age is shown in Table IV. There does not appear to have been a significant grouping at any period of life. Study of the reports leads to the conclusion that in most instances death was attributable to severity of the disease rather than to delay in starting treatment.

Table IV.—*Fatalities within 24 Hours of Admission to Hospital, by Age Groups: 217 Cases*

Age	Total Deaths	Death within 24 Hours	
		Number	Per Cent.
0	79	24	30·4
1	43	19	44·2
2	38	8	21·0
3	38	17	44·7
4	24	14	58·3
5–9	50	23	46·0
10–14	26	11	42·3
15–19	24	12	50·0
20–24	20	10	50·0
25–29	27	12	44·4
30–34	28	8	28·6
35–39	33	9	27·3
40–44	22	10	45·4
45–49	20	6	30·0
50–54	22	11	50·0
55–59	30	12	40·0
Over 60 ..	43	10	23·2
Age not stated	3	1	
Total	570	217	38·1

Specific Therapy

Sulphonamides

In comparing various factors in sulphonamide therapy the procedure in this analysis has been to consider only those patients who survived 24 hours or more after admission to hospital. This arbitrary division has been made on the assumption that a patient who survived for less than 24 hours after the beginning of treatment did not constitute a fair test subject.

Comparison of Various Sulphonamides.—Five different sulphonamide drugs were employed—sulphapyridine, sulphanilamide, sulphathiazole, soluseptasine, and proseptasine. The frequency with which they were used is shown in Table V, together with the corresponding case fatality rates. Sulphapyridine (M & B 693) was by far the most popular drug. It alone was used in 86.6% of the cases, and in combination with one of the other sulphonamides in an additional 200 instances, or 95% of the total. Sulphanilamide and sulphathiazole were the only other compounds used often enough to warrant comparison. The fatality rate for patients treated with sulphathiazole, alone or in combination, was the lowest—2.5% for 80 cases, treated in one hospital. With sulphanilamide, alone or in combination, there were 18 deaths among 227 cases, a fatality rate of 7.9%. With sulphapyridine, alone or in combination, there were 222 deaths in 2,321 cases, a fatality rate of 9.6%. No conclusion should be drawn from these figures, because the numbers of persons treated with sulphathiazole and sulphanilamide were too small to justify comparison by age groups.

Table V.—*Comparative Fatality Rates with Different Sulphonamide Compounds: 2,455 Cases**

Sulphonamides	Number of Cases	Number of Deaths	Fatality Rate (%)
Sulphapyridine	2,121	206	9·71
Sulphanilamide	90	7	7·78
Sulphathiazole	38	2	5·26
Sulphapyridine and sulphanilamide ..	136	11	8·09
„ „ sulphathiazole ..	42	0	0
„ „ soluseptasine ..	20	5	25·00
„ „ proseptasine ..	1	0	0
Soluseptasine and proseptasine .	1	1	100·00
Sulphapyridine, sulphanilamide, and soluseptasine	1	0	0
Not stated	5	1	20·00
Total	2,455	233	9·49

* Not included in this table: 900 cases treated with serum and sulphonamides; 201 fatalities in which death occurred within 24 hours of admission to hospital; 15 patients who received neither sulphonamides nor serum; 3 patients who received serum only.

Dosage.—Banks (1939) has recommended the following schedule of dosage in the treatment of cerebrospinal fever:

Age period in years (inclusive) ..	0–1	2–4	5–9	10–14	15 and over
Daily amount in grammes ..	3	4½	6	7½	9

But, he added, "there is evidence that lower dosage of sulphapyridine will often be successful." The Ministry of Health adopted Banks's suggestions in their Memorandum (1940). Some persons have criticized this dosage as too large and have claimed that equal results can be obtained with about two-thirds as much (Willcox and Cutts, 1941). In the present analysis an attempt has been made to compare results obtained when the amounts used were less than those of Banks with results obtained when sulphonamides had been given in a quantity equal to or greater than that recommended. Any administration of drug previous to admission of the patient to hospital was disregarded, because the data were seldom complete. The division of cases into the two groups was made on the basis of dosage of sulphonamide during the first 24 hours after admission to hospital. Statistically (Table VI), it could not be shown that the results were better in cases treated strictly according to Banks's schedule than in cases treated somewhat less intensively.

TABLE VI.—*Comparison of Dosage in Recovered and Fatal Cases: 3,123 Cases**

Age Group	Percentage who received Dosage Equal to or Greater than Banks's Schedule	
	Recovered	Died
0	52·7	51·8
1	66·7	70·9
2	37·6	56·6
3	53·7	80·9
4	50·0	70·0
5–9	66·5	69·3
10–14	50·8	38·5
15–19	51·9	80·0
20–24	54·5	55·5
25–29	53·9	35·7
30–34	54·5	61·1
35–39	53·9	38·1
40–44	50·0	45·5
45–49	50·0	75·0
50–54	50·9	45·5
55–59	46·5	62·5
Over 60	45·2	59·4

* Not included in this table: 233 cases in which the data were inadequate; 201 cases in which death occurred within 24 hours of admission; 19 cases in which chemotherapy was not used.

Duration of Sulphonamide Therapy.—Great variation was found in the length of time chemotherapy was continued. The number of days of sulphonamide therapy in the non-fatal cases is shown in Table VII. The average length of treatment was eight days. Therapy was discontinued in 200 or more cases on each day of treatment from the fourth to tenth days, 73% of the cases falling into this period. There was little mention of necessity for resumption of treatment because of too early discontinuance.

TABLE VII.—*Duration of Chemotherapy: 3,005 Non-fatal Cases*

Duration of Chemotherapy (Days)	Number of Cases	Percentage of Total	Duration of Chemotherapy (Days)	Number of Cases	Percentage of Total
1	1	4·4	13 and 14	109	3·6
2	25		15 ,, 16	51	
3	106		17–20	49	3·3
4	243	8·1	21–25	17	0·8
5	344	11·4	26	3	
6	328	10·9	29	2	
7	342	11·4	31	1	
8	365	12·1	39	1	
9	347	11·2	57	1	
10	249	8·3	Not stated	220	7·3
11 and 12	201	6·7			

Relation of Duration of Disease before the Beginning of Therapy to the Final Outcome.—A delay in admission to hospital does not appear to have been a prime factor in determining the outcome, since patients who recovered did not, on the average, begin treatment any earlier than patients who died. Patients who died within the succeeding 24 hours (Table VIII) were, in general, admitted earlier in the course of their disease than those who recovered or those whose death took place 24 hours or more after admission. One must conclude, therefore, that early institution of chemotherapy is not in itself sufficient to prevent death in certain cases of cerebrospinal fever. This does not, of course, lessen the desirability of beginning treatment as early as possible; it simply indicates that such factors as virulence of the infecting agent and resistance of the host are still of the greatest importance, even with the benefit of sulphonamide therapy.

TABLE VIII.—*Day of Disease on which Chemotherapy was Instituted: 3,556 Cases**

Day of Disease which Therapy was Instituted	Recovered Cases		Death within 24 Hours of Admission		Death more than 24 Hours after Admission	
	Cases	Percentage of this Group under Treatment	Cases	Percentage of this Group under Treatment	Cases	Percentage of this Group under Treatment
1st	207	6·88	18	8·95	21	6·00
2nd	717	30·74	65	41·28	82	29·42
3rd	546	48·90	42	62·17	78	51·70
4th	489	65·17	27	75·60	53	66·84
5th	261	73·85	17	84·05	35	76·84
6th	147	78·74	7	87·53	18	81·98
7th and 8th ..	150	83·75	6	90·51	18	87·12
9th day and after	120	87·72	5	92·99	28	95·12
Unknown ..	363		14		17	
Total ..	3,005		201		350	

* Not included in this table: 16 cases in which no treatment was given, 3 cases in which serum therapy alone was used

Serum

Combined Treatment with Sulphonamide.—In all, 965 patients received serum in addition to sulphonamide therapy. Including patients who died within 24 hours of admission to hospital there were 181 deaths—a fatality of 18.8%. Among 2,591 patients treated with the drug alone there were 389 deaths—a rate of 14.3%. After adjustment for age the difference between these two rates is highly significant. Fig. 2 shows that in nearly every age group the results with combined drug and serum therapy were less satisfactory than those achieved with the drug alone. Several factors were studied in an effort to discover why the mortality was greater in serum-treated cases.

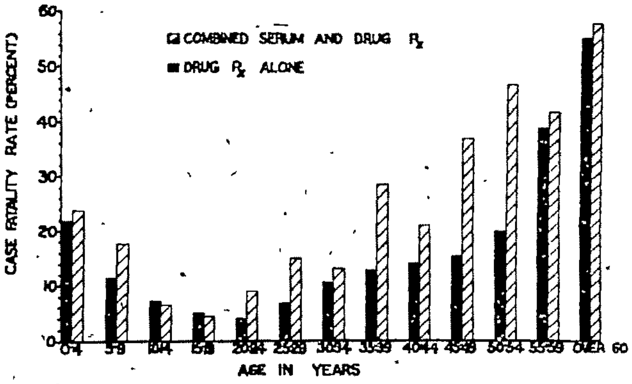

FIG. 2.—Cerebrospinal fever; 3,557 cases. Comparative case fatality rates.

(*a*) *Comparison of Types of Antiserum.*—Two types of antiserum were used—antimeningococcus serum and meningococcus antitoxin. The rates for the two show little difference (Table IX).

TABLE IX.—*Comparative Fatality Rates with Different Types of Serum: 965 Cases*

Type of Serum	Cases	Deaths	Case Fatality Rate (%)
Antimeningococcus serum ..	370	63	17·02
Meningococcus antitoxin ..	124	22	17·74
Antimeningococcus serum and meningococcus antitoxin ..	16	4	25·00
Not specified	455	92	20·22
Total	965	181	18·75

(*b*) *Route of Administration of Serum.*—This may be significant (Table X) in that the fatality rate was somewhat higher in patients who received serum intravenously.

TABLE X.—*Comparative Fatality Rates with Different Routes of Serum Administration : 895 Cases**

Route of Administration	Number of Cases Treated	Number of Fatalities	Fatality Rate (%)
Intramuscular only	375	60	16·00
Intrathecal only	200	39	19·50
Intravenous only	101	23	22·77
Intramuscular and intrathecal	126	21	16·66
Intramuscular and intravenous	70	23	32·85
Intrathecal and intravenous	17	4	23·52
Intramuscular, intrathecal, and intravenous	6	3	50·00
Total	895	173	19·33

* Not included in this table: 70 cases in which route of serum administration was not specified.

(*c*) *Dosage of Sulphonamide in Patients receiving Combined Therapy.*—The higher mortality in patients treated with serum might conceivably have been due to a tendency to administer insufficient quantities of the drug. This was not borne out by analysis, since the percentage of patients who received sulphonamides on a scale equal to or greater than that of Banks was almost exactly the same in serum-treated cases as in those treated with sulphonamide alone (57.5% and 58.1% respectively).

(*d*) *Serum Administration where Drug Therapy had Failed.*—Of patients receiving serum 88% were treated on the first hospital day It is not likely, therefore, that serum administration had often been used as a last resource where drug therapy appeared to be without result.

(*e*) *Use of Serum for the More Severe Cases.*—One factor which probably played some part in the greater fatality rate for serum-treated patients was disclosed by comparing the clinical severity of the two series. Of cases which received the combined serum-and-drug therapy 56% were rated as severe, and only 6% as mild; while of the cases treated with the drug alone 38.8% were rated as severe and 14.8% as mild.

Discussion

This large group of patients, including both sexes, all ages. and treated in more than a hundred different hospitals, adds further weight to the previously recognized efficacy of the sulphonamides in the treatment of cerebrospinal fever.

The age of the patient is a significant factor in determining the final outcome; fatality rates range from as low as 5.6% in young adults to as high as 56.6% in persons over 60. In view of this the evaluation of any therapeutic procedure must give careful consideration to the age grouping of the population concerned. A number of recent articles on the treatment of cerebrospinal fever have been based on experience in military populations. Results with such patients of a favourable age group would naturally be better than results obtained for a general population.

When the present analysis was undertaken opportunity was anticipated for comparison of the efficacy of various sulphonamide preparations. It was found, however, that sulphapyridine had been used almost to the exclusion of all others, so that statistically significant comparisons for the several drugs by age groups could not be made. The gross fatality rate with sulphapyridine was higher than that with either sulphanilamide or sulphathiazole. Information was likewise desired on the optimum dosage of sulphonamides, in view of the controversy about the need for a dosage as large as that recommended by Banks. In this analysis it could not be shown that deaths were less frequent among patients treated according to Banks's schedule. Hundreds of patients recovered satisfactorily when one-half to two-thirds the recommended amounts were administered; and conversely, 58.4% of the patients who died had received a dosage equal to or greater than the schedule of Banks. There were, however, some few fatal cases when the amount of drug given was less than one-half that recommended by Banks, and it may well be that in some instances the administration of a greater quantity of drug would have sufficed to turn the tide.

Patients treated with serum in addition to sulphonamide had a higher fatality rate than those treated with drug alone. The only determinable factor was that a higher proportion of cases treated with serum were graded as severe. On the other hand, this study furnishes no evidence that serum therapy is beneficial when combined with chemotherapy in cerebrospinal fever. That the use of serum actually did harm cannot be stated with certainty. In this connexion the recent study of Plummer *et al.* (1941) on the comparable problem in pneumococcal pneumonia is of interest. In an alternate series of cases a slightly higher fatality rate was observed in a group of patients receiving serum in addition to sulphonamide than in patients treated with drug alone. This is especially noteworthy in view of the proved efficacy of serum therapy in pneumonia.

Statistically, the results were as good when therapy was begun comparatively late in the course of the disease as when it was begun earlier. This is probably due to the fact that when therapy was begun later in the disease it was on the whole in the milder cases; while treatment was begun earlier when the clinical condition was so alarming as to necessitate early removal to hospital.

Summary and Conclusions

The present report is an analysis of data on cerebrospinal fever which had been collected by the Ministry of Health. The source of the information was a group of 3,575 case reports submitted from more than a hundred hospitals in England and Wales during a two-year period between 1939 and 1941. All but 19 patients were treated with sulphonamides, and 965 of them received some form of specific serum therapy.

The disease occurred most often in infants and young children, 45.5% of the patients being under 15 years of age. The ratio of males to females was 6 to 4.

The fatality rate for all patients was 15.94%; it was greatest at the extremes of life and least in the 15–19-years age group. Of the deaths in the series 38% occurred within 24 hours of the time of admission to hospital.

The most frequent complications were cranial nerve paralysis, arthritis, and deafness.

The case fatality rate in 2,591 cases in which sulphonamides alone were used was 14.3%. In an additional 965 cases, in which serum treatment was combined with chemotherapy, the fatality rate was 18.8%. The poorer result was probably due in part to the fact that serum was administered to more severely ill patients. On the other hand, there is no indication from this study that the administration of serum as an adjuvant to sulphonamide therapy is beneficial.

In the treatment with sulphonamides a considerable variation appears to be possible in such matters as dosage and duration of therapy without noticeable effect on the fatality rate.

Statistically the results were about the same whether chemotherapy was begun early or comparatively late in the course of the disease. This can be attributed to the fact that severe cases tend to be sent to hospital sooner than mild cases.

The host factor, particularly the age of the patient, is of distinct importance in determining the outcome of meningococcal infection, even with the aid of sulphonamide therapy.

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Measures taken to control the domestic mosquito in Kenya have been such that it is now improbable that yellow fever if introduced into the Colony could establish itself or assume epidemic form in any urban centre. The latest annual report of the Medical Department for the Colony and Protectorate of Kenya describes the work and also the steps taken to ensure control of mosquito breeding on all steamships and dhows entering the port of Mombasa. An inoculation campaign was started in April, 1941, and by the end of the year all the inhabitants of Mombasa and of the country between Mombasa and the Tanganyika boundary had been inoculated. In addition many persons who were likely to travel either to Uganda or to India were inoculated in up-country towns. Altogether something like £20,000 was spent during the year on these preventive measures.

CHEMOTHERAPY AND SEROTHERAPY IN CEREBROSPINAL (MENINGOCOCCAL) MENINGITIS

AN ANALYSIS OF 3,206 CASE REPORTS

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Cerebrospinal (meningococcal) meningitis, usually known as cerebrospinal fever, became compulsorily notifiable throughout England and Wales on Sept. 1, 1912; previous to that date the disease had been notifiable only in certain districts. The prevalence from 1913 onwards is shown in the following abridged table of notifications, with deaths in parentheses:

TABLE I

1913	1914	1915	Av. 1916–20	Av. 1921–5	Av. 1926–30	Av. 1931–5	1936	1937	1938	1939	1940
305 (332)	315 (194)	3,712 (2,203)	1,000 (908)	371 (343)	516 (490)	1,593 (988)	994 (635)	1,140 (698)	1,288 (652)	1,500 (514)	12,771 (2,584)

Between the peak years 1915 and 1940 the smallest annual number of notifications was 301 in 1923, and the largest 2,157 in 1931. The prevalence remained at a low level from 1920 to 1929, when it began to rise until 1931-2. A decrease thereafter was followed by a steady increase, and in the Chief Medical Officer's Annual Report for 1938 the statement was made that as since the epidemic period in 1931-3 the number of notifications had not fallen to so low a point as after the 1915-17 epidemic, and as the number of Group I infections appeared to be increasing, the probability that we were approaching another period of epidemic prevalence could not be disregarded. The suspicion was confirmed in 1940, and to a degree beyond expectation.

It is possible, however, that in the second and third quinquennia in the table the annual numbers of notifications from which the averages are derived do not represent the true prevalence, for it is precisely in those years of minimal notification that the deaths were proportionately high and in some years even exceeded notifications. On the other hand, as was suggested in a previous Annual Report, it may be that in years of high prevalence, when medical practitioners are on the look-out for the disease, a larger proportion is notified than in years of low prevalence, when cases occur sporadically and are more easily overlooked. Also, as pointed out by Reece (1917), in times of prevalence cases of anomalous disease are more likely to be attributed to cerebrospinal fever than are genuine cases to be overlooked. Probably, then, in the years under review the deaths and not the notifications would be the proper gauge of prevalence.

Fatality Rate.—In the light of these views the fatality rates from 1913 to 1930 can only be approximate. Nevertheless, two conclusions can now be formed: first, that, owing to the almost invariable recourse to bacteriological aid in diagnosis, notification has become more trustworthy as an index of prevalence in recent years; secondly, that there has of late been a steady and real decline in fatality. For instance, in the period 1927-34, comprising four years of low prevalence succeeded by four of high, the average fatality of the first four years was 95% and of the second four 61%. Even allowing that the former figure may be too large through being related to a period of under-notification and the latter figure too small on account of the opposite reason, there is still room to believe that decline took place and, further, to regard a contemporary improvement in the administration of antimeningococcus serum as a factor in the decline. Again, in the years 1935-9 as the annual numbers of notifications increased so the fatality rates decreased, being successively 69.8, 63.8, 61.2, 50.6, and 34.2. The conspicuous drop in the last two years was due to the introduction of the drugs of the sulphonamide series in the treatment of cerebrospinal fever.

Distribution.—In the period 1913-39 the disease was widely spread, here and there assuming the character of epidemicity, as in the West Riding of Yorkshire in 1931-2, the counties of Lancaster, Durham, Derby, and Nottingham in 1932, and in Wrexham district in 1939.

Prevalence in 1940.—The alert was sounded early. In the second week in January the number of notifications rose from 53 to 107, and in the first nine weeks of the year the numbers were successively 53, 107, 144, 184, 299, 406, 557, 585, and 617. From the ninth week (ended March 2) they declined irregularly to 106 in the first week of September. Thenceforward there was a rise, which continued with slight remissions to the end of the year and into 1941 to a maximum of 406 in the week ended Feb. 22.

Distribution in 1940.—The disease prevailed impartially throughout the country; no county in England or Wales escaped, and there were no "dramatic local outbursts." London, which in 1915 suffered severely in proportion to the rest of the country, in 1940 returned only 880 notifications out of the total of 12,771. No doubt this was due to the absence, through evacuation, of a substantial proportion of young persons—those, in fact, in the most susceptible age groups. At the peak of the prevalence (week ended March 2) sixteen counties returned 15 or more notifications, the highest being Lancaster 52, Southampton 51, and Glamorgan 37.

Character of the Disease.—This was of the usual severity. Quite 60% of the case reports analysed below had been noted by the physicians in charge as severe or very severe, and fulminating cases unresponsive to the promptest treatment were not rare. The low fatality rate for the year—20.2%—cannot therefore be discounted by any suggestion that the disease was of a milder order than formerly.

Serum Treatment

In 1930 it became apparent that the results of serum treatment were not proving so satisfactory as those obtained, for instance, among military cases in 1917-18. It was suggested that the cause was that the serum available had been prepared from old strains of meningococcus or strains isolated in interpandemic times, and so might lack antibodies to the organisms responsible for the current outbreak. Another suggestion, advanced by Gordon (1920), was that the serum was deficient in anti-endotoxin. Arrangements were therefore made by the Ministry in 1931 whereby manufacturers of serum were provided with strains of meningococcus procured from current cases of the disease, and reports on the results of treatment by this new "current" serum were invited from medical officers of health, hospital medical officers, and medical practitioners (Reports on Public Health and Medical Subjects, No. 65). This was followed in 1932 by the issue of a *Memorandum to Medical Officers of Health* urging the prompt administration and repetition of adequate doses of serum. From an analysis of the reports received at the Ministry by Dr. E. L. Sturdee in the four years 1931-4 the following figures were extracted. In 382 cases untreated by intrathecal injections of the current antimeningococcus serum the fatality was 61.8% (Sturdee, 1936). In 2,279 cases treated by intrathecal injections of the current serum the fatality was 36.6%. Of the 2,279 cases, 988 that were treated with the current serum on the lines of the recommendations in the Memorandum gave a fatality of 27.9%. Of these 2,279 cases the ages were known in 2,274, and among these the fatality was as follows.

TABLE II

Age Group	Fatality (%)
Under 1 year	67·2
1 and under 5	38·6
5 " " 15	22·7
15 " " 20	28·1
20 " " 30	35·2
30 " " 40	45·2
40 " " 50	58·2
50 and over	71·4

Chemotherapy

In 1935, when prontosil was introduced, a new era dawned in the fight against microbic disease. From prontosil was derived sulphanilamide, and when it was found that prontosil was partly converted in the body into sulphanilamide and also that it passed more slowly from the blood into the cerebrospinal fluid than sulphanilamide the latter became the drug of choice. Banks (1938) reported his results of treatment with serum alone, with serum and sulphanilamide, and with sulphanilamide alone. In 38 cases treated with large doses of serum intravenously and intrathecally the fatality was 16%; the method was relatively difficult and laborious, and the nursing complicated for several days. In 59 cases treated with both serum and sulphanilamide the fatality was 11.8%; recovery was very rapid and the nursing relatively easy. In 16 selected cases of favourable age-grouping treated with sulphanilamide alone there were 15 rapid recoveries. But Whitby (1938) found that another of the sulphonamide derivatives labelled sulphapyridine (M & B 693) was more effective against the pneumococcus than sulphanilamide and equally potent against the meningococcus, and also was less toxic to the patient. This was a great advance, as sulphapyridine can be promptly administered to a case of purulent meningitis while the bacteriological report as to pneumococcal or meningococcal origin is awaited. Banks (1939), reporting on further experience with serum, sulphanilamide, and sulphapyridine, stated that there was no evidence in favour of auxiliary treatment with serum, that sulphanilamide must be given in doses high enough to maintain a certain concentration of the drug in the cerebrospinal fluid for eight or nine days, but that a smaller dosage of sulphapyridine might prove to be successful and that the oral route could be used throughout in most cases.

In consequence of the encouraging results obtained by chemotherapy the Ministry issued in March, 1940, a Memorandum (234/Med.) briefly summarizing the modern views on the treatment of cerebrospinal fever, and giving an account of the dosage and procedure recommended by Banks. The Memorandum also stated that although there appeared to be no convincing clinical evidence that the use of serum was necessary, even as an adjuvant to chemotherapy conducted on the lines given in the Memorandum, nevertheless some recent animal experiments suggested that better results might be obtained by combining the two forms of treatment. Thus, though there was general agreement that Group I and Group II meningococci were equally susceptible to sulphanilamide or sulphapyridine and that the use of these drugs marked a great advance in the treatment of cerebrospinal fever, it was uncertain whether the combined use of either of the drugs with serum was preferable to the use of the drug alone. Jordan *et al.* (1940) obtained far better results when either immune serum or antitoxin was combined with sulphapyridine. Harries (1940) combined the drug treatment with antitoxin in severe cases only. Williams and Brinton (1940), following the practice of Banks, treated 45 consecutive cases with sulphapyridine alone; all the cases recovered and remained free from sequels. These cases, however, were among very fit adults, presumably in favourable age groups.

To secure information on the results of treatment during the high prevalence of cerebrospinal fever in 1940 the Ministry sent in April of that year a letter to the medical officers of health of certain large boroughs throughout the country requesting particulars of cases treated in hospital since the beginning of the year. A form for each case was provided showing the nature of the particulars desired; these included the name of the drug and the amount and hour day by day of each dose of the drug, and of serum if used. The response from medical officers of health and medical officers in charge of isolation and other hospitals was generous, and it is gratefully acknowledged. More than 60 hospitals contributed.

In estimating the fatality rate in a large series of cases treated by serum, Sturdee (1936) excluded deaths due to intercurrent disease or occurring within 24 hours of the first administration of serum. In the present analysis, though serum was not given alone, all cases (approximately 130) were excluded that did not survive more than 24 hours after admission to hospital; this seemed equitable in comparing the results of the methods of treatment—chemotherapy combined with serum, and chemotherapy alone. The total number of cases for analysis, then, was 3,206; of these 849 were treated by the combined method and 2,357 by chemotherapy alone, and the fatality rates of these two classes are given in Tables III and IV.

The antimeningococcus sera and antitoxins used were designated "Burroughs Wellcome and Co.," "Parke, Davis and Co.," "Lister," "Lilly," "Mulford," "Sharp and Dohme," "Lederle," and "New York State." Most of the cases in Table III were treated by sulphapyridine orally and polyvalent serum intrathecally. Occasionally in the treatment of a case the sequence of oral administration was interrupted by parenteral injections of sulphapyridine (soluble M & B 693) or of soluseptasine (a sulphonamide). In the same manner changes were made to sulphonamide (? sulphanilamide) in 7 cases, prontosil in 3, and sulphathiazole (thiazamide) in 3, and in 11 cases sulphonamide (? sulphanilamide) alone was combined with the serum.

Table III.—*Fatality Rates in 849 Cases treated in Civilian Hospitals by Chemotherapy and Serum, and Surviving more than 24 Hours after Admission*

Age Groups	Cases		Deaths		Fatality %		Age-group Fatality %
	M	F	M	F	M	F	
Under 1 year ..	26	14	9	4	34·6	28·5	32·5
1–2 years ..	27	18	6	2	22·2	11·1	17·7
2–3 " ..	31	18	3	3	9·6	16·6	12·2
3–4 " ..	29	25	5	7	17·2	28·0	22·2
4–5 " ..	16	12	2	1	12·5	8·3	10·7
5–15 " ..	78	76	7	6	8·9	7·8	8·4
15–25 " ..	115	69	3	5	2·6	7·2	4·3
25–45 " ..	145	82	22	10	15·1	12·1	14·1
45–65 " ..	25	31	7	9	28·0	29·0	28·5
65 and over ..	7	5	3	3	42·8	60·0	50·0
All ages ..	499	350	67	50	13·4	14·2	13·8

Table IV.—*Fatality Rates in 2,357 Cases treated in Civilian Hospitals by Chemotherapy alone, and Surviving more than 24 Hours after Admission*

Age Groups	Cases		Deaths		Fatality %		Age group Fatality %
	M	F	M	F	M	F	
Under 1 year .	102	72	24	15	23·5	20·8	22·4
1–2 years .	89	54	14	5	15·7	9·2	13·3
2–3 " ..	89	54	8	11	8·9	20·3	13·3
3–4 " .	45	50	4	7	8·8	14·0	11·5
4–5 " ..	39	37	4	1	10·2	2·7	6·5
5–15 " .	236	218	12	13	5·0	5·9	5·5
15–25 " .	330	159	9	3	2·7	1·8	2·4
25–45 " ..	374	197	16	22	4·2	10·1	6·6
45–65 " .	82	113	13	29	15·8	25·6	21·5
65 and over .	9	8	5	4	55·5	50·0	52·9
All ages .	1,395	962	109	110	7·8	11·4	9·2

Group I serum was given in 29 cases, and Group II serum in 2 cases, in addition to polyvalent serum. In 85 cases meningococcus antitoxin was given, mainly instead of, and sometimes in addition to, polyvalent serum; the use of antitoxin was confined to one or two hospitals. Meningococcus vaccine was administered in 3 cases.

The drug most often employed in Table IV was sulphapyridine, usually by the mouth and sometimes, in addition, intramuscularly or intravenously; sulphanilamide, soluseptasine, and sulphathiazole were also used, but not often enough for separate analysis of effect in treatment.

The salient points in Table III are: (*a*) the low fatality rate for males in age group 15–25; (*b*) the nearly equal sex fatality for all ages, 13.4 and 14.2; (*c*) the low total fatality rate of 13.8; (*d*) the almost unbroken curve of the age-group fatality, falling from infancy to adolescence and then rising to old age. We have no figures of the same age groups to consult, but this was in general the curve in former times.

Table IV, in comparison with Table III, presents a more regular curve of fatality, from infancy downwards to adolescence and rising to old age; and, except in the age groups 3–4 and 65 and over, the fatality rates are substantially lower than in Table III. The fatality at all ages of cases treated by chemotherapy alone was 9.2%, as contrasted with 13.8% among cases treated by chemotherapy combined with serum. In Table IV the very low rate—2.4%—in the age group 15–25 is particularly notable.

Presence of Meningococcus

It is satisfactory to record that out of the total of 3,206 cases the cerebrospinal fluid was examined for the meningococcus in 2,993 cases (93%), with a positive result in 2,727 (91%). The remaining 9% and the 213 cases in which there was no mention of examination were considered by the physicians in charge to be clinically beyond doubt. Of the 849 cases treated by chemotherapy plus serum the meningococcus was sought in 785 cases (93%) and found in 744 (94%). The corresponding figures for the 2,357 chemotherapy cases were 2,204 (90%) and 1,983 (90%). The difference between the two classes in the percentages of search and success is not large enough to have a significance relative to the difference in their fatality rates, and it does not appear that the classes differed in the severity of their cases.

Meningococcal Groups

Brinton (1941) says that those who have had most experience of chemotherapy maintain that it has rendered treatment by serum as obsolete as routine spinal drainage. It was noted above that Group I serum was given in 29 cases, and Group II serum in 2 cases, *in addition to* polyvalent serum and chemotherapy. This proportion in 849 cases does not suggest that much reliance was placed on group sera, and perhaps we shall see group identification falling into desuetude. It is of special value, therefore, to have the opportunity of summarizing here the information gained from what may be the last large-scale inquiry into the incidence and distribution of the meningococcal groups.

Among the 849 chemotherapy-plus-serum cases (Table III) grouping was successful in 189, giving 172 Group I and 17 Group II—a proportion respectively of 91% and 9%. Among the 2,357 cases treated by chemotherapy alone (Table IV) grouping was successful in 489, giving 440 Group I and 47 Group II—a proportion respectively of 90% and 10%. Therefore, so far as was ascertained, the grouping in the two classes of treatment was practically identical. A few cases were reported either as "aberrant" or as reacting to the sera of both groups.

During the epidemic prevalence in the West Riding of Yorkshire in 1930-2 the presence there of Group I among the cases was reckoned at 94%. Among the 2,279 cases reported upon in the period 1931-4 the group was identified in 555, giving 441 Group I and 114 Group II—80% and 20% respectively. But though the period was one of comparatively high prevalence a large proportion of the strains examined came from non-epidemic areas in which Group II proved to be as common as, and in some even commoner than, Group I. The figures in 1940, coming from so many parts of the country where cerebrospinal fever was prevalent, again suggest that an increase of Group I is a factor in epidemicity, but we cannot define its rank of importance among other factors in 1940, such as the mixing of population, the aggregation of persons of susceptible ages, and the conditions of black-out aggravated by inclement weather.

The distribution of the groups was country-wide, contemporaneous, and collateral. As examples of Group I mention may be made of London, Birmingham, Bootle, Cardiff, Carlisle, Chesterfield, Colchester, Derby, Hull, Kettering, Manchester, Liverpool, Oxford, Norwich, Salford, Sheffield, Shrewsbury, and Sunderland. Group II appeared to be just as widely dispersed; London and most of the large towns referred to reported the presence of both groups.

Table V gives the percentage of Groups I and II found in each age period.

TABLE V

Age Group	Percentage of Meningococcal Group		Percentage of Cases not examined or Inconclusive on Examination
	Group I	Group II	
Under 1 year	18	4	78
1–2 years	24	1	75
2–3 ,, ...	22	4	74
3–4 ,, ...	28	1	71
4–5 ,, ...	16	3	81
5–15 ,, ...	22	3	75
15–25 ,, ...	17	2	81
25–45 ,, ...	16	1	83
45–65 ,, ...	13	2	85
65 and over	7	7	86

Severity of Meningococcal Groups.—It has been questioned whether there is a relation between the kind of meningococcal group and the severity of attack. A sampling of nearly 2,000 of the case reports was made with this point in view. Among the cases that could be termed severe or very severe the proportion of Group I was 19% and of Group II 2%; among the mild and moderately severe cases that of Group I was 18% and of Group II 1%. It will be remembered that the group proportions over all identified cases were 90% and 10%. So in the cases under consideration Group II was at least as severe clinically as Group I.

Fatality of the Groups.—The fatality of Group II, moreover, was higher in all cases taken together; it is shown in Table VI.

TABLE VI

Description	Fatality %	
	Group I	Group II
All identified cases	9·7	12·5
Cases treated by chemotherapy and serum ..	12·2	23·5
Cases treated by chemotherapy alone ..	8·8	8·5

It appears, then, that in the cases reviewed Group II equalled Group I in severity and exceeded it in fatality. Something of this nature was hinted at in the Chief Medical Officer's Annual Report for 1931.

Comments

The aim of the Ministry was the collection of information on the results of treatment by chemotherapy, with reference particularly to the amounts and times of dosage as based on the experience of Banks and others, and embodied in the Memorandum of 1940. Many of the physicians filled up the case reports with exactness, giving the amount and hour of each dose of drug, and of serum if used, and added notes on the course of each case, the character of the attack, the response to treatment, and the occurrence of complications and sequels. Cerebrospinal fever is more deadly than deforming, yet its occasional withering effect on the most precious senses must seem at times only less tragic than death. An inquiry is being made into the occurrence and persistence of sequels and the relation of incidence to dosage. So far it appears probable that dosage was not a factor of great importance; and as to blindness and deafness, it is conceded that an early onset of grave damage to nerve cells may be irreparable by any size of dose in chemotherapy or by any form of treatment whatsoever.

It is desirable that the value of cerebral and lumbar puncture be defined, whether or no the procedure should be reserved for diagnosis. Instances of cisternal and ventricular puncture occur in the case reports, and some physicians performed frequent lumbar puncture for the relief of pressure while others never resorted to it for that purpose. In this connexion the opinion of Williams and Brinton (1940) may be quoted: "Neither the high cerebrospinal fluid pressure nor the absence of artificial drainage prevented the passage of sulphapyridine through the choroid endothelium into the cerebrospinal fluid. It seems that the concentration of sulphapyridine in the cerebrospinal fluid maintains a high level if the normal flow and absorption of fluid is undisturbed by repeated drainage. When adequate doses of sulphapyridine are given the disease can be effectively controlled without therapeutic lumbar puncture."

Another important question is whether the value of intramuscular injections of drugs is great enough to outweigh the risk of abscess and sloughing, and the consequent extra labour in nursing and delay in convalescence.

In no instance among the cases under review was a sulphonamide injected into the theca. An account of two cases of paralysis of the lower limbs following the intrathecal injection of soluble sulphapyridine was published by Hunter (1940), and a group of four cases of myelitis after intrathecal injection of soluseptasine were reported to the Ministry in the same year.

It will be noted that there is a preponderance of males in the age groups 15–25 and 25–45. About 100 have been entered as non-civilians on the case reports, and it is possible that others have not been so identified; the excess of males is not to be regarded as an indication of greater susceptibility but of greater exposure to risk in living conditions due to war. At "all ages" of the cases the fatality rate of the females was higher (12.2%) than that of the males (9.3%). It may be that owing to circumstances a larger proportion of males received prompt treatment.

Summary

The fatality rate in 3,206 cases treated in hospital either by chemotherapy plus serum or by chemotherapy alone, and surviving more than 24 hours after admission, was 10.5%.

The rate in 849 cases treated by chemotherapy plus serum was 13.8%.

The rate in 2,357 cases treated by chemotherapy alone was 9.2%.

In the five years 1936–40 there was a steady decline in the fatality of cerebrospinal fever, the annual rates per cent. being successively 63.8, 61.2, 50.6, 34.2, and 20.2. In a series of cases treated in the period 1931–4 with serum of improved quality and administered suitably the rate was 27.9, but a decrease of the rate for the whole country did not occur until the introduction of chemotherapy; with the wider employment since 1938 of the sulphonamide derivatives the decline has been dramatic. In 1941 the rate was 19.5%, and in the first half of 1942 it was 19.5, as against 19.9 in the corresponding periods in 1940 and 1941. It is possible, therefore, that 1942 will show only a slight further decrease.

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A RARE CAUSE OF SEVERE GASTRO-INTESTINAL HAEMORRHAGE

WITH A NOTE ON ANEURYSM OF THE HEPATIC ARTERY

BY

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The following case seems to merit publication as a rare cause of haematemesis: aneurysm of the hepatic arterial system is an infrequent condition, this instance constituting the 86th recorded. I am aware, however, of another case, still unpublished, in the National War Collection organized by the Medical Research Council. The present case appears to be the only instance in which anything except ligature of the parent artery has been attempted as a surgical measure. Subsequent bacteriological findings in the blood-clot of the aneurysm doubtless precluded any chance of final success from aneurysmorrhaphy in this particular patient, but in other aneurysms which have a non-infective cause the method can hardly yield results more disastrous than those attending ligation; the difficulties are by no means great, and the method is worth consideration by those who may be confronted with aneurysm of this blood vessel on laparotomy.

Clinical History of Case

A married woman aged 61 was admitted into Middlesex Hospital under my care on June 22, 1938. A history was obtained of two years' indigestion unrelieved by food; there were intermissions between the bouts of severe pain, but there had been continuous epigastric discomfort throughout the whole period. The last and final bout of pain had followed a wholesale dental extraction, and for a fortnight before the patient's admission to hospital there had been persistent severe melaena, punctuated by three sharp attacks of haematemesis, which had brought her haemoglobin at one time down to 30%. A continuous-drip blood transfusion had been employed on several occasions, and on her arrival at hospital her haemoglobin had risen again to 70%, and the red cells numbered 3.6 millions. For a week there was no pain or further haemorrhage; obvious melaena ceased, although the faeces still gave a very strongly positive benzidine and guaiacum reaction. The Wassermann reaction was negative.

On July 1, 1938, the patient was suddenly seized with most violent abdominal pain; she vomited blood and collapsed. A diagnosis of a perforated peptic ulcer and concomitant ulcer-haemorrhage was made, and the abdomen was opened under regional anaesthesia and intravenous skophedal; a blood transfusion was at once begun. No ulcer-perforation was found. The liver, gall-bladder and pylorus were bound together into a pulsating mass; the gall-bladder was much distended and bluish in colour; the duodenum and small intestine contained much blood. The existence of an aneurysm in connexion with the hepatic arterial system was now discernible, but the precise nature of its origin and of any recent change in its condition was not at the moment apparent. A better exposure of the tumour was obtained by removal of the pyloric portion of the stomach and the careful separation of the distended gall-bladder from its hepatic bed, the organ being cautiously stripped downwards and mesially from fundus towards neck; this separation was facilitated by the injection of saline into the subserosa of the gall-bladder and between the wall of the latter and Glisson's capsule. The upper and lower boundaries of the pulsating tumour had now been defined and also mobilized.

The distended gall-bladder was next opened, and was ascertained to be filled with recent blood and also blood-clot; blood was indeed seen issuing into the gall-bladder cavity in a steady stream through a small opening on the mesial aspect of its wall. Bacteriological examination of the blood subsequently revealed the presence of streptococci and a scanty growth of *B. coli. Clostridia welchii* were not present in the gall-bladder contents.

The gall-bladder was now removed, with some recent soft clot on the anterior aspect of the pulsating tumour; a little laminated clot was also dissected away, some haemorrhage taking place the while from the opening in the aneurysm despite efforts to compress the hepatic arterial stem. A considerable "button" of aneurysmal wall was left on the artery and a reconstructive aneurysmorrhaphy was performed, the remains of the sac being sutured in layers. All haemorrhage having been arrested, the abdomen was closed without drainage. Next day the condition of the patient was satisfactory, with a pulse of 88; but she afterwards slowly sank and died 40 hours after operation. The post-mortem examination did not demonstrate any failure in operative technique as responsible for the patient's death.

Necropsy.—The lungs showed marked hypostatic congestion and in parts early bronchopneumonia. The *pericardium* contained 3 oz. of fluid. *Heart muscle* exhibited fatty fibrosis. The abdominal *aorta* and main *arteries* showed advanced atheroma; no evidence of syphilitic striation was observed. The *kidneys* were normal in size; the cortex was thinned, and there was patchy ischaemia, with obliteration of glomeruli. Histology: No changes indicative of a "transfusion kidney"; tubules in kidney rather dilated. Blood urea, 170 mg.; non-protein nitrogen, 125 mg. The *spleen* was packed with red blood cells. The *liver* showed toxic degeneration; portal vein and radicles were normal and healthy. The common bile duct was patent and healthy throughout its length. At the junction of the cystic artery and bifurcation of the hepatic artery, which was buried in a mass of laminated and more recent clot, there appeared a widening and a perforation of the arterial swelling.

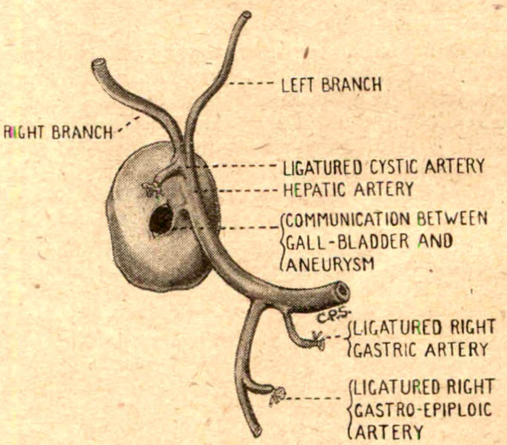
LEFT BRANCH
RIGHT BRANCH
LIGATURED CYSTIC ARTERY
HEPATIC ARTERY
COMMUNICATION BETWEEN GALL-BLADDER AND ANEURYSM
C.R.S.
LIGATURED RIGHT GASTRIC ARTERY
LIGATURED RIGHT GASTRO-EPIPLOIC ARTERY

Diagram showing aneurysm of the hepatic artery which communicated with the gall-bladder.

The operation had not interfered with the patency of the arterial tree. The high blood urea and non-protein nitrogen suggested renal deficiency as at least a contributory cause of the fatal ending, and the fluid in the pericardium also supported this view. Nevertheless I have repeatedly stressed the disastrous results which attend operations for haematemesis from peptic ulcer undertaken after the first 36 hours; the necessity for operation was imposed upon me in this instance on account of a mistaken diagnosis of perforation. All these untoward circumstances combined to determine the fatal issue.

A NOTE ON HEPATIC ARTERY ANEURYSM

The age incidence of cases of aneurysm of the hepatic artery varies between 10 and 83, the average age in men being 36 and in women 42. Men are affected three times as often as women, and an extrahepatic situation of the aneurysm is also thrice as common as an intrahepatic locale. The tumour is almost always single, but there are 12 examples in the literature of multiple aneurysm of this vessel. In six cases 2 aneurysms coexisted; in three instances 3 aneurysms; in another patient 4; in still another 5 aneurysms. The aneurysmal sac has varied in size from a barley-corn (Rollan) or cherry to a full-term foetal head, the extrahepatic variety being usually larger than the intrahepatic form.

Artery of Origin.—In over 50% the hepatic artery itself was involved, and in one-third of the cases the right branch was implicated; in 10% the left branch was the site of origin. Right and left arteries were both aneurysmal in one patient; the cystic artery was implicated in 3 cases; in one patient (Drascke) an aneurysm was said to have developed on an accessory hepatic artery coming from the superior mesenteric.

Rupture of the Aneurysm.—Of aneurysms of the hepatic artery 80% have first come under observation for rupture, nearly half of these inundating the peritoneal cavity and one-third bursting into the main bile channel, especially the hepatic duct. Seven have eroded the duodenum and 7 the gall-bladder. Only one is said to have burst into the stomach, and one perforated the portal vein. In 4 cases a double rupture occurred, of which two burst into the duodenum and the abdominal cavity; one leaked into gall-bladder and coelom, and one perforated the hepatic as well as the common bile duct.

The clinical triad associated with aneurysm of the hepatic artery are pain, haemorrhage, and jaundice (Malloy and Jason, 1942). The case presented in this communication showed no jaundice, and post-mortem scrutiny failed to reveal any compression of the extrahepatic biliary tract, which indeed during life permitted a steady flow of blood into the duodenum. The blood-flow from the aneurysm along these natural channels must have been free, since no clotting occurred in the bile duct, although clot was present in the backwaters of the distended gall-bladder.

The cause of the aneurysm in this patient seems to have been an infective one; not only was the final illness with its haemorrhagic catastrophe initiated by wholesale dental extraction, but streptococci and a small growth of *B. coli* were obtained from the clot in the gall-bladder and that of the aneurysm wall. A mycotic origin is found to be the most frequent cause of hepatic artery aneurysm; trauma has been impugned in a few cases; syphilis has been found less often than atheroma in these patients. Atheroma was certainly present in the hepatic artery as well as in many other arteries in this present case, but the bacteriology appears to favour an infective origin. The case perhaps constitutes one more reminder of the danger attending wholesale dental extraction in oral sepsis at a single operation.

Treatment

Statistics derived from operations on mankind afford slender grounds for the optimistic pronouncement of an Axis writer (Alessandri) that "when an aneurysm of the hepatic artery is present, we are justified in performing ligature of the trunk of the hepatic artery, with or without the slitting or removal of the sac." The results of ligature of the main artery for aneurysm, indeed, appear to be even worse than those attending ligature of the hepatic artery under other circumstances. The same writer collected 10 cases of ligature of the hepatic artery for conditions other than aneurysm and found a mortality rate of 60%.

On the other hand, 12 arterial ligature operations have been performed for aneurysm of the hepatic artery or its branches, and in 75% of these the patients succumbed; in 2 of the 3 surviving cases (Sudeck; Colmar) there was no certainty that any aneurysm was present. Kehr's case appears to be the only positive success in hepatic artery ligature for aneurysm. Alessandri also collected 18 cases of ligature of the right or left branch of the hepatic artery for non-aneurysmal conditions; the mortality was 40%, and the fatal cases almost always revealed necrosis of the corresponding liver lobe.

Any confidence in the successful issue of a ligature of the hepatic artery must be begotten of a pious hope that some aberrant hepatic artery may supply to some degree the denuded region. It is true that Henle reported a case in which three hepatic arteries were present: (*a*) from the left gastric, (*b*) the parent coeliac axis, (*c*) superior mesenteric. Rio Branco also described a triple arterial supply in another case: (*a*) a special artery from coeliac axis to the left lobe; (*b*) the usual origin and distribution from the coeliac axis; (*c*) a special branch from the superior mesenteric to the right lobe. The not infrequent derivation of the left hepatic artery from the coronary (left gastric) is vouched for by Quain, and this same indisputable authority affirms the occasional origin of the left hepatic from the superior mesenteric and its rare source from the splenic artery.

Quain also vouchsafes the information that accessory hepatic arteries are sometimes encountered, generally coming from the coronary; such a hepatico-coronary is said by Rabinovitsch (1927) to occur in no less than 28%. According to Quain, an accessory hepatic artery comes less frequently from the superior mesenteric, aorta, right renal, or inferior mesenteric; Rabinovitsch describes a hepatico-mesenteric in 18%. Thus, according to the German writer, an accessory vessel is present in nearly half the cases. Axis opinion hopefully states that since the topography of these accessory vessels is constant, their presence can easily be determined at operation (!). Tandler makes use of a less ambitious figure (32%) in relation to the frequency of an accessory artery.

In cases in which ligature of the hepatic artery is forced upon an unwilling operator gradual incomplete ligation in the manner of Halsted might be tried. There is also evidence, from animal experiment, in favour of anastomosis between the proximal segment of the ligated hepatic artery (Narath) and even of the distal segment (Ghiron) to the portal vein. Where there appears opportunity for a second intervention the omentum may also be attached to the liver at the first séance (Grunent); and an attempt may be made to produce adhesions between the liver and the diaphragm, parietes, etc. (Barch, Grunent, Bode).

There can be no manner of doubt that the anastomosis between the arterioles in the interior of the liver is infrequent and at best scanty; injection of barium in gelatin and radioscopy show that vascular communication between the two lobes is richest under Glisson's capsule and in the tissues of the portal fissure (Segall, 1923).

The anatomical findings of Continental observers and the results of experimental ligation of the hepatic arterial tree in animals other than man may afford hypnotic comfort to the surgeon confronted with the need for rapid decision, but it is an unpalatable truth that, in man, *ligature of the hepatic artery or its main branches is an operation fraught with peril to life.* The dangerous manner in which the right branch of the hepatic artery frequently clings to the cystic duct and almost defies the operator in his endeavours to separate the two "contacting" structures is familiar to every experienced surgeon. It is highly probable that many cholecystectomies performed by amateurs in which grave morbidity or death ensues owe their unfavourable course to the unfortunate inclusion of the right branch of the hepatic artery in a clamp or a mass ligature of the cystic duct and the contiguous artery.

For the accompanying sketch I am greatly indebted to my friend, Dr. C. P. Smith of Middlesex Hospital.

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M. Finland and his colleagues (*Arch. intern. Med.*, 1942, **70**, 183) have observed that in patients with clinical influenza a staphylococcal pneumonia may occur and assume epidemic proportions in different places during an influenza epidemic. The authors state that the staphylococcal infection may vary from a simple tracheobronchitis to a fulminating, acute, and fatal haemorrhagic oedematous pneumonia. In such cases they recommend intensive treatment with sulphadiazine or sulphathiazole.

MEMBRANOUS INFLAMMATION OF OROPHARYNX, NOSE, AND CONJUNCTIVA DUE TO SULPHATHIAZOLE ADMINISTRATION

BY

I. M. SCHNEE

Captain, M.C. A.U.S.

Sulphonamide therapy has resulted in a variety of toxic manifestations. Many reports of the effect of the drug on various systems of the body are to be found in recent medical literature. An unusual type of toxic reaction has come under our observation. It is the appearance, following sulphathiazole therapy, of a membranous inflammation involving the conjunctiva, mucosa of the nose, pharynx, mouth, and larynx. The membrane presented the same features wherever it appeared. Rapid recovery ensued on discontinuance of the chemotherapy.

Case Report

The patient was a white man aged 28, an officer in the United States Army Tank Corps. He was admitted to the hospital on Oct. 12, 1942. On Oct. 5 he developed an infection of the upper respiratory tract. Next day he reported to his unit medical officer, who found a rise in temperature to 102°. He was put in sick quarters and sulphathiazole therapy by mouth was instituted in a dosage of 1 g. every four hours, four times daily. The same day his temperature had risen to 104°. Defervescence and relief of symptoms followed. The drug was discontinued on the eve of Oct. 10, by which time he had received a total of approximately 18 g. of sulphathiazole. On the fifth day of chemotherapy, Oct. 10, the eyes became inflamed and a discharge was present. The following day his mouth became very sore, was covered with a membrane, and the lips were cracking. On Oct. 12 there was a recurrence of fever and he was sent to hospital.

Physical examination on admission revealed a well-developed and well-nourished man, acutely ill, pale, dehydrated, dyspnoeic, and coughing. The pupils were contracted (morphine). The lids were swollen, the palpebral conjunctiva was markedly injected and covered with a smooth, thick, well-formed membrane of grey colour which left no bleeding surface when peeled off but re-formed within a few hours. The bulbar conjunctiva was injected peripherally and the membrane covered part of the outer canthus (Fig. 1). The cornea was not involved.

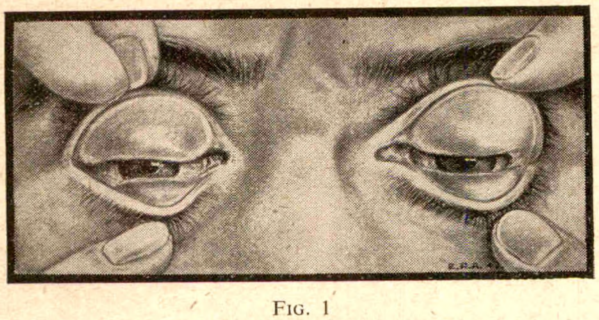

FIG. 1

Examination of the mouth revealed the same type of membrane in large patches covering the palate, fauces, floor of the mouth, gums, inside of cheeks, posterior pharynx, and larynx (indirect laryngoscopy); the nasal mucosa was involved in the same manner (Fig. 2). Ears were normal. There was no adenopathy. There was no foul odour. The mouth was very sore. Respirations were slow and not difficult. Dullness and decreased fremitus over the left lower lobe were present posteriorly. Coarse wheezing rales were heard bilaterally. The pulse was regular and of good quality. The blood pressure was 115/70. The abdomen was soft. There were no masses or tenderness, and the liver, kidney, and spleen were not palpable. Temperature was 103°, pulse 102, and respirations 26.

Smears and cultures from the lesions in the eyes, nose, and throat showed no diphtheria bacillus. The eye material revealed some staphylococci on culture, and the mouth lesions showed *Diplococcus catarrhalis.* The blood culture was negative. The blood count was: erythrocytes, 4,470,000; leucocytes, 17,000 (polymorphonuclear leucocytes 77%, lymphocytes 18%, monocytes 2%, eosinophils 2%, and basophils 1%). The urine was normal. The sputum showed no pneumococci. The Wassermann test was negative.

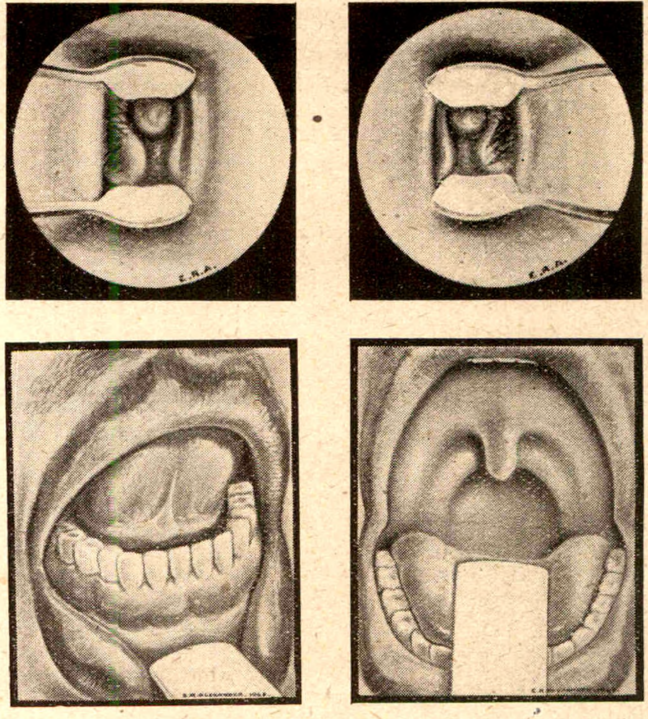

FIG. 2

Clinical Course.—Sulphathiazole therapy was resumed on admission to the hospital in a dosage of 1 g. every four hours. The eyes were treated with sublimate 1 in 10,000 solution, irrigation and instillations of sulphacetamide 2.5% solution, and oily drops. The nose, mouth, and throat were irrigated with antiseptic solutions. The temperature was declining and the general condition was improving, but the eyes and oropharyngeal and nasal lesions were getting worse in spite of treatment. The membrane became more extensive and confluent. On Oct. 14 it was decided by Lt.-Col. Derrick T. Vail, M.C. A.U.S., Senior Consulting Ophthalmologist, that these unusual clinical features might be due to the chemotherapy, and accordingly the drug was ordered to be discontinued. The following day there was marked subjective improvement in the discomfort of the eyes and mouth, but no improvement objectively, though the lesions were not worse. On Oct. 17 the patient showed definite signs of improvement; the lesions began to clear rapidly and the membrane was sloughing in patches. On Oct. 19 the eye membrane was completely cleared up and there was only slight conjunctival injection. On Oct. 21 the eyes had completely recovered, but the mucosal lesions were still present in small patches here and there. The temperature had remained normal since Oct. 18 and the general condition was good. On Oct. 24 all the mucosa appeared healthy and the eyes were perfectly normal.

Appreciation is expressed to Brigadier Sir W. Stewart Duke-Elder, A.M.S., Major Lister, R.A.M.C., and the artist for their courtesies.

CORONERS' DISTRICTS IN LONDON

The Public Control Committee of the London County Council is proposing to reconstitute coroners' districts in London, making four districts instead of five as at present. The number of inquests has decreased owing to the war conditions, especially evacuation, and it is considered that the work can now be adequately carried out by four coroners. The approaching retirement of a coroner gives a suitable opportunity for making the change. The proposed new districts will be northern, southern, eastern, and western; previously, instead of a southern district, there had been south-eastern and south-western. The four coroners to whom the districts will be assigned are, respectively, Mr. Bentley Purchase, Mr. Hervey Watt, Mr. W. R. H. Heddy, and Mr. Neville Stafford. The measure is a wartime one and will be reviewed after the war.

THE EFFECT OF ACID, ALKALI, AND MEALS ON THE BLOOD LEVEL AND EXCRETION OF SULPHAPYRIDINE IN CHILDREN

BY

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The effect of the sulphonamide drugs on the acid-base metabolism has received a certain amount of attention without, however, any clear-cut conception as to the nature or cause of the upset having been obtained. Beckmann *et al.* (1940) have shown in adults that with doses of about 6 g. a day there is a proportionate fall in the sodium and bicarbonate, with a rise in the chloride of the blood. These changes were associated with a temporary increase in the sodium excretion and a smaller one in the chloride excretion which shortly fell to the normal rate of output. They state that the electrolytic pattern of the blood resembles that observed after the administration of acid salts such as ammonium chloride and ammonium sulphate, except that the increase in the blood chloride is bound to sodium in the case of the acid salts, while after sulphanilamide they assume that the extra chloride must presumably be bound to the serum proteins.

These authors hold that the primary effect of the drug is to cause an increased excretion of sodium bicarbonate, which produces secondarily a certain degree of hyperpnoea (i.e., an acidosis). Hartmann *et al.* (1938) also observed a hyperpnoea and a fall in blood CO_2. They, on the other hand, consider the hyperpnoea to be the primary change which accounts for the excretion of bicarbonate to keep the *p*H of the blood normal (i.e., an alkalosis). Beckmann *et al.* (1940) maintain that this latter explanation is unlikely, as it would require a greater degree of hyperpnoea to cause the reduction in blood bicarbonate observed.

Whatever the explanation, the net result appears to be a reduction in the fixed base of the blood, and hence an acidosis. It is perhaps this belief which has led to the giving of alkali along with the drug in order to relieve acidosis. The possibility of increased excretion and absorption, and the alleviation of undesirable symptoms such as vomiting, also require consideration. The scope of the present investigation was as follows: (*a*) to test the effect of acid and alkali on the blood level and excretion of sulphapyridine in children; (*b*) to test the effect of the timing of meals on the blood level and excretion of sulphapyridine in children.

Effect of Acid and Alkali

The subjects chosen for investigation were between 4 and 12 years of age and had been admitted to hospital with diseases unlikely to interfere with the absorption and excretion of the drug—e.g., chorea and epilepsy. In a series of 15 cases each child was given a single dose of 50 mg. of sulphapyridine per kilo of body weight, and the blood level followed at one-, four-, and eight-hour intervals. The excretion in the urine for the first 24 hours was also estimated. Three separate tests were carried out on each case: (1) sulphapyridine alone; (2) sulphapyridine and 30 gr. of sodium bicarbonate; (3) sulphapyridine and 19 gr. of ammonium chloride (the acid equivalent of 30 gr. of sodium bicarbonate). The estimations were made according to the method of Bratton and Marshall (1939). Both total and free sulphapyridine estimations were made on the urine, but in the blood the free form only.

The average results obtained are given in Table I, A. The individual figures vary considerably, but the averages did not show that there was any advantage in giving or withholding either acid or alkali. The excretion of the drug (50% in 24 hours) was the same in the three modes of administration (Table I, B). On an average about 50% of the amount excreted was in the free form, leaving the remainder as a combined form, probably the acetyl derivative. The amount of the combined form varied between 17 and 68% in the different cases. The only relatively constant feature was the percentage amount of the combined form in each individual case in the three modes of administration, even although the total excretion varied. As all the children had essentially the same diet it is unlikely that food was a factor in the detoxicating process. Further, there appeared to be no correlation between vomiting and the giving of acid or alkali. Several of the cases vomited at varying intervals after getting the drug. Such observations were discarded, the investigations being repeated a few days later. Had the diminution of fixed base of the blood been a contributory cause of vomiting one would have expected that the giving of alkali or acid would have respectively improved or aggravated the condition. Such was not found to be the case. In one particular child, who vomited within half an hour of receiving the drug, the blood level was above the average an hour later. The extreme variability of the blood curves and percentage excretion both from case to case and in the same individual has been noted by others for sulphapyridine (Brown, Thornton, and Wilson, 1939; Cullen and Wilson, 1940). Barlow and Climenko (1941), however, claim that with sulphapyridine the giving of alkalis such as sodium bicarbonate and magnesium carbonate increased the excretion of sulphapyridine. Their figures are, however, in our opinion and considering the variability, too few and probably not significant. Siebert and Loose (1940) observed no difference in the absorption of sulphanilamide when given with 30 gr. of sodium bicarbonate. They found, further, that gastric acidity did not appear to influence absorption, and in support of their claim instanced a case of achlorhydria in which the excretion was normal.

TABLE I

A.—Average Concentration of Free Sulphapyridine in Blood at 1, 4, and 8 Hours (15 Cases)

	1 Hour (mg./100 c.cm.)	4 Hours (mg./100 c.cm.)	8 Hours (mg./100 c.cm.)
Sulphapyridine alone	4·5	5·1	4·8
Sulphapyridine + 30 gr. $NaHCO_3$	3·8	5·4	4·5
Sulphapyridine + 19 gr. NH_4Cl	3·8	5·5	4·6

B.—Average Output of Drug in Urine (15 Cases)

	Drug excreted in 24 Hours	Form of Drug	
		Free	Combined
	%	%	%
Sulphapyridine alone	49·05	53·8	46·2
Sulphapyridine + 30 gr. $NaHCO_3$	51·0	54·4	45·6
Sulphapyridine + 19 gr. NH_4Cl .. .	50·6	50·4	49·6

Effect of Meals

The second series of cases (Table II, A) was designed to test the effect of taking the drug two hours before and immediately after the midday meal. In all, 17 children were studied. One blood sample was taken four hours after administration and the urine was collected for 24 hours. The figures again were extremely variable. The average blood level was 0.5 mg. higher when the drug was taken after the meal.

TABLE II

A

	Mg./100 c.cm.	Standard Deviation
Average blood sulphapyridine 4 hours after dose taken between meals	5·3	d=1·54
Average blood sulphapyridine 4 hours after dose taken immediately after meal	5·8	d=1·73
Difference ..	0·5	

B

Average excretion of sulphapyridine in 24 hours drug taken between meals	60·7%	d=15·4
Average excretion of sulphapyridine in 24 hours urine. drug taken immediately after meal ..	66·2%	d=13·5
Difference ...	5·5%	

The standard deviations were 1.54 and 1.73, and the probable error of the difference of the means was 0.2716. The ratio of the difference of the means is hence 0.2716:0.5=1.8. When this is less than 3 it is usually considered not to be significant. When the drug was administered immediately after a meal the percentage excretion in urine was 5.5 greater than when taken between meals. The standard deviations were 15.4 and 13.5 respectively. The above-mentioned ratio in this case is 6.5, and hence the difference can be considered to be statistically significant, although from the clinical point of view it is scarcely of importance.

Conclusions

The data presented here would appear to show that there is no advantage with respect to the blood concentration or urinary excretion, and hence absorption, in giving acid or alkali with sulphapyridine. Nor was any significant effect observed on the blood concentration by timing the administration of the drug in relation to meals. The excretion of the drug was greater when taken immediately after as opposed to two hours before a meal. This difference was statistically significant, but clinically can scarcely be of much importance.

I desire to thank Dr. Stanley G. Graham for his advice and criticism in the preparation of this paper.

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Medical Memoranda

Encephalitis after Measles with Severe Parkinsonian Rigidity: Recovery

Although variability in the signs and symptoms produced by encephalitis is notorious, the following case which followed upon an attack of measles is of interest on account of the predominance of the Parkinsonian syndrome from the onset.

CASE HISTORY

The patient, a boy aged 6, was admitted on Sept 10, 1942, with a history that nine days previously he had developed a typical mild attack of measles. This was treated at home by his medical practitioner, who confirms that the illness had every appearance of ordinary measles. Seven days later the doctor was called in again on account of some stiffness in the limbs and the fact that for the last day or two the boy failed to answer when spoken to When he was brought to the hospital two days later he had during the interval uttered only one or two short spontaneous remarks, and, as he did not speak and had a strange expressionless face, the mother thought he was suffering from some kind of mental derangement.

On examination the patient showed a typical Parkinsonian facies, emotional as well as voluntary facial movements being absent The tongue could not be protruded, and there was some dribbling of saliva from the corners of the mouth. Crying resulted in a peculiar whining noise. There was some difficulty in swallowing, but fluids could be taken fairly well Drowsiness was not apparent. The eyes were unaffected, and when asked to follow a moving object he responded promptly. All limbs showed well-marked Parkinsonian rigidity and tremor, and were affected almost equally; but with a little assistance he was able to get off the couch and walk round the room. At this stage tendon jerks were brisk, plantar reflexes normal, and the lower abdominal reflexes absent. The fundi were normal, and remained so throughout the illness. There was no nystagmus or strabismus, and the pupils reacted normally. During the illness the C.S.F. was normal on two occasions in respect of sugar, chlorides, and leucocytes, but contained a few red cells (probably contaminants) and a total protein of 0.06% and 0 05%. The blood W.R. was negative and the blood count normal. During the first two weeks the temperature was 100° F. on a few occasions, but was later normal.

During the first ten days in hospital the condition became progressively worse. The arms, particularly the right arm, became fixed in a position of flexion, tremor was very pronounced, and the knees tended to become flexed. Voluntary movements had practically disappeared. For a short period a transient left internal strabismus occurred, and the left plantar response became extensor. There were also at this stage frequent attacks of restlessness with increased tremor and flexion of the arms and knees. There was no inversion of sleep rhythm. Sphincters were unaffected, and he continued to be able to swallow. On the eighteenth day of the illness the patient spoke a few words, and within a week posture was almost normal. At about this time he was emotionally labile and his speech rather confused. He was discharged from hospital, apparently completely normal, on Oct. 12, 42 days after the onset of the measles rash.

Treatment consisted of general measures and the administration of large doses of pot. brom. and tinct. hyoscyami, and frequently chloral at night. Somewhat empirically, three injections of liver extract were also given intramuscularly.

Since leaving hospital the boy has been in good health, and attends school, where he also plays games. In a recent examination no abnormality could be found in his central nervous system. The fundi were normal; there was no strabismus or tremor. Vision was 6/6 and hearing normal. No character change has been noted by his mother, and at school he is well up to the average. There is no relevant family history.

It appears that in spite of the prominence of Parkinsonism a diagnosis of post-measles encephalitis rather than of a lethargic type of the disease should be made in this case. This is supported by the history of measles and by the completeness and rapidity of recovery.

I wish to thank Dr. W. E. Crosbie, medical superintendent of the hospital, for permission to publish this case; and Dr. Norman B. Capon, visiting consultant physician, for his advice and supervision.

Alder Hey Hospital, Liverpool. B. MEYER, M.B., B.S., D.C.H.

A Case of Malignant Tertian Malaria

Malignant malaria is seldom seen in this country, though Murray and Shute (1942) have recently reported a case. The following case is remarkable for its benign clinical course and for the manner in which it responded to small doses of quinine.

CASE RECORD

The patient, a ship's steward, was admitted to the General Hospital, South Shields, on Aug. 27, 1942, with a history of "malaria." He had been torpedoed off the West African coast in March, 1942, and after two days at sea was interned in French West Africa. He was kept in insanitary conditions, on a poor diet, until his release at the end of June. During this period he is said to have contracted "malaria" and "dysentery." During July and August he had regular attacks with rigors at intervals of 3 to 4 days. The last rigor occurred the night before admission. He had had no systematic treatment, but had taken "a few quinine tablets now and then."

On admission to hospital he was noted to be thin and pale, but not emaciated. Clinical examination was negative apart from some tenderness in the left epigastrium. The liver and spleen were not palpable, the conjunctivae were pale, there was no jaundice, and urine analysis proved negative. Temperature on admission was 99.4° and pulse 104. Next morning the temperature was subnormal; it rose again in the evening, to 100°, and returned to normal the following morning. There has been no subsequent rise in temperature.

Blood films taken on Aug. 29 showed large numbers of malaria parasites, chiefly the gametocyte stage of *P. falciparum*, together with some ring forms. Although the films were only ordinary thin ones, parasites were so numerous that some fields showed two crescent forms. A further film on Sept. 8 contained crescent forms in fair numbers. On Sept. 23 only a single ring form was seen. Subsequent films have been negative.

Treatment.—The patient was put on quinine sulphate gr. 5 t.d.s. on admission, before the blood had been examined. This was discontinued on Sept. 2. On Sept 6 he had one dose of 10 gr., and on Sept 8 quinine sulphate gr. 5 t.d.s. was reinstituted. On Oct 3 the patient was discharged apparently well, having then been apyrexial for 36 days. He was gaining weight and the signs of anaemia noted on admission had largely disappeared, although he had had no specific treatment to combat the anaemia. At the end of October he was still taking 5 gr. of quinine thrice daily, and, while that was too soon to speak of cure, there had been no recurrence of symptoms and films remained negative

It should be mentioned that the patient gives a history of having contracted malaria ten years ago and having had subsequent attacks at intervals of a few months up to the onset of the present illness. It is most improbable that he has been suffering from malignant malaria for ten years, particularly in the absence of splenic enlargement. That he contracted any form of malaria ten years ago is doubtful: there is no medical confirmation, and seafaring men commonly refer to any pyrexial illness as "malaria."

The presenting symptoms in Murray and Shute's case were gastro-intestinal, and it is interesting to note that diarrhoea ("dysentery") had been an early symptom in our case, but had subsided before admission. Manson-Bahr (1942) states that malaria is often accompanied by diarrhoea, and mentions "malarial dysentery" with blood and mucus in the stools.

Our thanks are due to Dr. D. J Mackinnon (late R A M.C., East Africa), who confirmed the diagnosis, and to Dr. W. Campbell Lyons, medical officer of health, South Shields, for permission to publish this note.

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Reviews

SURGICAL DISEASES OF THE SPINAL CORD

Surgical Diseases of the Spinal Cord, Membranes, and Nerve Roots: Symptoms, Diagnosis and Treatment. By Charles A. Elsberg, M.D. (Pp. 598; illustrated. £4.) London: H. K. Lewis and Co. 1942.

Fifty years ago it must have been hard to accept the novel idea that diseases of the spinal cord might be amenable to surgery; at the present time every student knows the importance of seeking for evidence of spinal compression whenever there is progressive interference with the function of the cord, and this changed attitude is attributable to the pioneer work of a comparatively small group of neurosurgeons, among whom Prof. Elsberg may rightly claim a place of honour. The many workers in this field, and also outside it, who valued his earlier works—*Diseases of the Spinal Cord* and *Tumours of the Spinal Cord*—will welcome his new book entitled *Surgical Diseases of the Spinal Cord, Membranes, and Nerve Roots.*

Notable features in the early chapters on anatomy and physiology are the descriptions of the lamellar arrangement of the spino-thalamic tract, which make clear certain puzzling clinical signs; and of the skin and muscle distribution of the spinal nerve roots, which differ in many respects from earlier accounts. The part on examination of the cerebrospinal fluid, with special reference to the establishment of subarachnoid block, is well done. There are chapters of outstanding merit on *x*-ray diagnosis by Dr. Cornelius G. Dyke, and on the pathology of tumours of the spinal cord by Dr. Abner Wolf. Though the introduction of contrast media receives due attention, the most impressive feature of Dr. Dyke's contribution is the astonishing amount of information that may be obtained from plain *x*-ray films which are properly taken and carefully interpreted.

The book gives a full and authoritative account of the symptomatology and treatment of all varieties of spinal cord tumour, and considering how thoroughly this field is covered it must be admitted that injuries and infections of the cord and its coverings are comparatively lightly touched upon. One further criticism of an otherwise excellent work of reference must be that the bibliography does less than justice to many of the English neurologists and neurosurgeons who have contributed to the advance of this subject in recent years.

DISSECTION OF A CITY

The Population of Bristol. By H. A. Shannon and E. Grebenik. National Institute of Economic and Social Research: Occasional Papers, II. (Pp. 92. 7s. 6d.) Cambridge: The University Press. 1943.

The changing population of Bristol as affected by inward industrial migration and by fertility rates has been exhaustively studied by two statisticians. The study is based on pre-war material, and as Bristol has suffered immense dislocation as a result of the war a further study seems to be called for as soon as post-war trends can be discerned. Mr. Shannon deals with the respective numbers of Bristolians and migrants (chiefly from Wales and South-West England), and their respective chances of absorption into employment. Mr. Grebenik is concerned with the fertility of the Bristol population. The medical officer of health has a record over a period of years of the age of the mother of every daughter born, and from this it has been possible to estimate net reproduction rates. The population of Bristol in 1937 was 415,000. On the assumption that fertility and mortality remain at the same level as in that year, and that there is no net inward migration, the population will begin to decrease after 1949, and by the year 2000 will be only 273,000. One point brought out in the survey—not an unexpected one—is that the first, second, and third confinements of the wives of unskilled labourers all take place at a distinctly lower age than among women of the higher economic and occupational groups. The mean age at the birth of the first child to wives of unskilled manual workers is 24.56 years, as compared with 27.95 for the professional, business, and commercial classes, including clerks. The parity pattern for labourers' wives is also different from that of the other groups. Their mean parity for all ages is 3.55, whereas the corresponding figure for the professional and commercial class is 1.83, for minor commercial people such as shopkeepers 2.02, for supervisory and skilled manual workers 2.07, and for the semi-skilled 2.37. The researches have been made possible by generous grants from the National Institute of Economic and Social Research supplemented by the Colston Research Society and anonymous donors.

ANIMAL PARASITES

Introduction to Parasitology. By A. S. Pearse, Professor of Zoology, Duke University. (Pp. 357; illustrated. $3.75 or 21s.) Springfield and Baltimore: Charles C. Thomas; London: Baillière, Tindall and Cox. 1942.

This book, being a general survey of animal parasites—not parasites of animals—is primarily intended for students of zoology who may be required, or wish, to have some knowledge of the structure and life histories of those representatives of the various animal groups which have developed a parasitic mode of life. It opens with an introduction in which nomenclature, oecology, and adaptation are briefly considered, and then passes on to descriptions of the various parasites themselves, beginning with the protozoa and finishing with certain parasitic vertebrata. Special attention is given to parasites of economic importance, emphasis being laid on those apt to infect or injure man or domestic animals. The volume is profusely illustrated with clear outline drawings, while many life-cycle diagrams help to clarify the descriptions and statements made in the text.

It is pointed out that one of the most important essentials in the prevention of infections is widespread knowledge of the life histories of the parasites and a comprehension by the public of the manner in which such infections are brought about. Certainly the book goes a long way towards simplifying the acquirement of this necessary knowledge, and it can be thoroughly recommended as a reliable guide to students of parasitology.

Notes on Books

A seventh edition of the well-known book *Surgical Ward Work and Nursing*, by Mr. ALEXANDER MILES and Miss G. F. NUTTALL, is an indication of its deserved popularity. Revision for this edition, however, has not in our opinion been radical enough. Several illustrations might with advantage have been discarded—e.g., Cheselden's, Chiene's, and Buchanan's lithotomy staffs, MacIntyre's, Liston's, Heron Watson's, and Dupuytren's splints, Shaw's skull flaps, and Moynihan's intestinal evacuation tube. These, among others, are of only historical interest, and the already overworked student nurse need not be further burdened by memorizing now useless pieces of apparatus. Figure 73, claimed to be a Staffordshire knot, is really a half-hitch. The anaesthetic apparatuses illustrated appear to be rather primitive, and more modern types might profitably be shown in the next edition, in which also some mention of chemotherapy and the sulphonamides might be made. Nutrient enemas, of doubtful value, are mentioned, but there is no word of the magnesium sulphate retention enema; and Reverdin's needle and Michel clips are referred to as a handled needle and suture clips respectively, instead of by their more widely known names. The publishers are Faber and Faber, and the price is 12s. 6d.

Preparations and Appliances

HYPOLOID METHEDRINE

"Hypoloid methedrine" (*d*-N-methylamphetamine hydrochloride), prepared by Burroughs Wellcome & Co., is a sympathomimetic pressor agent with a prolonged action. It is intended primarily for administration before or during operation to maintain the blood pressure and guard against shock, particularly when spinal anaesthesia is used; it is claimed that a single injection suffices in the majority of cases. The drug is also stated to be of value as an analeptic in collapse or poisoning from overdosage of anaesthetics or narcotics or exposure to noxious gases. Hypoloid methedrine is issued for intravenous, intramuscular, or subcutaneous injection in ampoules containing 30 mg. in 1.5 c.cm.

AN ANTACID

Although the newer antacids such as magnesium trisilicate and aluminium hydroxide are safer and more effective in the treatment of peptic ulcer than the simple alkalis they do not give the same immediate relief to the patient. Westminster Laboratories have therefore endeavoured to get the best out of both worlds by introducing "Magtriz," which is a mixture of 91% magnesium trisilicate and 9% magnesium hydroxide. It may be obtained as a powder or as a liquid flavoured with peppermint, and should be a useful adjunct to the treatment of peptic ulcer.

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THE CONSTITUTIONAL FACTOR

Though it is often alleged that the medical profession are slow to adopt new ideas, it is certainly true that they allow a new idea, once adopted, to deflect the stream of medical thought too violently. Of this, bacteria, hormones, and deficiency diseases are outstanding examples. Each in turn diverted attention from the constitutional factor in disease. The old conception of diathesis was not modernized but rather ignored. True, round about the turn of the century Bland-Sutton[1] on the structural side, and Archibald Garrod[2] on the biochemical, did something to stem the tide, but it is to the professed geneticists that we are indebted for the accumulation of data which are now reinstating the constitutional factor in our conception of disease. To that change Prof. Julius Bauer's important book *Constitution and Disease*[3] bears testimony. To some, indeed, it may appear that he overstresses his line of thought, much as his predecessors had done theirs. Nevertheless he adduces valuable evidence. Passing from Vienna to Los Angeles, he attributes the neglect of the constitutional factor in the United States to the absence of that traditional background which in Europe had preserved some interest in it. He does justice, however, to Dr. George Draper's elaborate studies in New York on *Human Constitution*,[4] though often differing from his conclusions.

Poincaré said that a mere piling up of facts is as little a science as a heaping up of stones is a house. Bauer's emphasis is on the house rather than the individual stones. He reminds us that a "normal" man is a mental abstraction. Only 9% of people have a greater splanchnic nerve which corresponds to the textbook description, and reasons are given for assuming that only if a variation occurs in less than 4.5% of the population should it be considered an abnormality. This wide variability follows inevitably from the infinite alteration possible in the pattern of the genes produced by mating. "Heredity determines what one can do, environment determines what one does do." Some structural abnormalities may not endanger health unless unusual physiological conditions arise, but others may have more far-reaching effects. This is the group originally called abiotrophies by Gowers, and more recently studied by Parkes Weber, the members of which are characterized by biological inferiority of certain organs, leading them to wear out prematurely under the strains of normal functioning. It is a mistake to attribute this to focal infections, vitamin deficiencies, or endocrine disturbances. A generalized abiotrophy due to "a mess in the chromosomes" leads to "status degenerativus" and precipitates senescence. Short of this, a defective gene may lead to several abnormalities through "pleiotropism," as seen in fragilitas ossium, blue sclerae, and otosclerosis in varying combinations and degrees in different members of a family. Moreover abiotrophy may be unilateral. Disease varies directly with the severity of the lesion and inversely with the individual's power of resistance. Thus amidopyrine may lead to agranulocytosis, but only in those with an easily exhausted bone marrow. It is unnecessary to discuss such a well-known instance of genetic disease as haemophilia, but it is of interest to mention the combination of hereditary mental deficiency with the excretion of phenylpyruvic acid in the urine, both because R. A. Peters has shown that pyruvic acid, an intermediate product in the metabolism of carbohydrate, can be detected in nerve cells, and requires vitamin B_1 for its disposal, and because the vitamin B complex has been found useful in various psychoses.[5] Thus it appears probable that biochemistry can come to the aid of a genetic defect.

Bauer's main conception is that the genes act directly on the effector organ, or indirectly through either the endocrine system or the nervous system, which can themselves collaborate. He thinks too much stress has been laid upon the endocrine system as an initiator rather than as the mediator between constitution and the effector organ. Like H. H. Dale, he emphasizes the importance of the receptivity of the organ to hormonal stimulus, which explains cases where the endocrine lack is expressed in only one organ. Here the organ must have an unduly high threshold for endocrine stimulation, rather than a fault in the hormone itself. Not all cases of infantilism are genetic or hormonal in origin; as is well known, it may result from chronic disease acquired early in life. The testing time for the biological worth of an endocrine system may come later in life—e.g., at the menopause or during pregnancy. Thus some pregnant women develop tetany, and others acromegalic features; both alterations disappearing on delivery, though some may show signs of temporary pituitary exhaustion afterwards. Biological inferiority need not connote intellectual or artistic inferiority. Indeed, Beethoven's otosclerosis, Mozart's early tuberculosis, and Darwin's psychoneurosis may be regarded as examples of the way in which genius has to pay for its cultural superiority by biological inferiority.

It may be thought that this attitude towards disease spells pessimistic nihilism; but, although genetic factors represent the unchangeable fate of a person, we are nevertheless able to do a great deal for those whose inherited tendencies may be complicated by unfavourable conditions. That medicine is passing from healing to prevention is a dictum which is repeated with almost tiresome reiteration; tiresome because, apart from the work of the medical officer of health, views as to individual prevention remain vague. Here is a field in which it can be applied by regulation of diet, habits, and mode of life, and by advice as to occupation so as to diminish the strain on the faulty structure. Nor, as Bauer says, is the psychotherapeutic aspect to be neglected, for all medicine must be psychosomatic. The routine performance of needless tests has a harmful influence, and unless the young practitioner learns what may be safely disregarded he can become a fertile breeder of neuroses. "Watch your word" is a maxim never to be forgotten by the physician. His word is a therapeutic instrument no less powerful and no less dangerous than the surgeon's scalpel.

CUTTING THE FRONTAL WHITE FIBRES

Recent work on the function of the frontal lobes in man has made it hardly frivolous to ask: Is a frontal cortex really necessary? In a leading article[6] in this *Journal* two and a half years ago the evidence was summarized for supposing that when a large part of the frontal lobe has been destroyed mental functions can still be carried on at a high level. At the last quarterly meeting of the Royal

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[1] Bland-Sutton, J., *Evolution and Disease*, International Science Series, 1890.
[2] Garrod, A. E., *Inborn Errors of Metabolism*, London, 2nd edition, 1923.
[3] Bauer, J., *Constitution and Disease: Applied Constitutional Pathology*, 1942. New York: Grune and Stratton. ($3.50.)
[4] Draper, G., *Human Constitution*, Philadelphia, 1926.
[5] Sydenstricker, V., *Proc. roy. Soc. Med.*, 1943, 36, 169.
[6] *British Medical Journal*, 1940, 2, 673.

Medico-Psychological Association, when a symposium on prefrontal leucotomy was held, Prof. Golla illustrated from both animal experiments and operations on man how nearly perfectly all functions temporarily lost by ablation of the prefrontal areas can be taken over by other parts of the brain. So far as man is concerned the evidence on these matters has hitherto come from the after-results of surgical operation on the brain such as the removal of tumours or scar tissue; the operation of leucotomy for the alleviation of mental disease is now providing further evidence. This operation, introduced by Prof. Edgar Moniz[7] of Lisbon in 1936, aims at cutting the white matter of the frontal lobes in such a way as to divide the frontal thalamic association fibres. The basis for this enterprise has been a clinical observation that after a frontal-lobe injury the individual may develop a mild euphoria, a condition preferable in many ways to the chronic unalterable depression for the treatment of which the method was introduced. Early results of the operation demonstrated, in addition to this tendency towards euphoria, a lessening of emotional tension, with freedom from anxiety and worry and a diminution of distractibility and mental fatigue. After the favourable results obtained in depressive and obsessional states the scope of the operation has been widened to include other disorders in which the predominant symptoms are severe emotional tension, psychic overactivity, destructiveness, and violence. Palmer[8] has reported remarkable symptomatic amelioration in long-standing, overactive schizophrenics, and similar improvement in behaviour has been observed in some gravely antisocial epileptics and in psychopathic personality states. Freeman and Watts,[9] the American pioneers in this field, have lately completed a comprehensive treatise on the subject; a more concise review is provided by McGregor and Crumbie.[10]

Accounts of the experiences of nearly all the main centres at which leucotomy has been practised in this country were put before the R.M.P.A. at its meeting on March 10. There was general agreement among speakers that the operation does not specifically cure any particular form of mental disease, but tends to relieve certain groups of symptoms, particularly emotional tension, agitation, and apprehension—typically seen in agitated depressions—and overactivity, destructiveness, and impulsive violence characteristic of many cases of catatonic schizophrenia. Duration of symptoms appears to be of far less prognostic importance than it is in convulsion therapy; a number of patients whose symptoms had persisted for over ten years were reported as being greatly improved. Although in many of the cases described the mental disorder was so advanced and the prognosis so poor as to justify the greatest risks, the dangers of the operation, particularly in the treatment of earlier cases, should not be lightly disregarded. Many will endorse the opinion expressed by Mr. Wylie McKissock that the operation requires the best operative facilities and an experienced neurosurgeon. In some 200 cases reported at this meeting the mortality rate was less than 5%. Disturbance of the higher intellectual factors is not easy to ascertain, but increasing knowledge tends to be reassuring. It is noteworthy that artistic and creative capacities may be recovered as well as a capacity to plan for future action. This is not to say that restoration of function is complete; there is apt to be some weakness of inhibition, giving an impression of childishness, mild euphoria, and a lack of depth of emotion and responsiveness. But some observers have failed to detect any intellectual deterioration. In some cases, no doubt, the mental capacity and standard of behaviour of the person before the onset of the psychosis were not accurately known. A silk purse cannot be made out of a sow's ear—even by prefrontal leucotomy. Hutton[11] has remarked that the patients seem to live on a superficial level of contemporary associations and to be unable to make much use of past experiences. It is possible that lack of uniformity in the amount of brain damage, differences in the constitution of individual brains, or variations in the extent and depth of original disease process account for these discrepancies in the findings of various observers. But the striking change after an operation, the relatively slight intellectual impairment, the restoration to a large extent of the inhibitory functions of the central nervous system—a wildly disturbed schizophrenic becomes entirely amenable—raises a number of puzzling questions as to the nature of mental disease and the function of the frontal lobes. Is it to be supposed that mental disease may depend on some disorder of the communication between the forebrain and the thalamus, so that excitation arising at the base of the brain cannot be properly inhibited so long as the frontal thalamic tracts are intact? Or is it to be supposed that a persistent disturbance in either the frontal or thalamic region sets up a vicious circle of excitation?

Further knowledge will narrow the range of speculation. Leucotomy is still in the experimental stage. Nevertheless it has already brought relief to many of the unhappiest of disordered minds; it is, incidentally, adding to our knowledge of the functions of the brain in health and in disease.

APPENDICAL MECHANICS AND APPENDICITIS

A notable contribution to the study of appendicitis and its causation in man is made by C. Dennis[12] from the University of Minneapolis, who has investigated both the physiological behaviour of the human appendix and its reactions in states of inflammation. He suggests that in certain cases appendicitis results from obstruction in the appendix of a muscular or functional nature rather than from an organic occlusion, and that in other cases previous mild inflammation may cause secondary organic obstruction with attacks of increasing severity as the degree of organic obstruction increases. The obstructive origin of appendicitis is generally accepted, but a large number of cases occur in which organic obstruction cannot be satisfactorily demonstrated. It can be shown radiographically that the normal appendix actively fills and empties. In a large series of observations Dennis confirms the activity of this organ, and notes the different types of muscular movement of which it is capable. In the living subject, studied after a special appendicostomy procedure, he records three types of waves: the rapid pendular contractions, occurring every 7 to 10 seconds; small tonus waves, occurring about every 60 seconds; and large tonus waves, coming every 10 to 20 minutes.

Inflamed appendices showed varying degrees of inhibition of these movements, and different reactions to different drugs. Morphine depressed activity, as did adrenaline and ephedrine, while acetylcholine and physostigmine increased it, the reactions on the whole being similar to those already known for the ileum. In a series of experiments designed to estimate the intra-appendicular pressures in man, Dennis showed that with obstruction this pressure rises to approximately 100 cm. of water, due to the secretion of fluid by the mucosa; the normal rate of secretion is only about 3 c.cm. per day. Such obstruction, leading to tension on the muscular wall of the appendix, is regarded as the cause of the pain of appendicitis, including both the general abdominal pain and that radiating to the right lower quadrant. Obstruction to outflow from the appendix is thought by Dennis to be due in some cases to simple muscular spasm, the cause of which, however, is uncertain. In such spastic obstruction fluid is likely to escape from the appendix at not too high a pressure, so that the mucosal injury produced by a sustained moderate pressure may lead to inhibition of further secretion after a time, and so the process will gradually subside. Dennis gives evidence that the average resistance to outflow of fluid to the caecum through the inflamed appendix was three times that of the normal, such resistance being mainly due to increased tonus of the circular muscle.

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[7] *Tentatives Opératoires dans le Traitement de Certaines Psychoses*, 1936, Masson et Cie, Paris.

[8] *J. Amer. med. Ass.*, 1941, 117, 1517.

[9] Freeman, W., and Watts, J. W., *Psychosurgery*, 1942, Thomas, Springfield and Baltimore.

[10] *J. ment. Sci.*, 1942, 88, 534.

[11] *J. ment. Sci.*, 1942, 88, 275.

[12] *Arch. Surg.*, 1941, 43, 1021.

These arguments are strongly against the view that appendicitis is mainly due to stasis secondary to lack of active movements, though complete obstruction with active mucosal secretion inevitably leads to secondary stasis and gangrene. Above a pressure of about 90 cm. of water, seepage through the appendicular wall is likely to occur, thus explaining the many cases of peritonitis without rupture. On the other hand an intraluminal tension of over 2 atmospheres is possible without bursting the normal appendix wall, though, when it is inflamed, rupture may occur through digestion of the wall.

CONTROL OF DRUGS OF ADDICTION

The League of Nations, through its Advisory Committee on Traffic in Opium and Other Dangerous Drugs and its Permanent Central Opium Board, continues, though suffering from many impediments, to exercise international control of the commerce in narcotics. The need for vigilance and the danger of any relaxation were emphasized by the experience gathered in the last world war. The usual statistical returns, due from contracting Governments under some of the international opium conventions of 1912 to 1931, are lacking in some cases, and annual reports for the year 1939 have not been received from Germany, Denmark, France, Spain, Italy, Norway, Netherlands, Poland, Portugal, Czechoslovakia, Russia, Yugoslavia in Europe; nor from Afghanistan, Sa'udi Arabia, Japan, and some South American countries. Accessions to some of the international conventions have, however, been secured in the case of Egypt, the Belgian Congo, and Paraguay. China is pursuing her six-year plan for suppression of poppy cultivation, opium smoking, and drug addiction, while in the territories overrun by Japan the abuse of narcotics is becoming increasingly serious.

As regards drug addiction, it was reported that in the United Kingdom and Northern Ireland the number of addicts known to the Central Office in 1939 was 534, of whom 269 were men and 265 women; 121 were members of the medical profession, 3 were dentists, 5 pharmacists, and 2 veterinary surgeons. The drug employed was morphine in 78.7% of the cases and heroin in 13.2%. Much attention has been directed in the United States to the nation-wide marihuana problem and the cultivation and importation of Indian hemp, from which the marihuana is derived. During 1939, 951 violations of the Marihuana Tax Act were reported; 1,545 seizures of the drug in various forms were effected and 864 arrests. A campaign throughout the U.S.A. for the eradication of the Indian hemp plant was carried out in 1939, involving approximately 9,026 metric tons of marihuana growing on 4,542 hectares of land, while it was estimated that the total area of uneradicated marihuana growth in the United States is approximately 18,211 hectares. In Turkey the area under poppy cultivation in 1939 had increased to 31,129 hectares and the raw opium produced amounted to 262,309 kilogrammes. In British India the cultivation of the opium poppy is now confined to the United Provinces, where 2,657 hectares were under cultivation in 1939, the whole opium produce being sold to the Government factory at Ghazipur. The quantity of opium produced in the year amounted to 39,796 kilogrammes, with a morphine content of 11%. The amount of morphine manufactured in the United Kingdom in 1939 was rather more than in the previous five years and amounted to 3,628 kilos, that of heroin to 190 kilos. In the same year 407 kilos of British morphine were exported to other countries and 740 kilos of codeine.

The Permanent Central Opium Board, of which Sir Atul Chatterjee is president, emphasizes the importance of continuing the work it has performed for the last twenty years, and is satisfied to know that this view is shared by the great majority of the contracting Governments.

COMPULSORY PASTEURIZATION OF MILK

The People's League of Health has conducted for the past thirteen years a "safe milk" campaign throughout the country and has now drawn up a further memorandum on the subject, dealing in particular with the compulsory pasteurization (treatment of milk in accordance with the Regulations prescribed by the Ministry of Health) of all milk for human consumption except that derived from tuberculin-tested, tubercle-free herds. Modern methods of collection and distribution of the milk supply in bulk result in milk from one cow suffering from tuberculosis infecting other milk, possibly of a very high standard and free from such infection. The memorandum is signed by Sir William Savage, chairman of the Safe Milk Committee of the League, and is endorsed by influential supporters, including Sir Henry Dale, P.R.S., Lord Moran of Manton, P.R.C.P., Sir Alfred Webb-Johnson, P.R.C.S., Viscount Dawson of Penn, Lord Horder, Dr. C. O. Hawthorne, Sir Walter Langdon-Brown, Sir John Ledingham, Sir Alexander Macgregor, Dr. R. Veitch Clark, Sir Francis Fremantle, Professors L. G. Parsons, Stanley Davidson, J. B. Buxton, and Dame Louise McIlroy. After outlining the scientific position, so as to bring the nature of the problem into focus for those who are unacquainted with the dangers of infected raw milk, the memorandum states categorically: "It has now been proved that the pasteurization of milk causes no material changes in the nutritive value of milk, that it does not injure milk in any way, and that properly carried out it destroys all tubercle bacilli and other pathogenic bacteria which may be found in milk. So treated milk retains its properties unharmed and is rendered safe to drink. Methods such as licensing, inspection, and the use of the phosphatase test are adequate to control the efficiency of pasteurization." None of the objections which the trade has raised can be sustained on scientific grounds, but three, two of them technical, are mentioned briefly in order to dispose of them. The memorandum recognizes that any scheme of compulsory pasteurization must cause some disturbances of existing practice, but these need not be such as to affect livelihood: it becomes simply a matter of the personal interest of a small body of traders against the health and safety of the community. While the League favours on scientific grounds the immediate pasteurization of all milk supplies, it considers that technical difficulties of application make immediate universal pasteurization impracticable. It therefore favours the following compromises: "(1) That any compulsory pasteurization order should for the present be limited to all urban areas over a certain population, such as 10,000, and also that during this period distributors who supply 'tuberculin-tested' or milk from 'attested' herds be not obliged to pasteurize their milk. The Order not to be made operative until after at least six months to allow time for the required plant to be obtained and adequate supervision arranged. (2) The smaller urban areas and rural areas to have the same powers after application to and approval by the Ministry of Health. (3) That after a suitable period these compulsory pasteurization requirements be extended to all milk supplies."

DESOXYCORTICOSTERONE AND FLUID METABOLISM

When desoxycorticosterone is given to patients with Addison's disease or to dogs with adrenal insufficiency, sodium is retained, and this in some cases may lead to an accumulation of extracellular fluid and even to symptoms of congestive heart failure. Such actions of desoxycorticosterone have been the subject of recent experimental investigations, and some interesting facts have been brought to light. In 1940 Ragan and others,[1] working at Columbia University, showed that daily injections of 25 mg. of desoxycorticosterone into normal dogs produced no excessive retention of sodium, but a pronounced polydipsia and polyuria developed instead, the daily fluid balance rising from a normal 400 ml. to over 1,000 ml. The specific gravity of the urine was lowered, and there was a slight rise in the concentration of sodium in the serum. Raising the sodium chloride content of the diet increased the fluid exchanges even more, so that daily intakes of 5 to 8 litres of water were recorded; equivalent additions of potassium chloride had no such effect. These symptoms obviously resemble those of diabetes insipidus, but the authors do not regard the conditions as identical, pointing out that pitressin was relatively ineffective in reducing the fluid balance of the dogs, and that when their water intake was restricted during treatment their urine output correspondingly diminished, so that symptoms of dehydration did not appear. Confirmatory experiments have been reported by Mulinos and his colleagues,[2] using doses of desoxycorticosterone acetate as low as 2 to 4 mg. a day. Their findings, however, differ somewhat in that total deprivation of water failed to restore the specific gravity of the urine to normal levels, and, although there was a decrease in the extent of the polyuria, thirst and other signs of tissue dehydration were produced. Although pitressin was less effective in inhibiting water diuresis in the "diabetic" dogs than in normal ones, these authors were able to reduce the fluid exchange and urinary chlorides of the treated dogs to normal by giving large doses of pitressin in oil. They regard the experimental condition as a true diabetes insipidus, and attribute any quantitative differences from the human condition to the presence in the animals of functioning posterior pituitary gland. Against this view is the authors' finding that polydipsia develops before polyuria in the treated dogs; this does not agree with previous experimental work on diabetes insipidus and is a qualitative rather than a quantitative difference.

The Columbia University workers later[3] investigated the electrolyte changes in dogs receiving daily doses of 25 mg. of desoxycorticosterone acetate. They had previously found that dogs which had received injections for a long period developed attacks of muscular weakness, with paralysis and eventual death. They now found that these muscular disorders could be prevented by the addition of potassium chloride to the diet, though this did not prevent the rise in serum sodium or increased fluid exchanges due to the injections. Analysis of the muscles of the dogs which received injections showed the sodium content to be nearly doubled and the potassium to be much diminished, while nitrogen, water, and chloride contents were unaffected. Apparently the sodium–potassium interchange was quantitative, one atom of sodium replacing one atom of potassium. These electrolyte changes did not occur in dogs fed on a high potassium diet, indicating that the actions of desoxycorticosterone on electrolyte pattern and on fluid metabolism are independent.

Corey and Britton have for some years been investigating the effects of adrenal cortical extracts on the fluid metabolism in the rat. They are strong supporters of the theory that the normal fluid exchanges of the body are regulated by the antagonistic actions of adrenal cortical and posterior pituitary hormones. They find[4] that hypophysectomy in the rat causes an immediate acute polyuria lasting 3 to 5 days, during which period the urine output exceeds the water intake. This is followed by a 3-day period during which polydipsia develops and water intake exceeds urine output. Finally, a chronic condition of mild diabetes insipidus supervenes with an approximately normal ratio between water intake and urine output. In this latter condition desoxycorticosterone acetate increases the fluid exchange proportionately more than it does in the normal rat; this increase is, however, abolished if pituitrin is given at the same time (0.25 unit of pituitrin cancels the effects of 2 mg. of desoxycorticosterone acetate). Supporting evidence for their theory is provided by their previous observation[5] that diabetes insipidus does not follow hypophysectomy if the adrenals are removed simultaneously.

Thus, while the evidence for the production of polydipsia and polyuria is conclusive, whether this action of adrenal cortical hormones plays any part in the normal regulation of fluid exchanges or in diabetes insipidus is not yet proved. The experiments in the rat are open to the objection that true diabetes insipidus as produced in dogs by Ranson and his colleagues was abolished when the anterior lobe of the pituitary was removed. On the other hand, the presence of posterior pituitary tissue in the injected dogs may well modify the symptoms produced by desoxycorticosterone. Be this as it may, Moehlig and Jaffe[6] have observed marked polyuria and polydipsia, with attacks of muscular weakness, in a patient implanted with pellets of desoxycorticosterone acetate. The symptoms developed when a tablet containing 150 mg. was crushed, causing an overdose of the hormone. The symptoms persisted for two months, demonstrating that the effects seen in animals may also be produced in man.

The Therapeutic Requirements Committee of the Medical Research Council, as announced in our issue of April 3, has again urged practitioners not to prescribe desoxycorticosterone acetate for any patients except those suffering from Addison's disease, because the supplies now available are only sufficient for that purpose.

The fourth international assembly of the International College of Surgeons will be held on June 14-16 at the Waldorf Astoria Hotel in New York City, under the presidency of Dr. Fred H. Albee. The programme will be devoted to war surgery and rehabilitation. Delegations made up of surgeons from the United Nations in addition to those from other countries are expected to attend.

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[1] *Amer. J. Physiol.*, 1940, **131**, 73.
[2] Ibid., 1942, **135**, 102.
[3] Ibid., 1942, **135**, 230.
[4] *Amer. J. Physiol.*, 1941, **133**, 511.
[5] Ibid., 1939, **125**, 644.
[6] *J. Lab. clin. Med.*, 1942, **27**, 1009.

HEALTH SERVICES IN INDUSTRY

GOVERNMENT CONFERENCE

The Ministry of Labour and National Service summoned a three-day conference in London, opening on April 9, on industrial health. It was attended by industrial medical officers and nurses, welfare officers, shop stewards, and others in different ranks of industry, who did not allow, as one of them put it, "the bigwigs to get away with their pious generalizations." One young girl, indeed, obviously impressed the Minister of Labour with her account of the conditions in a railway goods yard in North London, where 3,000 workers are employed, and where there is no first-aid room or surgery.

Mr. ERNEST BEVIN said that he hoped the Conference would crystallize the interest in this subject and evoke suggestions which might be taken by the Government and by industry during and after the war. He applauded the introduction of the works doctor, especially the part-time doctor who was also a general practitioner. A similar blessing was pronounced by Mr. ERNEST BROWN, Minister of Health, who said that if the background of all workers in the future was to include a full family doctor service run from properly equipped group practices it would be a wise policy to bring the doctors more and more into the medical supervision of factories.

The Works Doctor in the Future Set-up

Sir WILSON JAMESON, Chief Medical Officer, Ministry of Health, pursuing the same theme, said that the comprehensive medical service which the Government had decided to make available for everyone must direct its efforts towards positive health. It was unthinkable that the doctor who thus undertook the care of a family should have contact with them only after illness had occurred. Arrangements must be made for him to take over many of the duties which the more purely preventive public health services had performed in the past, and to do this he must have the help of the public health nurse and the social worker. All this called for changes, not only in the conduct of medical practice but in medical education. Medical students must be trained to think in terms of social as well as of individual medicine.

The place of industrial health services within a comprehensive medical service was discussed also by Dr. CHARLES HILL, Deputy Secretary of the British Medical Association. Now was the time, he said, to examine the set-up of the industrial medical service. If the task were left until after the war it might well be impeded by economy committees and the like. It was of no use pretending that the factory health service covered the sort of factories in which it was most needed. The majority of workers were in the smaller factories,* which as a whole were not covered by the service. The service was also to some extent prejudiced by the fact that it was an employers' service and the doctor was looked upon as the employers' doctor. He did not believe the prejudice to be justified, but a service so arranged must remain haphazard and incomplete. Until the factory medical service became part of a national environmental service it would not earn the right of continuance as an essential part of health machinery. He added that the medical profession regarded the development of industrial medicine as of profound importance. It was the development for which, perhaps, in the field of health, this war would be remembered, just as the last war was remembered for the Maternity and Child Welfare Act, 1918.

Education and Research

The training of the works medical officer was the subject of a paper by Lieut.-Col. G. S. PARKINSON, Dean and Director of Public Health, London School of Hygiene and Tropical Medicine. A diploma in industrial health, he said, might be a guarantee of a state of proficiency of medical officers entering industry. Before undertaking a postgraduate course in industrial health the medical man or woman should have spent at least two years in house appointments and in general practice. He suggested the following syllabus for industrial health training:

The working environment; nutrition, energy expenditure; industrial fatigue; medical industrial psychology (vocational guidance and selection); accident prevention and the psychoneuroses of industry; modern industrial system of labour management; organization of medical service in industry; methods of recording sickness and accident rates; bacteriology in industry; occupational diseases and poisons and their prevention; industrial surgery and rehabilitation; principles of industrial law.

In addition a period of practical training in selected factories should be provided in order that the future medical officer might see the conditions under which work was being carried out.

Sir EDWARD MELLANBY, Secretary of the Medical Research Council, pointed out that, however good the central or local administration might be, and however efficient the doctors, medical treatment could only be as good as existing knowledge permitted. The Industrial Health Research Board had assembled a collection of facts, especially relating to optimum health conditions, which were of fundamental importance, a collection unrivalled in any other country. Sir Edward added that when he first approached the work of the Medical Research Council on its industrial side he had in mind two great factors—namely, industrial hazards, especially in relation to new toxic solvents, and the psychological problems of fitting the man into the job. He now believed that the former would be a relatively small factor, and the latter a very large one. No subject was more important than industrial psychology, and none could be more gravely mishandled.

The Doctor in Dungarees

A lively speech was made by Dr. A. J. AMOR, Deputy Chief Medical Officer, Ministry of Supply. To deal with industrial fatigue, he said, was really a question of getting down to minutiae. The medical officer must leave his well-appointed surgery, get into dungarees, and go into the factory. He had seen committees investigating absenteeism with never a report from a keen, intelligent, human doctor who had gone into the factory and found out what was wrong. Industrial medicine was not a question of pills and powders and plasters but of painstaking study of environment.

Dr. Amor gave an account of the conditions in a Royal Ordnance factory where large numbers of women dealt with explosives which irritated the skin. During the last year the incidence of dermatitis here had gone down by 60%. An important feature of the factory was the "beauty parlour" adjoining the wash room, with its marble basins, good-quality soap, and separate towels. In the "beauty parlour" were tables with little pots of cream and powder and pledgets of cotton-wool, and with plenty of mirrors on the walls. A hundred girls at a time, in their neat caps and overalls, made up their faces as if they were going to a party, and then, bright and smiling, went to their work on detonators, the most dangerous work on which women were employed to-day. And, thanks not a little to the feeling of happiness and well-being, dermatitis had gone down by 60%.

Dr. R. E. LANE said that medicine could not live in industry as a luxury service, but only as an integral part of wise management and as one of the components of the medical service of the community. Dr. M. W. PATERSON spoke of the danger lest whole-time officers should be divorced from life and practice outside the factory. Dr. E. R. A. MEREWETHER, Senior Medical Inspector of Factories, said that occupational disease was preventable, and progress in that direction could be measured with certainty. The sum total of incapacity from known occupational diseases was somewhat exaggerated. In the five years before the war the total number of deaths from silicosis or from silicosis with tuberculosis was equal to 22.8% of the number of fatal accidents in factories and mines. Dr. W. BLOOD pleaded for a standard system of sick records and of periodical returns so that morbidity figures in different factories could be compared. Dr. G. DE SWIET spoke of the close integration of domestic and works conditions. The boundaries of industrial health were very difficult to define.

Among other points brought out in a discussion of wide range were the lack of facilities for the training of occupational therapists; the unduly heavy weight-lifting required of women in some factories; also the defectiveness of the eyesight of middle-aged women entering industry; the detrimental psychological effect of the crowded waiting-room of the panel doctor or the out-patient department; the need for a wider and more economic distribution of nurses specially trained in industrial health; and the need not only for the provision of food of nutritive value in the canteens but for the education of the worker in his food preferences.

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* Sir Wilfrid Garrett, Chief Inspector of Factories, told the Conference that, just before the war, 32.2% of workers were in factories in which up to 100 people were employed, and 18.8% in factories in which there were over 1,000 workers.

Mr. BEVIN, in closing the Conference, referred to the problem of the adolescent worker. He thought it would be found, when the new Education Bill was introduced, that provision would be made for carrying the School Medical Service to a higher age and making it universal. The break in continuity of medical oversight on leaving school should not be allowed to remain.

EUROPEAN ASSOCIATION OF CLINICAL PATHOLOGISTS

At a meeting held in the Medical School of University College Hospital, London, on April 3 a European Association of Clinical Pathologists was inaugurated. Between twenty and thirty medical men and women drawn from Austria, Belgium, Czechoslovakia, France, Germany, Great Britain, Hungary, Italy, Poland, and Russia were present.

Dr. F. PICK of Prague said that since coming to this country he had been impressed by the conception of clinical pathology as practised here, and he believed that this represented a method of approach to medicine which might with advantage be developed on the Continent of Europe when the present troubles had come to an end. He called upon Dr. S. C. Dyke, former secretary and president of the British Association of Clinical Pathologists, to take the chair and to explain to the meeting how clinical pathology was organized in this country.

Dr. DYKE pointed out that clinical pathology, although a special branch of medicine, was within itself unspecialized, and permeated and had relations with all branches of medical practice. He described how the British Association of Clinical Pathologists had come into existence. Owing to the relatively unspecialized nature of its proceedings, he said, its meetings formed a peculiarly happy ground for the free interchange of views between practitioners in the various branches of medicine. He hoped that some of those present, on their return to their own countries, would organize national branches of a European Association in their own countries; and he believed that the British Association, having been the stock from which the European Association had sprung, would willingly become a branch. Dr. Dyke then moved from the chair that "there be formed a European Association of Clinical Pathologists."

Prof. E. J. BIGWOOD of Brussels stressed the importance of establishing contacts between clinical medicine and the laboratory. Dr. M. MAIZELS hoped that after the war it would be possible to arrange for interchange of laboratory workers between clinical pathological laboratories in this country and those on the Continent. Dr. Dyke then read a letter of welcome from Dr. A. F. S. Sladden, President of the British Association of Clinical Pathologists, and resolutions from the council of the association offering the hospitality of all its meetings and gatherings to the members of the European Association. Dr. P. N. PANTON emphasized the need for a class of medical practitioners capable of taking charge of hospital laboratories; he had found medical laboratory workers from the Continent to be specialized to a degree which made it difficult for them to do this.

The meeting appointed a committee consisting of Drs. B. L. Della Vida (Rome), S. C. Dyke (Oxford), M. Mandelbaum (Munich), F. Pick (Prague), F. Silberstein (Vienna), and J. Ungar (Prague) to draw up rules and to submit them to a further meeting to be held in London some time in May. Dr. Pick was appointed secretary, and all who are interested in this new organization are asked to communicate with him at the Department of Clinical Pathology, the General Hospital, Walsall, Staffs.

NAVAL SURGEON'S HEROISM

References to the heroism of the medical officer in a British destroyer have appeared in several of the newspapers. The *Times*, in a very full account, states that this officer, Surg. Lieut. Philip Raymond Charles Evans, R.N.V.R., was serving in a British destroyer which picked up most of the survivors of the Canadian corvette *Weyburn* when she sank on her way back from the Mediterranean. He was standing on the destroyer's deck, helping survivors of the *Weyburn* from the water and attending the wounded, when the corvette went under and his legs were broken below the knee by a second underwater explosion which followed her disappearance. Without thought for his own severe injuries he insisted on being carried round the destroyer's decks to attend to the slightly wounded there. Then he asked to be taken to the wardroom, which was filled with men injured by the second explosion. He was placed in a sitting position on the floor beside each cot, and from there he examined the men, giving orders for treatment to the sick-bay attendant. In spite of the pain he suffered every time his legs were moved he insisted on carrying on without rest. Only when every examination had been made did he allow himself to be placed in a chair with his legs stretched out straight in front of him for what small measure of comfort was possible. He still refused to stop work, and sat in the chair for 12 hours, until the destroyer reached Gibraltar, directing the treatment of several men seriously wounded or burned. In all he attended more than 50 injured and wounded seamen.

Reports of Societies

ATYPICAL PNEUMONIA

At a meeting of the Section of Medicine of the Royal Society of Medicine on March 23, Dr. GEOFFREY MARSHALL presiding, the subject of atypical pneumonia was introduced by two officers of the U.S. Army Medical Corps.

American Army Experience

Capt. JOHN W. BROWN said that since about 1935 several papers had been published describing an atypical pneumonia, mild in character, from which the patients with rare exceptions recovered. Very occasionally, however, a highly fatal condition developed; thus in San Francisco in 1940 a patient died in hospital from this disease after infecting his three nurses, two of whom died; two doctors in attendance also caught the infection and both were ill for several months. The disease had been referred to by different names, such as disseminated focal pneumonia, acute diffuse bronchiolitis, and pneumonitis, but it had been now more or less agreed to call it primary atypical pneumonia (aetiology unknown). The onset was usually insidious; the symptoms were almost identical with those of influenza but the fever lasted longer (from 7 to 15 days), and *x* rays showed patchy lesions in the lungs, mostly beginning at the hilum and spreading to the periphery. Chemotherapy did not affect the course of the disease. An extensive study of the possible aetiology had been made. In some of the cases the rickettsia bodies of acute fever had been found, and in a series of 50 cases in his own experience 3 had shown a rise of antibodies to psittacosis virus. But most of the outbreaks failed to reveal any particular agent. Since July, 1942, at his hospital in this country there had been 102 cases, all of them in soldiers; the number was equal to two-thirds of the total number of pneumonias. No epidemiological significance was attached to them, in the sense that no large group of cases came from any one unit.

Lieut.-Col. GORDON E. HEIN said that they as American medical officers were in an exceptional position in this respect, that the patients with whom they had to deal came in most cases from parts of America far distant from the parts from which the M.O.s had come themselves, so that their previous civil experience was of no particular avail, and the patients were in an entirely different environment from that of their own homes, and unavoidable crowding and community living had enhanced exposure to bacterial and virus agents. The 102 cases seen in hospital during the last eight months had been all more or less similar; they certainly differed from the cases of pneumococcal pneumonia, and also were quite different from the cases seen during the influenza pandemic of 1918. The patient himself might not feel ill, pyrexia might be slight, cough moderate, the sputum was not blood-stained as a rule, and mental confusion was not a prominent part of the picture. He brought forward for elucidation four cases which were "atypically atypical"; two of them developed meningo-encephalitic symptoms, and the other two had an unusually prolonged fever after the pneumonia had disappeared. One of the former two was as follows:

A man aged 22 was admitted to the orthopaedic service because of an old shoulder injury. After being in hospital 23 days he developed pneumonia, marked by malaise, a non-productive cough, and fever, but no frank consolidation. His temperature rose to 102°, and, after falling, rose again to 104°, at which point it remained for three days. On the fifth day of the illness he was somnolent and unduly sensitive to light, and his neck was stiff. The temperature began to drop and within two days was normal. One week after onset of the illness all evidence of pulmonary inflammation had disappeared, but the spinal fluid remained hazy, and the patient still had somnolence, photophobia, and stiff neck. All symptoms disappeared eleven days after onset, but spinal-fluid changes remained longer. He entirely recovered.

British Experience

Dr. Geoffrey Marshall said that at periods, perhaps ten or fifteen years apart, there occurred groups of these curious anomalous types of pneumonia. He agreed that the cases occurring now were quite different from those seen in France in 1918, in which there was an extremely high mortality. It seemed to be characteristic of the atypical case that the patient was ill, and after perhaps a week or two got a rigor or chill and developed this pulmonary lesion. In most cases the illness was over within about 10 days, but how long the shadows revealed by x rays persisted he could not say.

Col. W. R. M. Drew said that during the last two winters some 40 or 50 of these cases altogether had been seen at two military hospitals. They presented very much the same picture as had just been described. In some of them the lung lesions were extensive and yet there were very few clinical signs. The lesions sometimes seemed to move from place to place in the lung, but in practically none of the cases did they persist for longer than two or three weeks. In the few cases in which there was opportunity to make an examination of the sputum and a blood culture these were negative. No such complication as meningo-encephalitic symptoms or prolonged fever had been noted, nor was there any marked debility afterwards.

Major E. Samuel said that radiologically the picture in these cases did not conform to that of bacterial pneumonia. A large number of the patients were ambulatory and afebrile, and the difficulty in the radiograph was to differentiate between an early tuberculous lesion and a patch indicative of primary atypical pneumonia. A quite common site for the lesion in these cases was just beyond the apex of the heart in the left lower zone of the lung.

Col Montgomery (Canadian A.M.C.) referred to the difficulty of nomenclature. In his position as consultant he had been almost able to decide from which hospital a case was referred by the name attached to it. In a short series of 47 cases none of the complications to which Col. Hein had referred had been noted. If the patient's temperature was normal within 10 days and a radiograph was not taken it would probably not be known whether he had had pneumonia or not; but if pyrexia persisted for over 10 days one could be almost sure of seeing a lesion on x-ray examination. Dr. F. H. Young said that he had seen patients with pictures like this who were sent up to Brompton Hospital "query tuberculosis," and by the time arrangements could be made for them to be received as in-patients the radiological lesions had disappeared. In no case of this type had he been able to find any abnormal signs at all. Dr. Livingstone said that he had not seen many of these cases, but at the beginning of the war 50 or 60 cases of supposed influenza were received from the Guards depot. They were not x-rayed, but his recollection was that not a single one of them showed prolonged fever. The suggestion of psittacosis virus was rather startling in view of the number of people who now kept poultry.

A Cyclical Disease?

Sir Henry Tidy said that at St. Thomas's these cases began to be seen from 1935 onwards. They were increasing before the war, and many physicians were recognizing them. An interesting question was whether this was the return of a disease which had been noted under a different name in earlier years. At about the period 1908-10, when he was working as a pathologist, there was a dispute between pathologists and clinicians because the latter used to diagnose central pneumonia and the former never saw it at necropsy. It was possible that in the literature at that time cases could be found which corresponded to those now seen, but after that the condition appeared to die out until 1935 or so. He was in Berlin about 1911-12, at a time when the physicians there had discovered a specific against the pneumococcus (which, however, proved to be too toxic), and a hospital in the German capital had an enormous number of cases of pneumonia, but he was quite certain there was nothing of this type then.

Dr. Philip Ellman and Dr. Gregory Kayne both showed a series of radiographs of lung appearances in cases which had come within their experience. Dr. Ellman suggested that a non-stereotyped pneumonia should properly include a broader classification of pneumonic conditions than the cases referred to so far in the discussion. Dr. Eli Davis referred to three cases in which the x rays showed consolidation of the lower half of the right upper lobe, and yet in none of the three were there any physical signs whatever in the whole course of the illness. Dr. Wilfred Oakley mentioned a case which corresponded almost exactly with Col. Hein's description of his two cases of meningo-encephalitis associated with atypical pneumonia.

Dr. Horace Joules said that at the Central Middlesex Hospital, which served a population of approximately a quarter of a million, there had been 58 cases of pneumonia admitted since the middle of December. Of these, about 28 had true lobar pneumonia and gave a typable pneumococcus; 17 had demonstrable consolidation clinically and radiologically, but it had not been possible to get a typable pneumococcus from them; while 12 had had the clinical condition now described as atypical pneumonia. His problem was with regard to the 17. How far should the search go? The sputum and blood culture had been persistently negative. Should lumbar puncture be done in all cases? In some of the pneumococcal cases the organism had not been obtained from the sputum but had been obtained from the blood. Many of these cases had had sulphapyridine before coming into hospital, and it might be that this had sterilized the sputum. The cases with prolonged pyrexia had numbered only two, but both of these had had the typable pneumonia.

THE RED CROSS: PRINCIPLES AND ORGANIZATIONS

At a meeting of the Section of History of Medicine of the Royal Society of Medicine on April 7, with Sir Walter Langdon-Brown presiding, Dr. A. P. Cawadias presented a paper on "Red Cross Principles and Organizations in the Light of History." He pointed out that the Red Cross was not in its origin purely humanitarian. It helped the war effort of every nation. It was to the interest of every belligerent nation to save as many as possible of its wounded, but equally to destroy as many of the enemy; but that was too narrow, even from the military point of view, for acceptance as a working principle, and a country could only help its own prisoners and civilian population by a mechanism which similarly helped those of the enemy.

Dr. Cawadias said that the Red Cross originated in the sixties of the last century. It was not true, as some histories affirmed, that the Knights of Malta introduced the Red Cross. The Knights, although they built hospitals and cared for the sick, were, first and foremost, warriors, and indeed at one time were a great military power. But not until after the Red Cross was established at Geneva did the Knights of Malta, with their headquarters in Rome, and the Order of the Hospital of St. John of Jerusalem, begin to do Red Cross work in the sense of helping wounded soldiers and civilian populations independently of nationality. He then described the work of Henri Dunant, member of a patrician family in Geneva, who in his book published in 1862 set out the principles of the Red Cross. A name which also deserved prominence was that of Gustave Moynier, a Genevese lawyer, who instituted the first Red Cross Committee, which in turn led to the calling of the first international conference, opened by General Dufour in Geneva in 1863 and attended by representatives of sixty countries. The Red Cross had its baptism of fire during the Russo-Austrian War of 1866; Austria at that time had not adhered to the Red Cross convention, but Russia had done so. At the time of the Franco-Prussian War the French, unlike the Prussians, had not developed the Red Cross principle. The Red Cross then applied only to wounded soldiers; at a subsequent conference the principle was enlarged to take in sick soldiers as well, and later was extended to naval warfare and prisoners of war, then to civilian populations in wartime, and finally to those suffering from calamity in peacetime. To-day there were 57 Red Cross societies, and there had been 16 international conferences.

One of the first essentials for the future of the Red Cross was an established international organization. No one knew whether there would again be a League of Nations in Geneva, but a League of Red Crosses in Geneva there should certainly be. There was need for stronger centralization and more support in each country for its national Red Cross, with an elimination of the divisions existing in some countries between those doing Red Cross work.

Sir WALTER LANGDON-BROWN said that the division between the Red Cross and the Order of St. John had in the past led to overlapping and even to real friction. It was the only criticism he had to make of those two organizations, which had done such gallant work. Mr. H. DE POURTALES, a delegate of the International Red Cross Committee, who is inspecting the prisoner-of-war camps in this country, said that it was essential to the Red Cross movement that it should steer clear of all political intervention. It was only because of its freedom from politics that it had been able to develop its organization. He described the work in Geneva, where 3,000 were now employed, about half of them on a voluntary basis. They were in touch with practically every belligerent country—not quite all—and had been able to answer inquiries about the conditions of prisoners and to send relief. Mr. F. CAMBRAY, also attached to the Red Cross organization, mentioned the organization of parcels for prisoners of war, and also the arrangements for certain prisoners in German and Italian hands to take professional examinations.

Dr. CAWADIAS said that this time there were practically no neutral national Red Cross committees, and the whole strain had fallen on the International Committee, so that a few citizens in Switzerland had found themselves under an obligation to look after the whole world. When the history of this war came to be written the fame of that International Committee should be in letters of gold. The Red Cross organization would not cease with the armistice. Every effort that it could make would be required for the relief of Europe.

FACTORS INFLUENCING LACTATION

The fifth scientific meeting of the Scottish Group of the Nutrition Society was held in Glasgow on Feb. 20, when the subject discussed was "Factors influencing Lactation and the Nutrition of the Infant."

Prof. G. B. FLEMING, who was in the chair, said it was strange that natural selection had not produced a higher percentage of good milkers among women, particularly when account was taken of the high mortality rate of the artificially fed even as late as the middle of the last century. A qualitative alteration in the milk was of far less importance than a quantitative deficiency; it was better for the infant to be nourished by an undernourished mother than artificially fed, provided the quantity of milk available was sufficient. Milk production was influenced by diet, fluid intake, emptying of the breast, and frequency of milking, work, and nervous factors.

Dr. J. A. B. SMITH, in a paper on the effect of diet on lactation in animals, first pointed out that the proportion of glandular to connective and fatty tissue in the lactating gland influenced lactation. Unless the gland was fully prepared for milk secretion during pregnancy efficient lactation could not be expected, however adequate the diet. With the well-formed gland maximum lactation could only result if the diet was sufficient in energy, protein, and vitamins. Owing to an increase in the basal metabolic rate during lactation the energy of the additional digestible nutrients allowed for milk production must be almost twice as much as the energy in the milk. The protein supply must be of first-class biological value and rich in lysine and cystine. At the height of lactation the cow was usually in negative calcium balance, but this had no deleterious effect on the yield or quality of the milk, provided the feeding during pregnancy and in later lactation was adequate for the calcium stores to be replenished. Milk with maximum vitamin content could be obtained only by a liberal allowance of vitamins in the diet.

Dr. G. H. BELL, describing hormonal influences on lactation, said that preparation for lactation began early in pregnancy, and oestrogen and progesterone were not sufficient in themselves to bring out the full development of the mammary glands; presumably the anterior pituitary as well as the ovaries were involved. During pregnancy lactation might be inhibited by the large amounts of oestrogen in the circulation. After parturition the oestrogen secretion ceased, and the pituitary hormones could then initiate lactation. Prof. CHARLES MCNEIL dealt with nutritional defects in hospital infants, a subject to which, he said, too little attention was paid in the teaching schools. He described the advantages of breast-feeding and the need for expert management in the first month after birth.

Prof. J. HENDRY, who had studied the extraneous factors influencing satisfactory lactation in some 165 women from two social grades, emphasized: (1) that provision should be made for employed and for unmarried mothers to fulfil their obligations to their children despite their work commitments; (2) the importance of a successful first lactation and of preventing mastitis and other complications leading to tender breasts; and (3) the need for ante-natal care in preparation for lactation, and of continued supervision and care of the mother when she returned to her normal duties at home. Measures should also be taken, he said, to stop some maternity nurses in better-class homes giving selfish advice which led to premature cessation of breast-feeding. Dr. JEAN MACINTOSH, in some observations on the relative incidence of breast and artificial feeding, stated that recent surveys indicated that 50% of women breast-fed their infants up to the age of 3 months, but by the time the child was 6 months this figure had dropped to 40%. There was less breast-feeding among mothers in poor districts than among mothers in nursing homes. Dr. Macintosh excluded diet as one of the main causes of this, since breast-feeding had declined slightly in spite of an improvement in general nutrition. Psychological influences undoubtedly played a part, she said, but evacuation and air raids had not apparently affected the lactation of many women subjected to these disturbances. Dr. STANLEY GRAHAM described an investigation among some 300 infants under 18 months admitted to a medical unit at the Royal Hospital for Sick Children, Glasgow, over a 12-month period. Some 66% were less than 90% of their expected weight, and at least 50% suffered from iron-deficiency anaemia. On clinical and radiological grounds 25% showed evidence of rickets, and on biochemical grounds 40%. These nutritional defects, which predisposed to infection, could undoubtedly be greatly reduced by adequate feeding. This in turn would lead to a material reduction in the morbidity and mortality from such infections as gastro-enteritis and bronchopneumonia.

In the discussion which followed, Dr. A. B. ANDERSON described a case of lactation tetany following 21 months breast-feeding. The serum Ca had fallen to 6.9 mg. per 100 ml. When lactation was stopped and the patient was given a good diet the tetany cleared up. The CHAIRMAN gave data to show that there was no evidence of increased iron deficiency in a poor-class infant clinic as the result of war.

MILIARY TUBERCULOSIS

At a meeting of the Section of Medicine of the Royal Academy of Medicine in Ireland in February Dr. G. T. O'BRIEN showed *x*-ray films and gave the histories of two cases of healed miliary tuberculosis. The radiographical appearance of one of these resembled that of bronchopneumonic phthisis; but the appearance of the other case was that of miliary tuberculosis. Both cases had been observed over some years, and both clinically and radiologically they appeared to have greatly improved over that time.

Dr. DOROTHY PRICE reported two cases of healed chronic miliary tuberculosis. One was that of a child of 1½ years who had been under treatment for 5 months. There was now *x*-ray evidence of calcification of the multiple lung foci and primary complex. Spinal caries and psoas abscess also appeared to be healed. In this case the human type of tubercle bacillus was found in the gastric washings during the active stages. In the second case the patient when 10 months old was treated in hospital for a primary lung complex, and 8 months later developed bilateral miliary tuberculosis of the lungs, with pleural effusion. A year later the miliary tubercles were healed "without radiological residue," and calcification of the primary complex had begun; to date there were no secondary metastases outside the lungs. Dr. Price attributed healing (not yet completed) to the very long period of recumbency under good hospital conditions, which was the sole treatment; and emphasized that relapses with fatal termination reported in the literature occurred when the patient resumed exercise too soon. The bed rest should be continued until radiological evidence of calcification was assured; no regard should be paid to temperature and sedimentation rate, which were normal long before foci were healed. Clinically, it was at first impossible to distinguish between acute and chronic miliary tuberculosis. Pathologically the lesions were the same, the acute being probably due to massive and repeated infections of the blood stream by the bacilli; in the chronic, single or small quantities were released.

The PRESIDENT said he would be inclined to question some of the healed cases. He would like to know about the sputum examination in both cases. It was thought that miliary tuberculosis in the child always took an acute form. Dr. Price's findings were radiological rather than clinical. Dr. W. R. F. COLLIS said Dr. Price had done much for these early cases.

Dr. R. E. STEEN stressed the subject from the point of view of prognosis. Some people regarded miliary tuberculosis as hopeless. He had a case similar to Dr. Price's which did well. It was not possible always to give a dogmatic prognosis from an *x*-ray film of the chest. In none of these cases was there enlargement of the spleen. Dr. A. R. PARSONS considered that the diagnosis of these cases appeared to be passing into the hands of the radiologist. They were a most interesting series of cases, but not a single one had tubercle bacilli in the sputum. He had always looked on miliary tuberculosis as fatal.

Correspondence

Value of Study Groups

SIR,—It seems clear from pronouncements by various Government speakers during the past few weeks that the profession will have reasonable time to consider and discuss the steps and methods whereby a scheme for comprehensive health, etc., can be initiated. It is of vital importance that all practitioners should be kept informed of the progress of the deliberations taking place, and also should be encouraged to express their views at medical meetings and enter into informative discussions. In order to attain this end, fuller use must be made of the Study Groups which proved so successful last year, and a satisfactory method of co-ordinating and correlating their results should be devised. At present there is a sense of frustration among the rank and file that the views expressed at the Study Groups do not get anywhere, and so these discussions are largely a waste of time.

I suggest that the views of the Study Groups should be conveyed to the Council of the B.M.A. through co-ordinating committees, using the minimum number of steps, and so far as possible utilizing the machinery already available—e.g., Study Groups to local co-ordinating committees, which might be the local B.M.A. executive committee, thence to area committees, and so to the Council. There are two necessary factors for the success of this scheme.

(1) All members of the profession must be invited to local Study Groups, and every effort must be made by local organizations to see that the Group meetings are well attended.

(2) It is necessary that each Study Group should elect at least one member to the co-ordinating committee, and so on from this committee upwards. This will help to ensure an even flow of opinion from the lowest group to the highest.

Let the Study Groups be placed firmly on the medical map. I am sure they will fill an obvious gap in the present organization, and now deserve official recognition. They are an excellent means for testing out opinion on dubious points, and also help to satisfy the disillusioned leech who says, "Nobody listens to me."—I am, etc.,

Birmingham. R. C. L. BURGES.

Undisclosed Government Plans

SIR,—I am writing to you concerning an article on the "National Health Service" which appeared in the *Times*, of April 12. This, I suppose, must be taken as a kite flown by the Government to see which way the wind blows in relation to plans it has prepared but not yet disclosed. It appears to me that the Government is likely to embark on a very ill-advised course. The tradition of medicine has always rested upon the unlimited responsibility of the doctor towards his patient (this is the Hippocratic position) and upon the status which the practitioner has consequently acquired. It is true that there are and have been bad doctors, but none the less the quality of doctoring has been maintained by unlimited therapeutic responsibility and the maintained status of the practitioner which alone makes such unlimited responsibility practicable.

The considerations which now appear likely to be put forward concern administrative convenience. The purely medical thing is to be put under the suzerainty of the purely governmental thing. If this is allowed to come to pass a disaster will have been achieved. Since it is necessary to co-ordinate (even, it may be, to control) medical practice, the essential is that such co-ordination shall spring from the very quality of what the doctor is and does. Those who know this quality from their experience of the art of practice—I refer to the intimacies of personal consultation—must be in a position to secure, to govern, and to endow their fellows with the conditions which favour their art. The medical officer of health, as the representative of the local authority, is already too far removed from the heart of medicine. The clinic has still to find the way by which it can render to the person and to the family that which will promote their quality and development. If in the new health service the best traditions of medicine are to survive, kindly personal relationships between medical men must not be substituted by the boss who issues the pay packet and administers the necessary discipline.—I am, etc.,

Coventry. K. E. BARLOW

Partnership or Bondage?

SIR,—I welcome the last part of your leader in the *Journal* of April 10 (p. 449). It points clearly to some unity of views between the rank and file of the profession and those who have our affairs in hand. Recent correspondence and the editorial referred to suggest that the profession as a whole realize that we can trust the airy utterings of the Ministry of Health as a wayfarer would trust an empty boa constrictor who has given ample warning of its intentions.

We cannot easily forget: (1) the evidence of the "regional medical Gestapo" at the Arbitration in 1937; (2) the unilateral extension of the Panel; (3) the repeated refusal of the Ministry for a reasonable and long-overdue increase in the capitation fee; and (4) the dissimilarity between the letter of the Ministry to the B.M.A. suggesting "building from the basement" and the public announcements of the same Ministry of obviously preconceived ideas.

In fact, our previous dealings with the Ministry show that we shall have to get up very early in the mornings indeed if we are at least to keep pace with its moves, and that to counter the horseshoe in the Ministerial boxing-glove we must have not only unity but also a knuckle-duster under our kid glove. The Minister must be made aware that while the profession is capable of giving continuous medical service to the nation, even without a N.H.I. scheme, the Minister is not in any position to alter the medical services without our co-operation; and that while the profession may be willing to enter into partnership agreement with the Ministry for the common weal, we are not prepared to sell ourselves into bondage on any terms.—I am, etc.,

Ashton-in-Makerfield. PERCY GONSALVES.

Psychological Factors in Alimentary Tract Dysfunction

SIR,—The articles by Sir Arthur Hurst and Dr. C. H. Rogerson on asthma in childhood strongly suggest a close analogy between asthma and the alimentary tract dysfunctions, particularly the group characterized by spasticity of the colon, mucous colitis, and their congeners. Although these conditions often do not develop until middle life, the personalities of the sufferers show a strong similarity to those described by Sir Arthur Hurst and Dr. Rogerson, and there is no doubt a physical and psychological diathesis which predisposes to these conditions.

Sir Arthur Hurst makes the point that conditions that at one time will produce an asthmatic attack at another are perfectly harmless, and this is also true of the colon dysfunctions. In view of this fact the treatment of such cases by dieting needs to be carefully reviewed. Patients and doctors have a tendency to cut out of the diet any form of food which appears to have precipitated an attack. The result is that many patients are definitely undernourished, taking an ill-balanced dietary defective in essential vitamins and minerals. It is not uncommon to hear such patients say that attacks occur from time to time even when they are rigidly keeping to a very limited diet, just as an asthma attack will sometimes occur without any apparently incriminating factors.

There is no doubt that in all these conditions treatment should be undertaken from both the physical and psychological aspects, so that the vicious circle set up may be broken at two points. It would indeed be desirable that the doctor who treats the patients' physical symptoms should be able to treat them from the psychological aspect also, but, unfortunately, relatively few general practitioners have either the time or the training necessary for this. This is only another illustration of the close interpenetration of physical and psychological factors in health and disease.

May I also say a word on another subject—i.e., the report of the Conference of the Ex-Services Welfare Society on War Stress and the Incidence of Neurosis. The report omits valuable conclusions which were arrived at: (1) That it is essential to devise some machinery whereby people discharged from the Forces for psychiatric reasons could be put in touch with their own doctors and/or with a local psychiatric clinic, or, when these are not available, with suitable psychiatric social workers, as otherwise they simply drift and deteriorate still further. (2) That such cases and those of civilians referred to clinics for psychiatric treatment need also facilities for paid employment of a specialized type or under specialized conditions, in order to rehabilitate them. Psychotherapy is not sufficient, as they need work to stabilize them by restoring their self-respect and self-confidence and by reducing the anxiety of financial stringency and dependence.

The need was referred to in the Tomlinson report and cannot be too strongly stressed. It is frequently impossible to send a man to a full-time job without his breaking down again; there is no light or part-time work available, and consequently he does not benefit from psychological treatment, or at best only to a very limited extent.—I am, etc.,

London, W.1. DORIS ODLUM.

Extending the Use of Collapse Therapy

SIR,—Many will endorse Dr W. D. W. Brooks's plea (April 3, p. 423) for the more extensive use of collapse therapy to shorten the duration of the average stay in a sanatorium, and thus help to reduce the growing waiting-lists. This would involve not merely collapse therapy for some patients to whom it is not now applied but also initiating it earlier in others, and shortening the intervals between successive procedures that may be required to make the collapse effective. In encouraging these principles one thing must, however, be borne in mind. Collapse therapy should not be initiated in sanatoria that do not have facilities for carrying out, immediately they are needed, those accessory or consequential measures that may be required to obtain effective collapse, as, for instance, adhesion-section. If pneumothorax is to be attempted more often in such institutions then the axiom should be to abandon, at the earliest possible moment, pneumothoraces that are not fully effective; for it is well established that contraselective collapse increases the danger to the patient, and will eventually lengthen the stay in institution. Our advice should therefore be to increase the use of collapse therapy only in those sanatoria that already have full surgical facilities. The few available thoracic surgeons, who already appear to have their hands quite full, may make even this modified policy impracticable at present, and more physicians should therefore perhaps be encouraged to learn and carry out adhesion-section and phrenic interruption. We need not be perturbed by such a practice, since we have had in this country, among physicians, at least one brilliant exponent of adhesion-section, and I personally know several superintendents of sanatoria who are doing excellent work of this kind.

Dr. Brooks also adds that "experience has shown in the U.S.A. and elsewhere that collapse therapy in ambulant patients is practicable and satisfactory from the patient's point of view and from that of public health." I was inclined until quite recently to believe this myself, but the following extract from the excellent book by Chadwick and Pope, U.S.A., *The Modern Attack on Tuberculosis*, compels caution. This is what they say: "The success of pneumothorax treatment under sanatorium conditions and its continuation in suitable patients after their discharge gave rise about 1935 to a wave of enthusiasm for ambulant pneumothorax as a substitute for sanatorium treatment. A number of cities established pneumothorax clinics where collapse was instituted and refills were given for patients who in many cases were encouraged to continue the treatment at home. In certain cases the results appeared to be satisfactory and the material saving in costs was cited as justification of the procedure. In the course of the next two or three years, however, the number of cases of empyema which developed in patients receiving ambulant pneumothorax convinced even most of its advocates of the inherent dangers of this procedure as an independent method of treatment. Physiologically it ignores the essential role of rest in the treatment of active tuberculosis and rationally should be limited to patients whose collapse has been safely established in the sanatorium and whose disease is sufficiently stable to justify the amount of exertion involved."—I am, etc.,

Staines. G. GREGORY KAYNE.

Treatment of Scabies

SIR,—I have read with interest Dr. J. R. Graham's article on the treatment of scabies (April 3, p. 413), and whole-heartedly agree that the routine disinfection of fomites is unnecessary and, in addition, expensive.

During an approximate period of 11 months commencing in February, 1942, 982 cases of scabies were treated in Blaydon, Ryton, and Whickham (868 with benzyl benzoate) without recourse, other than in two early cases whose owners insisted, to disinfestation of fomites, and the true recurrence rate was only a fraction of 1%. Such observations are, however, by no means original, and merely tend to accentuate the exemplary lesson on the subject given by that eminent dematologist Ferdinand Hebra in 1868, which, though occasionally referred to, is worthy of wider dissemination.

> " But in my judgment (which, however, I admit to be provisional)," states Hebra, " all these precautions are unnecessary. In the General Hospital of Vienna, where 1,500 cases of scabies come under treatment every year and are cured, the relapses never exceed 1%. Yet in this establishment no measures of disinfection whatever are employed, although we have both an oven and a vapour-bath such as are above described, which we could easily use if it were thought desirable."

It is indeed remarkable that Hebra's considerable observation should have been so easily forgotten or disregarded by all but a few, and is almost on a par with the controversy which raged as to the causation of the disease, conclusively settled by Renucci in 1834 and subsequently disbelieved by more than a few.

It has been shown on several occasions that fomites under favourable conditions may produce infestation, but compared with prolonged bodily contact (ideally in bed) such incidence may be ignored in face of the much bigger and more important issue. Like Carslaw (*Journal*, 1941, **1**, 648), I am not satisfied that one " efficient " application of benzyl benzoate will cure every case of scabies, since my own experience leads me to a somewhat different conclusion. It is one thing to extract dead mites (presumably mature females) at the end of a week and another thing to be sure, without a subsequent " follow-up " at least 3 weeks after the last application of the medicament, that all eggs and larvae have likewise succumbed.

Finally, it cannot be too emphatically stated that, following upon efficient treatment, true relapse is uncommon, whereas eventual reinfection traceable to an immediate source, usually familial and concealed, is comparatively frequent and in my districts has been estimated at 5.3%.—I am, etc.,

T. M. CLAYTON,
M.O.H., Blaydon, Ryton, and Whickham U.D.C.s

Tanning for a Skin Lesion

SIR,—At an operation for intestinal obstruction due to a pelvic abscess in a very seriously ill male patient aged 37 the ileum had to be drained. A de Pezzer catheter was introduced into the gut and fixed in the usual way. In a few days the wound in the region of the catheter broke down, and in spite of every effort to prevent it the intestinal contents leaked over the abdominal wall. A few days later the catheter came away and the flow became quite uncontrollable. By this time all the skin of the abdomen below the umbilicus and the skin of the groins and scrotum was involved. Pain was intense and persistent and the patient's general condition rapidly deteriorated, due in the main to lack of rest and sleep. Sedatives, including morphine, had little or no effect. Anaesthetic ointments, serum, Unna's paste, etc., proved useless in the treatment of the skin condition.

Struck by the close resemblance of the skin lesion to that of a second-degree burn after removal of the blisters, I decided to try tanning. A thick layer of "tannafax" was therefore applied and the result was entirely satisfactory. Pain disappeared almost immediately and the skin rapidly healed. At first the tannafax was applied every four hours, but as the fistula gradually closed, once a day.

The fact that I have been unable to find any reference to this method of treatment in the literature of the subject is my excuse for this letter, and I hope that any others who are induced to try it may achieve an equal success.—I am, etc.,

Royal Victoria Hospital, Belfast. K. A. MCCAUGHEY, Resident Medical Officer, Musgrave Clinic

Treatment of Asthma in Childhood

SIR,—Sir Arthur Hurst (April 3, p. 403) conspicuously abstains from making any reference to atropine among various asthma treatments. May I venture the suggestion that the old practice of administering this vagal depressant will be reinstated by the use of its less toxic derivative, atropine methylnitrate (eumydrin).

I had lately the opportunity in general practice to attend 3 children (of different families) between the ages of 5 and 9 suffering from attacks of bronchial asthma. All were old asthmatics who had gone through various forms of treatment. The following medicine was given: atropine methylnitrate 1/2 gr., water to 10 oz.; 1 to 2 teaspoonfuls 3 to 4 times a day. The medicine was uncoloured and unflavoured to exclude psychological effects so far as this is possible. The attacks stopped in all cases within a few hours, and it was possible to keep the children free from further attacks by the occasional exhibition of 1 to 2 teaspoonfuls of the above medicine at the first sign of "wheeziness." No further cases were treated. No untoward effect has been observed, and both mothers and children seem to prefer this treatment to all previous ones.

There is no doubt that atropine methylnitrate was active in these cases, as it was bound to be considering the high dosage employed. On the other hand, I am fully aware that the recorded number of cases is far too small and the reference to previous treatments far too vague to give any indication as to the relative value of this treatment. I shall be grateful for references to clinical work done on this line and, in the absence of such, I hope members of the Asthma Research Council might take up the matter.—I am, etc.,

Sunbury-on-Thames NICHOLAS HAJDU, M.D.Prague.

Biochemistry for Medical Students

SIR,—Dr. C. F. J. Cropper's article, "The Pre-clinical Years" (March 27, p. 389), deserves serious consideration at the present time, and I should like to add something regarding the teaching of biochemistry to medical students.

As Dr. Cropper's article points out, the present tendency is to appoint non-medical biochemists as heads of biochemical departments *in medical schools*. The danger of this practice is that such a department tends to regard its students as potential biochemists and its duty to teach biochemistry as a pure science, for its own sake, so as to turn them into actual biochemists. The fact is that the students intend to become not biochemists but doctors; and if they learn biochemistry it is in order the better to qualify themselves as doctors. Thus to, and for, the medical student biochemistry is largely an applied science and cannot be regarded as a subject by itself; it must be dealt with, in relation to the training of the doctor as a whole. But this relation cannot be fully appreciated by those who have not themselves had the experience of a complete medical training with, in addition, experience in clinical medicine and in the direct application of chemistry to clinical medicine.

I do not suggest that biochemistry should be taught to medical students by those who are doctors only, nor that it should be taught entirely as an applied science. The teacher should be a competent biochemist who is also a doctor, well able to treat the subject as a judicious combination of pure and applied science, capable therefore of dealing with fundamental biochemical principles while stimulating the student's interest by reference to their place in the general scheme of his medical training, and teaching the practical applications of his subject out of a rich fund of his own personal experience.

As a result of the biochemical teaching received in the pre-clinical period the student should feel that the pathological and clinical chemistry taught to him later, in his clinical period, are natural developments and extensions of his earlier pre-clinical studies and not something entirely different; he must be made to feel that what is learnt in the pre-clinical period is not something to be forgotten as soon as he has passed the appropriate examination, but something which he cannot afford to neglect if he is to make a success of his later studies. On this view, the chemistry of the pre-clinical period, and that of the clinical period, if not taught under the direction of the same person should be the subject of close collaboration between the different teachers concerned, to make of the subject a natural co-ordinated whole.

The greatest trial to the hospital biochemist is the resident who causes much unnecessary work, and often misleads himself, by his failure to appreciate the proper bearing of biochemistry on clinical medicine—and the majority of hospital residents appear to fall into this class; certainly the majority of hospital biochemists voice this complaint. If a comprehensive medical service, including full laboratory services, is made available to the whole population, so that every doctor may demand any biochemical test that may occur to him, the state of affairs will become infinitely worse. It is certainly not improved by the attitude of some of the present non-medical teachers of biochemistry whom I have heard refer contemptuously to the applications of chemistry to clinical medicine as "mere clinical chemistry." If they had had experience as hospital biochemists, or were acquainted with such works as Peters and van Slyke's *Quantitative Clinical Chemistry*, they would realize that the subject is worthy of something more than contempt.

This state of affairs appears to show that the biochemical training of the medical student deserves reconsideration. Much of the emphasis must be shifted from purely academic instruction and exercises to the practical application of the subject to medicine. This does not mean that attention should be focused entirely or even mainly on diagnostic chemistry, and such important subjects as the chemistry of nutrition must receive adequate treatment.

In what has already been said there is no desire to minimize the great services rendered by non-medical biochemists to medicine, to agriculture, and to industry, nor to reflect on their capacity to teach and train biochemists. The medical biochemist must keep in close touch with their work, at any rate so far as it concerns medicine, and incorporate its results, where appropriate, into the body of his teaching. He will, of course, undertake research himself, so far as his teaching duties permit.

It might also be added that the really competent biochemist who is also a doctor is not thereby rendered unfit for taking charge of the training of biochemists as well as doctors if his department is charged with this dual function; he is at least as capable of undertaking this double-pronged task as the non-medical biochemist.—I am, etc.,

HOSPITAL BIOCHEMIST.

Foot-and-Mouth Disease in Man

SIR,—I have read with interest the letter of Dr. Kenneth MacLeod (March 6, p. 300) reporting a case in which a diagnosis in man of foot-and-mouth disease was made. I have discussed it with a veterinary friend frequently concerned in the investigation of outbreaks of foot-and-mouth disease, and he makes the following points.

First, the involvement of the hoofs in animals is an essential part of the disease, and in recorded human cases involvement of the areas around the nails is usual. Secondly, if the breath is fetid then the animal cannot be suffering from uncomplicated foot-and-mouth disease. He told of an assistant of his who at one time suffered from what he took to be foot-and-mouth disease, complete with stomatitis and involvement of the nails, in which convalescence was prolonged, and during which the heart was affected. In animals the course of the disease is prolonged, and the crusts round the hoofs seldom separate in less than a month, and are often there for three months.

It would therefore be interesting to hear more about the convalescence of the case reported. A further point is that, in adult humans at any rate, there is a high degree of resistance, and the closest possible contact is necessary to secure infection; and it seems reasonable to doubt whether a child is so much less resistant that merely walking past the farm without obtaining milk therefrom was adequate contact to give rise to infection. Finally, from the description of the case, it seems to me to have been not inconsistent with one of Vincent's angina.—I am, etc.,

I. C. MONRO,
Medical Officer of Health.
Elgin.

Treatment of Fulminating Meningococcal Septicaemia

SIR,—The dramatic response of fulminating meningococcal septicaemia to sulphapyridine administered sufficiently early reported by Dr. J. N. Morrison and Mr. P. W. Houghton (March 20, p. 363) accords with our experience in the following case.

An American soldier aged 34 went to bed on Feb. 14 feeling perfectly well, but woke shortly after midnight with sweating, shivering, and insatiable thirst. He slept fitfully during the remainder of the night. At 6 a.m. he attempted to get up but found his legs would not support him. His thirst remained extreme. He had a slight headache but was mentally clear. Later in the morning he became drowsy, remembers his M.O. commencing to examine him, but nothing subsequent. At 1 p.m. he reached hospital and was seen in consultation with his M.O., Capt. N. Papae. He was flaccid, with a grey, slightly clammy skin, and completely unresponsive to sensory stimuli. He had not vomited but was incontinent of faeces. The temperature was 104.2° F. and the apex beat 156, the radial pulse being uncountable. The trunk and limbs were covered by a diffuse purpuric rash most marked on the abdomen and extensor aspect of the lower limbs, forearms, and hands. There was slight neck rigidity, but Brudzinski's and Kernig's signs were negative. The pupils were of medium size and active to light. The optic disks were normal, and retinal haemorrhages were not seen. The tendon reflexes could be elicited and the plantars were flexor. The heart sounds were pure and the B.P. 68/40. The c.s.f. was under normal pressure but faintly blood-stained. There was no excess of white cells, and meningococci were not found or grown on culture. The white cell count was 10,300 per c.mm., with 89% of polymorphs. Meningococci were not found in direct smears but were grown by blood culture.

Sulphapyridine 2 g. was given intravenously. An hour later recovery was sufficient for the drug to be continued orally, 2 g. being given four-hourly. Two hours after the initial injection he was able to respond rationally to questions and to give some account of his illness. Suprarenal cortical extract was not available, but sodium chloride was administered and the heart supported by adrenaline. By 2 a.m. the temperature had fallen to normal and did not again rise. The pulse rate remained between 120 and 112 for four days, by which time the blood pressure had risen gradually to 95/68; a normal level of 112/70 was reached at the end of the first week. On the second day of the illness the presence of superficial emboli was evidenced by many longitudinal ecchymoses, some several inches in length, chiefly over the extensor aspect of the limbs. The c.s.f. was now heavily blood-stained but sterile, and the urine, which was scanty, contained traces of blood. The white cell count had risen to 42,000 per c.mm. At this time the sulphapyridine content of the blood was 7 mg. %. The spleen did not become palpable at any stage of the illness. The patient made a complete recovery.

By contrast, the possibility of severe meningococcal infection escaping early chemotherapy through mildness of the constitutional reaction was illustrated by the case of another American soldier, who walked from ambulance to receiving ward and complained of sore throat, headache, and backache of 2 days' duration. During chest examination rigidity of the spine was noted, and further investigation showed Brudzinski's and Kernig's signs to be positive, bilateral papilloedema, a slight upper motor neuron weakness of the left face, left nerve deafness, and absent tendon reflexes. The c.s.f. was heavily turbid and under 250 mm. pressure. Numerous meningococci were present. The temperature, however, was normal, and except on one occasion on the seventh day of the illness did not rise above 98.8°. The pulse rate was between 84 and 100. No sulphonamide had been administered previous to admission. He responded to sulphapyridine and made a complete recovery.

—We are, etc.,

A. GRANT, M.D.
H. WOTZILKA, M.D.
Black Notley, Essex.

Changing the *p*H

SIR,—A couple of years ago the *Journal* published a valuable paper which indicated that shock is due to excess of potassium in the blood. As there is no increased intake in these cases the excess of potassium can only come from that which is stored in the cells of the body. Owing to their executive function, disturbance of equilibrium of the nerve cells must be followed by prompt and striking symptoms. The replacement of potassium by injection into the cerebrospinal system, recommended by Stern (*Journal*, Nov. 7, 1942, p. 538), should help greatly to restore equilibrium, the more so since the inorganic potassium used has a higher potential than that in the body with its organic linkages. A similar result is shown in the prompt effect of nascent CO_2 in restoring venous pressure in a system already overloaded with the gas at a lower potential.

The immediate response of the tissues to a disturbance of the Ca/K ratio indicates that the mid-point of unstable equilibrium of the blood and serum has a potential between those of calcium and potassium. Calcium, previously regarded as a powerful divalent base, is placed in the table of negativities well to the acid side of potassium, and the difference in potential between these electrolytes must under abnormal conditions cause stress which will upset the equilibrium in the cell. The difference of the action on protoplasm of these electrolytes is basic: calcium causes shrinkage, potassium swelling; both prevent closure of the body of marine larvae developing in sea-water, the former by contraction, the latter by swelling, and by the formation of vacuoles to such an extent that the tissue disintegrates and loses its power of cohesion.

The very interesting work of György and his school on the quanta-like degradation of the energy of foodstuffs in the body suggests that the subsidiary valencies of atoms, hitherto ignored, have important functions in rearranging atoms within the molecule, and in accepting and furnishing electrons during the different stages of the fermentations. If the individual electron can be traced and its relationships established we should be able to systematize the more potent differences in the potential of electrolytes for practical use. A table giving the critical points of the better-known colloids toward the common electrolytes should be of great use, as this field is practically unexplored.

Some twenty years ago I wrote to the *Journal* suggesting a more detailed examination of the *p*H of malignant tissue. In view of the potent action of calcium on protoplasm it is hard to believe that abnormal adsorption by the malignant cell, giving rise to increased intracellular pressure, a potent cause of proliferation of the cells, would persist unchecked in the presence of abundant calcium ions. A well-boiled suspension of creta praecip. presents no difficulty in preparation or for use in test experiments.

Finally, may I give a practical instance of the effect of changing the *p*H. For about fifty years I tried to dry an ear which had had the ossicles and floor of the epitympanum removed. Addition of 25% of chalk to the boric powder in use worked like a charm. For a number of years now no powder has been needed.—I am, etc.,

RICHARD KERRY.
Montreal.

Intra-uterine Rupture of the Umbilical Cord

SIR,—I was interested in the case of spontaneous intra-uterine rupture of the umbilical cord described by Dr. Kathleen McClintock (April 10, p. 446).

A similar case was seen by me 18 months ago. The patient was a primigravida. The membranes ruptured during the first stage of labour and, soon after, a fairly brisk ante-partum haemorrhage occurred. Bleeding continued for half an hour and then suddenly ceased. It was noted that the patient's general condition remained excellent, but at about the time of cessation of haemorrhage the foetal heart sounds became inaudible. Labour proceeded normally, and some hours later spontaneous delivery occurred. The foetus was stillborn and was remarkable for its extreme pallor. On completion of the third stage it was seen that there was a velamentous insertion of the cord. Air was injected into each of the vessels of the cord in turn, the placenta and cord being immersed in water. The presence of a small rupture was revealed in one of the tributaries of the vein, close to the edge of the placenta in the section of its course not supported by Wharton's jelly. The site of the rupture in the membranes did not suggest that it had been a case of vasa praevia.

In Dr. McClintock's case the foetus apparently died of asphyxia, possibly just before rupture of the cord; but in my case haemorrhage was the cause of death.—I am, etc.,

Leicester. D. R. Cairns.

Venereal Diseases

Sir,—Probably Mr. E. A. Chartres (March 13, p. 331) was deliberately provocative. He makes statements with which I, for one, profoundly disagree. The problem of venereal disease is not an entirely medical affair, and if the moral aspect is ignored it will never be solved. True, education in sex matters has been neglected and recognition of this fact is all to the good, but knowledge without guidance is a poor defence. Science, education, and reason have gone ahead in other directions, reason mainly as a very junior partner, and at the same time true appreciation of moral values has declined. The present struggle in which we are engaged is a telling demonstration of the failure of materialism.

Venereal disease, far from being ordinary, is extraordinary in being completely preventable. It is, in my opinion, unreasonable to sneer at the attitude of the Church, which has consistently emphasized the sanctity of marriage and taught that sexual intercourse outside marriage is wrong. If this teaching were universally followed there would be no venereal disease. It may be that, human nature being what it is, such a standard is not universally attainable, but is it worth while aiming at perfection? Surely we have a clear case where medical science should recognize the practical value of the viewpoint of the Church.—I am, etc.,

S. P. Wilson,
Major, R A M.C.

Sir,—Dr. G. L. Russell (April 3, p. 430) states that direct moral approach was successful. I would be more inclined to suspect that the V.D. specialist he refers to combined his good advice, which acted as sound propaganda, and of course vigorous treatment, and thus achieved that dramatic decline.

Nothing could be better than the close association of doctor and adviser, and more power to those who expend their energies in this direction. In the last war I, as O.C. of a general hospital in the East, talked to the men, warning them as a father to his sons, and I venture to think that my talk was appreciated and had a measure of success. If the parsons wish to take a hand in the good work, let them by all means do so, but few are qualified as men of the world to approach the subject. Morality as taught by the Church has mainly stressed the justice of punishment for lapses, and few of us wish to be kicked when we are down. Therefore, I say, let the medical profession do the teaching and the doctoring, and the schools teach sex hygiene and proper sex behaviour, and not keep this natural information in water-tight compartments.

Dr. Hanschell has not managed to conceal his irritation by introducing irrelevant matter. The second paragraph of his letter is more understandable; it does refer to an opinion held by a section of the profession.—I am, etc.,

E. A. Chartres.

*** This correspondence is now closed.—Ed., *B.M.J.*

The Medical Superintendent

Sir,—May I congratulate you first of all on the timeliness of the article on the medical superintendent (April 10, p. 453). The importance of expert administration of hospitals is being recognized to-day in all quarters.

One cannot but be struck by the immense distance between the liberal position taken up by Dr. Kimber and that which would have been held by the average "medical superintendent" even ten years ago. One wishes also to pay tribute to his effort to be judicial and open-minded. Nevertheless, there is much in his article that ought to be challenged, even if care is taken to avoid mere debating points. Before dealing with the subject proper let me draw attention to the phrase applied to the lay committee, "running the hospital in the interests of those they represent." I do not know if Dr. Kimber visualizes a change in this sphere, but in too many instances such bodies have been representative of political interests. We do not want hospitals to be "run in the interests of" such bodies, and if there were any suspicion that they were politically elected—even if there were a few co-opted members—it is quite unlikely that they would, as Dr. Kimber suggests later, "command the confidence and loyalty of the medical staff."

He refers to medical representation on the committee, but careful reading of his article fails to indicate that this medical representation is to be other than the "medical superintendent" except on special occasions, when "on a resolution by the medical staff committee direct approach by representatives should be allowed." The regular and *de jure* presence of representatives of the medical staff upon the committee, far from being "cumbersome," would facilitate rapid action, as *expert* medical opinion would always be available.

I hope Dr. Kimber will not feel hurt by the use of the word *expert*. Let him consider how hard it is for the specialist to keep himself abreast of his own subject, and then let him ask himself how he, whose specialty is administration, can hope to be sufficiently expert in any other branch to "keep his committee in close touch with current medical practice and progress." Then again, how can he hope to be in a position to "assess the merits of competing departments"? That can only be done by equal discussion among the various experts concerned and a democratic decision arising therefrom. How can he find time and the varied knowledge necessary for the "direct supervision" of the almoner's department in addition to the management of a hospital of perhaps 1,000 beds?

One last point. When Dr. Kimber speaks of no *one* specialist being "responsible for the patient as an individual" and by implication suggests that he is the person to do so, he is striking at the very basis of all sound medicine—the complete responsibility of the clinician for the welfare of his patient. If this principle is not honoured it will not be surprising if confusion results.

No, Sir, being superintendent of a hospital is a whole-time job. The day has gone by when he can be a jack-of-all-trades. I would not prevent a medical man becoming superintendent, but he must be primarily an expert administrator, and as he trains himself for this highly specialized work his medical knowledge will get rapidly out of date. In the smaller units, devoted to such clearly defined entities as infectious or mental diseases or to tuberculosis, he may still find time to devote to clinical work, but in large general hospitals if he attempts to do so he will speedily become a menace to the good of the patient and the smooth working of the staff.—I am, etc.,

Liverpool. John T. Morrison.

Medico-Legal

HOSPITAL GOVERNORS AND MEDICAL AUXILIARIES

Last summer the Court of Appeal dropped a bomb on the rule in Hillyer *v.* St. Bartholomew's Hospital (1909) and blew it into fragments of various sizes. These will continue to travel through the air until the case of Gold *v.* Essex C.C. has been heard by the House of Lords. Their Lordships' judgments will determine the final shape and arrangement of the fragments, and little purpose would therefore be served by exhaustively analysing those of the Court of Appeal at the present stage. A brief statement of them will, however, show how drastically the law governing a hospital's liability for its medical auxiliaries, which had appeared settled for thirty-two years, has been disrupted.

Professional and Administrative Responsibility

The facts were simple, and the Court of Appeal did not disturb the findings of the trial judge, Mr. Justice Tucker.[1] A radiographer employed by the Essex County Council treated a young girl's face with Grenz rays. The dose was prescribed by a dermatologist, but the radiographer had an entirely free hand to carry out the treatment. He negligently omitted to use a ray-proof screen and the girl suffered permanent disfigurement. Through her next friend she sued the county council, but Mr. Justice Tucker held that the rule in Hillyer's case obliged him to say that the Council were not liable for the negligence of their radiographer in the performance of a skilled duty. In Hillyer's case a patient who had been burnt and injured while on the operating table sought to make the hospital governors liable for the alleged negligence of the surgeon and the theatre team. The Court of Appeal unanimously held that the governors were not liable, but of the three judges who composed the court, Farwell, L.J., and Kennedy, L.J., founded themselves on wholly different reasons, and Cozens-Hardy, Master of the Rolls, said he agreed with both of them.

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[1] *British Medical Journal*, June 20, 1942, p 777.

Lord Justice Farwell said that, although the nurses and other attendants at an operation are ordinarily servants of the hospital, the moment the door of the operating theatre closes behind them they cease for the time to be the servants of the governors, inasmuch as they take their orders from the operating surgeon alone and not from the hospital authorities. The authorities cannot therefore be liable for the negligence of any of them. He added that, even if the hospital authorities were liable, it was not shown that any of the nurses or carriers was responsible for the injury to the patient; the facts were consistent with the surgeon having been the responsible party, and for his negligence the hospital authorities were not liable. He complicated the position by stating in another case two years later[1] that the nurses in Hillyer's case were treated as servants for whom the hospital would be liable, but no case was proved against them.

Lord Justice Kennedy ranged much more widely than the operating theatre. He said that the governors of a public hospital, by their admission of the patient to enjoy in the hospital the gratuitous benefit of its care, undertake that he shall be treated only by experts, whether surgeons, physicians, or nurses, of whose professional competence the governors have taken reasonable care to assure themselves. The governors also undertake to provide fit and proper apparatus for treatment. But he could not infer from the circumstances of the relationship of hospital and patient that the hospital authority makes itself liable in damages if members of its professional staff act negligently towards the patient in some matter of professional care or skill in which the governors neither do nor could properly interfere either by rule or by supervision. He distinguished matters of professional skill from "purely ministerial or administrative duties," such as the summoning of medical aid in cases of emergency and the supply of proper food—duties for the proper performance of which he would be prepared to hold a hospital responsible. This distinction between professional and administrative duties has been regarded as the law of the land by all English courts of first instance until the Court of Appeal's recent decision. The courts were probably influenced by the strong tendency of the Scottish courts to regard medical auxiliaries as independent experts for whose misdoings the hospital was not responsible. Lord Justice Kennedy's principle was restated by Lord Dunedin in 1913 thus: "The managers of a hospital do not go to the public with a profession of themselves operating on or nursing or treating patients. They only hold themselves out as providing an institution where patients will be able to meet with skilled persons who will do these things." In 1932 the Court of Session exonerated a hospital from liability when a patient was burnt by ultra-violet light, and the next year it exonerated another when a nurse was alleged to have been negligent in the administration of medicine. The Canadian courts, on the other hand, have fairly consistently held that a nurse is always the servant of the hospital so as to make it liable for her negligence.

Liability for the Nurse

Lord Greene, Master of the Rolls, said that Hillyer's case has had a remarkable history, and that few cases in the books can have given rise to such a diversity of judicial statement as to the precise nature of the point decided. He could see no authority which prevented the court from examining that case and forming its own opinion as to what it really did decide. As one Lord Justice based his judgment on a narrow ground confined to the necessities of the decision, the other on wide propositions which went far beyond those necessities, and the third member of the court concurred with the reasoning of both, he thought it right to treat the narrower ground as the real reason for the decision. He could find nothing in the judgment of Farwell. L.J., to support the view that the authorities of a hospital are not liable for the negligent act of a nurse in the performance of her general duties as a nurse, whether they require professional skill or are purely administrative or domestic. The principle which the Lord Justice laid down may well extend to cases in which, outside the operating theatre itself, the nurse is acting under the direct instructions of the surgeon or doctor attending the patient. Be that as it might, Lord Greene thought that the true ground on which a hospital escapes liability for the act of a nurse who, in the operating theatre or elsewhere, is acting under the instructions of a surgeon or doctor is not that she ceases to be the servant of the hospital, but that she is not guilty of negligence if she carries out the orders of the surgeon or doctor, however negligent those orders may be. Lord Greene could see no reason on principle why, if a nurse negligently carries out an order, the hospital should not be liable. He found it difficult to understand how the same nurse could be at one moment a servant of the hospital and at another not. Turning to Lord Justice Kennedy's statement in Hillyer's case, that hospital governors are not responsible for the negligence of nurses while performing duties requiring professional skill, he could find no authority to prevent the court from giving its own opinion on the question raised in the present case. When one person owes a duty to another, said Lord Greene, he cannot escape liability because he employs a servant or agent to discharge it on his behalf, whether the obligation involves the use of skill or not. A corporation or a body of trustees can no more escape liability for the breach of an obligation than can an individual. Nor does it make any difference if the obligation is assumed gratuitously.

The relation in which visiting physicians and surgeons stand to the hospital precludes an inference that the hospital accepts responsibility for their negligent acts. The same may be true of house-physicians and house-surgeons, but their case is not relevant to the present inquiry. The position of the nurses also is not strictly relevant, but Lord Greene could not see why the hospital governors do not undertake towards the patient the obligation of nursing him as distinct from the obligation of providing a skilful nurse. Nursing, he thought, is just what the patient is entitled to expect from the institution. He did not distinguish between the position of a hospital and that of a nursing home: a patient entering a nursing home conducted for profit would, he said, be surprised to be told that the home does not undertake to nurse him; his just expectation of a voluntary hospital with the usual nursing staff would surely be the same.

This dictum runs counter to several expressions of opinion, notably by Scottish judges, that a voluntary hospital does not undertake to nurse a patient but only to bring him into contact with persons who will nurse him. The idea, said the Master of the Rolls, that a voluntary hospital undertakes to perform only so-called administrative work appears not merely unworkable in practice but contrary to the plain sense of the position. The position of nurses and of other medical auxiliaries appears to be the same. In the Essex hospital a patient seeking treatment by Grenz rays found a department equipped with suitable apparatus and a whole-time employee engaged for the purpose of giving the treatment. In the circumstances Lord Greene could draw no other inference than that the obligation assumed by the county council was to treat the patient by the hand of the radiographer with the apparatus provided.

Recovery of Fees for Treatment

He added that the nature of the statutory powers under which the council maintain the hospital might well be regarded as conclusive, but that he preferred not to rest his judgment on so narrow a ground. He dealt precisely with the point that was raised recently by a correspondent to the *Journal* who corrected a misstatement made in a note in these columns (June 20, p. 777), that a local authority can recover expenses of maintenance but not of treatment. Actually the Public Health Act, 1936, s. 184 (2, *b*), lays down that the expenses recoverable from a patient by a local authority are to be taken to be "a sum representing the average daily cost per patient of the maintenance of the institution and the staff thereof and the maintenance and treatment of the patient therein." It is clear, therefore, observed the Master of the Rolls, that the council has power to treat patients, and is entitled, and indeed bound in a proper case, to recover the just expense of doing so. If it exercises that power, the obligation which it undertakes is an obligation to treat, and it is liable if the persons it employs to perform the obligation on its behalf act without due care. He could not see how a body invested with such a power and to all appearance exercising it can be said to be assuming no greater obligation than to provide a skilled person and proper appliances.

Responsibility for Permanent Staff

Lord Justice MacKinnon delivered an interesting judgment in which he took the view that Lord Justice Farwell was wrong in holding in Hillyer's case that when the door of the operating theatre closes behind the nurses they cease to be the servants of the hospital. He thought this no more accurate than to say that the captain of a ship ceases to be the servant of the shipowner when he comes under the orders of the commodore of a convoy. He thought the true proposition would be that, though the nurses remain the servants of the hospital in the operating theatre, the hospital will not be liable for their acts if they only do, without personal negligence, what the surgeon directs them to do. Lord Justice Goddard added that Farwell, L.J., seemed to have lost sight of the fact that a nurse, by the terms of her employment, is required to attend on the medical and surgical staff and carry out their directions. She is not like a crane-driver who is lent by his employer to another and placed wholly for the time in the service of that other. He also could not follow the distinction made by Kennedy, L.J., in Hillyer's case between ministerial and professional duties, nor understand why a hospital authority should be exempt if a nurse carelessly gives a patient poison, but should be liable if a cook carelessly puts poison into his food. Hospital managers nowadays, he said, have in their service many specialists—solicitors, accountants, engineers, electricians, and the like He could see no sound reason why they should be responsible for acts of these servants and not for those of nurses. That they are sometimes not liable for a doctor's negligence is merely because he is not their servant. He remarked that he was not considering the position of doctors on the permanent staff: whether the authority would be liable for their negligence would depend on whether there was a contract for service. He could also conceive that a nurse might be regarded as negligent even though she was carrying out the order of a doctor.

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[1] Smith *v.* Martin & Kingston-on-Hull Corporation (1911), 2 K.B. 775.

Hospital's Complete Liability

These judgments, of course, so far as they go beyond the narrow circumstances of the case—negligence in a radiographer employed by a local authority under the Public Health Act—consist of dicta which, though deserving of great respect and careful scrutiny, are not authoritative. The judgments actually decide that a local authority is responsible for the negligence of its radiographers, and presumably also of its masseuses, chiropodists, or occupational therapists, in the performance of skilled and administrative duties alike. The decision does not in terms extend to the negligence of nurses, but will probably be regarded as doing so. The distinction between skilled and administrative duties of medical auxiliaries and nurses is therefore swept away. By dictum, the court also indicated that (1) a local authority hospital, a voluntary hospital, and a nursing home are all on the same footing in their liability for the negligence of their servants; also that it matters not whether a patient is paying or is being treated free; (2) hospital governors may be liable for the act of a nurse in the operating theatre if by personal negligence she fails to carry out correctly the order of a medical man who has charge of her; (3) hospital governors are liable for the negligence of any of their medical staff with whom they have a contract of service, in the performance of any act within that contract. Unless the views of the Court of Appeal are wholly contradicted by the House of Lords there will almost certainly be a considerable increase in the number of actions for negligence brought against hospital governors, and consequently a drastic extension by decision of their liability for their professional staffs.

Obituary

ANDREW MURDOCH, M.B., C.M.

Dr. Andrew Murdoch, who died at Bexhill-on-Sea on April 10 at the age of 80, was a native of Cumnock, Ayrshire. He received his medical education at the University of Glasgow, where he graduated M.B., C.M. in 1884. He had worked in Bexhill for nearly half a century, where he built up a large practice and remained actively connected with it until his death. For many years he had been the senior practitioner in the town.

Dr. Murdoch (writes a colleague) avoided publicity and disliked the limelight, yet he wielded an influence, both on his fellow-practitioners and his patients, far greater than one might expect even from one of his age and ripe experience. This influence was chiefly due to his personality and character. He was naturally rather retiring, and not given to small talk, but was a man of absolute integrity, honest both with himself and his patients. He expected, from those who put themselves in his care, full co-operation, and, having won their confidence, they were devoted to him and he did not spare himself in their service He was humble in all his ways, but was ever an eager seeker after truth. He retained until the end the enthusiasm of youth and a receptive inquiring mind. He refused to let his mind become blunted by the routine of a busy practice, but was ever ready to investigate and sometimes champion anything, be its origin orthodox or otherwise, that he thought would be for the advancement of medicine and the welfare of mankind. In later years he had studied closely and personally benefited from the technique and teaching of F. Matthias Alexander on constructive conscious control. He realized the medical importance of posture in all its aspects. He read widely both British and foreign authorities bearing on this, and had written a paper embodying his views, which are original and stimulating, as to the mechanism underlying posture. During the past year he had been much encouraged by the sympathetic attention given to his work by those in charge of the Army physical training.

In Bexhill Dr. Murdoch had taken a prominent part in stressing the importance of general practitioners taking an active part in the staffing of the hospital, and when this was opened in 1933 it was with an unrestricted staff, and his influence has been a great help in the smooth working of this arrangement. He was an active member of the B.M.A. for many years, and had filled the positions of chairman of the Hastings Division and president of the Sussex Branch. He leaves a widow and one son, who is serving in North Africa. His only grandson is in the Army in India.

News has been received of the death at Nicosia last year of Dr. **Erroll Aubrey Neff**, Director of Medical Services, Cyprus. He received his medical education at Toronto and became a member of the College of Physicians and Surgeons of Alberta in 1919. He had served in the last war, and after qualifying joined the Colonial Medical Service and later took the Certificate in Public Health of Johns Hopkins University, Baltimore. He was for a time district medical officer at Labasa and then went to Fiji, where for several years he had charge of the leper settlement at Makogai. He was promoted to be D.M.S., Cyprus, in 1934. Dr. Neff's interest in public health was shown in starting the antituberculosis campaign, an intensive campaign against trachoma, and in getting a new general hospital erected at Nicosia and a sanatorium built in the hills. His loss will be greatly felt not only by the members of his Department but also by the general public of Cyprus. He was awarded the C.M.G. in June, 1939.

Universities and Colleges

ROYAL COLLEGE OF SURGEONS OF ENGLAND

At a quarterly meeting of the Council, held on April 8, with Sir Alfred Webb-Johnson, President, in the chair, the Jacksonian Prize for 1942 was awarded to Mr. E. W. Riches, F.R.C.S., for his essay on "The Methods and Results of Treatment in Cases of Paralysis of the Bladder following Spinal Injury," and a Hunterian Professorship for 1943 was offered to him. The subject for the Jacksonian Prize for 1944 will be "The Causation and Treatment of Delayed Union of Fractures of the Long Bones." The John Hunter Medal and Triennial Prize was awarded to Capt. Graham Weddell, M.B., M.R.C.S, for his research work on the ultimate distribution of the sensory peripheral nerves.

Dr. H. I. Shaheen Bey of the Kasr-el-Aini Hospital, Cairo, and Surg. Capt. W. J. Colborne, surgical specialist, R.N., were elected Fellows under the Charter which permits the Council to elect annually to the Fellowship, without examination, two Members of the College of 20 years' standing.

Mr. A. C. Perry was elected a member of the Court of Examiners for one year from May 13. Mr. Eardley Holland was reappointed representative of the College on the Central Midwives Board.

Diplomas in Child Health were granted, jointly with the Royal College of Physicians of London, to the following candidates:

K. Aterman, Iris M. Cullum, Mary R Davies, Marguerite P. Elman, Martha Klein-Dynski, Margaret E. Matthews, B. U. Meyer, A. Pearlman, Pushpawati M. Shankland, Nuala E. Sheehan, Marjorie Smail, Ruth M. Stevenson, R McL. Todd, I G Wickes, Mair Williams

The Services

CASUALTIES IN THE MEDICAL SERVICES

Missing on Active Service.—Surg. Lieut. I. S. Jacklin, R.N.V.R.

Previously posted Missing in Malaya, now reported Died in Singapore.—Lieut. W F. J. Weston, R.A.M.C.

Died—Capt. W. Darby, R.A.M.C., 1st Class Asst. Surg. F. G. F. Deatker, I.M.D., Major A. L. Kerr, R.A M C., Capt. J. A. C. Tull, S.A.M.C.

Prisoners of War.—Capt. J. B. C. De Lemos, I M.D., Surg Lieut-Cmdr. D. N. Ryalls, R.N.V.R.

Correction.—The obituary notice of Col. W. G. Pridmore (April 10) contained an inaccuracy. It was not he but Capt Whitmore (now Lieut.-Col. A. Whitmore, I M.S., ret.) who made the discovery of a condition somewhat resembling glanders, seen in broken-down morphine and cocaine victims in Rangoon and surrounding districts. It is known as Whitmore's fever or morphine injector's septicaemia.

Medical Notes in Parliament

Nurses Bill

The House of Commons on April 7 went into Committee on the Nurses Bill. Mr. Hutchinson moved to alter the designation "assistant nurses" to "nursing assistants." Miss Horsbrugh said that the nurses on the Nursing Reconstruction Committee had agreed to the term "assistant nurse." This was now being used officially in the Civil Nursing Reserve for those who had had two years' training. The amendment was negatived.

Amendments by Mr. Linstead raised the training and registration of assistant nurses trained in Service institutions. Sir Francis Fremantle said it would be an advantage if the Services were required to consult the General Nursing Council on the subject. Mr. Ernest Brown said he had no complaints about this from the General Nursing Council, which had asked for no amendment of the rules. The amendments were negatived.

Mr. Hammersley raised the admission to the roll of assistant nurses of persons from the Dominions. Miss Horsbrugh asked the House not to accept the amendment because at present there was no standard of assistant nursing in any of the Dominions, nor, so far as she knew, anywhere else. With certain Provinces in the Dominions there was reciprocity for the duly registered nurse. It would not be beyond the power of the General Nursing Council to give the status of assistant nurse to people who had had training and had done some work as nurses. Reciprocity was at present confined to State-registered nurses. The amendment was withdrawn.

On Clause 4 (Fees) Mr. Messer said he could not understand why every year every nurse must pay an annual registration fee. In the medical profession as soon as persons were registered they paid a registration fee and thereafter were on the *Register* until the G.M.C. for some reason removed them. Dr. Haden Guest said that once a nurse's name was on the register it should remain, whether she paid an annual subscription or not, if she was considered fit to carry on nursing duties. An amendment by Mr. Messer was negatived and the clause was approved.

On Clause 6 (Restriction on the Use of Title of Nurse and Assistant Nurse) Miss Horsbrugh said it was clear that tuberculosis nurses should be allowed to call themselves nurses. There might be various categories of persons using the word "nurse" whose claims to do so might have to be examined. The village nurse-midwife might be able to go on the roll of assistant nurses. On Clause 13 (Sister Tutors) Miss Horsbrugh said this marginal note would be changed to "Qualifications for the teaching of nursing." There was nothing in the clause to suggest difference between male and female teachers.

The Bill passed through Committee and its third reading was moved. Mr. Brown remarked that the House passed this Nurses Bill in the same week that a national scale of salaries became effective for the first time. The Bill was then read a third time by the House of Commons. On the same day it secured a first reading in the House of Lords.

Shortage of Nurses

Miss Horsbrugh said on April 7 that, according to latest available information, hospital authorities, both municipal and voluntary, in England and Wales required another 11,341 nurses of all grades to make up present deficiencies. For the shortages in institutions 560 midwives were needed, and another 227 midwives for domiciliary work.

West African Medical Services

On April 7 Sir Francis Fremantle asked the Secretary for the Colonies to consider the possibility of establishing a subordinate medical service in West Africa on the lines of that which had done useful work under the Indian Medical Service. Mr. Stanley said the whole question of medical services in West Africa was under consideration in the Colonial Office. Provision of African medical auxiliaries of all grades, as well as fully qualified medical officers, had already made considerable progress and would be extensively developed as increased training facilities became available.

Interdepartmental Committee on Dentistry

Mr. Ernest Brown announced on April 8 that Mr. Tom Johnston and he, in connexion with the proposals for a comprehensive health service, considered the question of dentistry. The supply of dentists and the arrangements under which their services could be made available must be important factors in determining the extent and form of the provision to be made for the inclusion of dental treatment as a part of a comprehensive health service. Before formulating any proposals he and Mr. Johnston desired the best possible advice on these and other important aspects of the problem and had decided to appoint a committee for that purpose. Lord Teviot had agreed to act as chairman of the committee. Its terms of reference were as follows:

To consider and report upon: (*a*) the progressive stages by which, having regard to the number of practising dentists, provision for an adequate and satisfactory dental service should be made available for the population; (*b*) the measures to be taken to secure an adequate number of entrants to the dental profession; (*c*) existing legislation dealing with the practice of dentistry and the government of the dental profession; (*d*) measures for the encouragement and co-ordination of research into the causation, prevention, and treatment of dental diseases.

Prevention of Dermatitis

Replying to Dr. Morgan on April 8, Major Lloyd George said the subject of dermatitis among miners and the possibility of using barrier substances had been discussed by the Chief Medical Officer of Mines with the factory inspectorate and with the advisory panel on dermatitis set up by Mr. Bevin. Generally speaking, barrier substances were useful only in the case of certain processes. This factor governed their use to a great extent among miners. Certain collieries had already been advised of the existence of these substances with a view to their experimental use. The results would be closely watched by the mines medical officers.

Penicillin

Mr. Ernest Brown said on April 8 that investigations of penicillin, including clinical trials, were being conducted by an expert committee set up by Sir Andrew Duncan, who informed him that owing to the great difficulty of the problems involved this substance was unlikely to be available for general use in the near future, even if the results of the committee's investigations were favourable.

Milk Pasteurization

Mr. Higgs asked on April 18 if Mr. Brown knew that the B.M.A. advocated the pasteurization of tuberculin-tested milk, and if he was satisfied that the process was necessary and desirable. Mr. Brown said he knew of this advocacy. He was advised that, though the risk of contracting tuberculosis from drinking raw tuberculin-tested milk was remote, the danger of its conveying other milk-borne diseases could only be removed by adequate heat treatment.

Manufacture of Contraceptives

In the House of Lords on April 7 the Bishop of St. Albans asked whether the manufacture of contraceptives was officially regarded as of national importance from the point of view of recruitment of labour. His attention had been called to the case of a married woman who had been directed to take up work with a firm, and had discovered that her work was the packing of contraceptives by machine. The daily output was said to be 75 gross or more of cartons each containing 12 contraceptives. This meant an output of over 33,500,000 a year for this firm. The Bishop believed the number of firms so engaged ran into hundreds in this country.

The Earl of Munster, replying for the Government, said no arrangements had been made for recruitment of labour for manufacture of contraceptives. These articles were usually produced by firms mainly engaged in the manufacture of surgical rubber goods and medical supplies. Special arrangements had been made for protection of labour manufacturing medical and surgical supplies which were vital for the use of the armed Forces. No labour was directed into these factories to work part-time or full-time on the manufacture of contraceptives.

Treatment for Venereal Disease.—Mr Parker asserted on April 1 that fees were charged for treatment of venereal diseases at many hospitals and clinics. Mr. Brown said he was not aware of this. It had been made clear to local authorities that treatment of venereal disease at approved centres under their control was to be free. He had no jurisdiction as regards treatment not connected with the public health service of local authorities.

Miners' Medical Service.—Appointments have been made to six of the eight regional posts in the miners' medical services, and five of the medical officers concerned have taken up duty. Appointments have also been made to the two posts at headquarters, but the Deputy Chief Medical Officer will not assume duty for a few weeks.

Free Choice of Doctor.—Sir Adrian Baillie asked the Minister of Health on April 8 by whom the point of view of the public who liked freedom of choice of doctor was represented in the discussions now taking place between the B.M.A. and the officials of his Department. Mr. Ernest Brown replied that discussions were taking place not only with representatives of the medical profession but also with representatives of the voluntary hospitals and of the local authorities The point of view referred to in the question was fully appreciated by all taking part in these discussions.

Medical News

At a Comitia of the Royal College of Physicians of London, held on April 19, Lord Moran was re-elected president.

The spring meeting of the British Orthopaedic Association will be held in Glasgow on Friday, May 14, at the Victoria Infirmary, and on Saturday, May 15, at the Royal Infirmary. On Friday the morning session (9.15 a.m. to 1 p.m.) will be devoted to discussion on spinal cord injuries, followed by a number of short papers. In the afternoon there will be a meeting (largely clinical) at Philipshill Orthopaedic Hospital. On Saturday there will be short papers followed by a clinical demonstration, and at 12 30 p.m. a business meeting of the Association. In the afternoon there will be a joint meeting of the British Orthopaedic Association with the Scottish Orthopaedic Council at Glasgow University.

A "Memorandum on the Control of Head Lice," issued by the Ministry of Health, recounts highly successful experiments in the destruction of head lice and nits with 50% "lethane 384 special" in a white oil. (This preparation was recommended by Dr. J. R. Busvine and Prof. P. A. Buxton in their article in the *Journal* of April 11, 1942, p. 464.) Lethane hair oil does not appear to cause any toxic symptoms, and the Ministry has taken steps to ensure adequate supplies through the ordinary trade channels. Copies of the memorandum can be obtained from the Stationery Office, price 1d. net.

Dr James Fenton, medical officer of health, Royal Borough of Kensington, has been granted the "Smith Award" of the Royal Institute of Public Health and Hygiene.

The Central Midwives Board has re-elected Sir Comyns Berkeley as its chairman for the year ending March 31, 1944.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* during the week there was very little change in the notifications of infectious diseases, with the exception of whooping-cough, for which there were 96 more than in the preceding week. The only county in which there was a large rise was Yorks West Riding with 54 cases, due to the experience of the urban districts.

Total notifications of scarlet fever showed an increase of 28. This was confined to the Midlands, the largest totals being Staffordshire 55, Warwickshire 34, Middlesex 33. In the South there was a decline, the largest being Surrey 49.

There were 11 fewer notifications of pneumonia than in the previous week. The only fluctuation of note within the counties was an increase of 56 in Lancashire, due mainly to the rise in incidence in Liverpool C.B. and Manchester C.B. of 19 and 17 respectively.

Notifications of measles remained almost constant, the 19,568 cases being 7 more than in the previous week. The largest rises were in Hertfordshire 145, Warwickshire 131, Staffordshire 117, Essex 87; and the largest declines were in Middlesex 167, London 163, Derbyshire 154, Suffolk 137, Dorset 91, Sussex 91, Cumberland 89, Yorks West Riding 88.

The 15 cases of typhoid reported during the week constituted the largest weekly total since last September; 7 of the cases were notified in Surrey, Epsom and Ewell M.B.

Notifications of dysentery numbered 17 more than in the previous week, making the highest total for the last two months. No fresh outbreak of any size was recorded during the week, and the only increase of importance was in London, where the number of cases rose from 10 to 18 and involved 11 boroughs.

In *Scotland* a fall of 44 was recorded in the notifications of measles, a rise having been recorded in each of the six preceding weeks. There were declines in the incidence of diphtheria 22 and whooping-cough 10; rises were reported for scarlet fever 20 and primary pneumonia 23.

In *Eire* 9 more cases of typhus were notified in the rural district of Co. Leitrim, where 7 cases were reported last week. There was a large drop in the notifications of whooping-cough, only 15 cases being reported, compared with 75 in the preceding week.

The Week Ending April 10

The notifications in England and Wales during the week included scarlet fever 1,993, whooping-cough 1,954, diphtheria 729, measles 18,056, acute pneumonia 1,290, cerebrospinal fever 92, dysentery 116, paratyphoid 3, typhoid 6. Influenza deaths in the great towns numbered 62.

No. 13

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended April 3.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included) (b) London (administrative county) (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	108	4	32	6	4	181	7	35	6	10
Deaths		—	1				1	2		
Diphtheria	798	45	185	96	22	792	45	199	42	24
Deaths	17	1	2	3	—	20	2	3	3	—
Dysentery	109	18	35		—	152	17	60		—
Deaths		—	—	—	—		2	—	—	—
Encephalitis lethargica, acute	3	—	—		—	5	1	1		
Deaths		—	—				—	—		
Erysipelas			51	8	7			54	5	8
Deaths		—	—				—	—		
Infective enteritis or diarrhoea under 2 years				25					2	
Deaths	56	12	5	11	4	33	8	13	5	3
Measles	19,568	1,166	674	12	99	3,274	226	306	90	44
Deaths	22	—	3	—	—	4	2	2	—	2
Ophthalmia neonatorum	90	6	19		—	74	5	23		
Deaths										
Paratyphoid fever	3	—	2		—	4	—	1		
Deaths	—	—	—		—	—	—	—		—
Pneumonia, influenzal*	1,494	86	13	7	13	1,136	50	13	3	10
Deaths (from influenza)	67	9	—	2	1	30	2	3	1	—
Pneumonia, primary			304	38				318	15	
Deaths		—		10	24		37		17	7
Polio-encephalitis, acute	—	—				—	—			
Deaths		—					—			
Poliomyelitis, acute	6	—	1	1	1	6	—	1	1	—
Deaths		—	—				—	—		
Puerperal fever		2	31	4	—		1	9	1	—
Deaths		1					1			
Puerperal pyrexia	161	16	19		—	145	9	20		—
Deaths										
Relapsing fever	—	—			—	—	—			2
Deaths										
Scarlet fever	2,213	180	282	43	49	1,119	48	214	54	40
Deaths	1	—	—	—	—	2	—	—	1	—
Small-pox	—	—	—		—	—	—	—		—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever†	15	2	7	16	—	10	1	7	10	—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhus fever	—	—	—	9	—	—	—	—	—	—
Deaths			—	—	—			—	—	—
Whooping-cough	2,078	177	214	15	23	1,412	181	49	29	17
Deaths	11	2	4	1	1	15	3	—	2	1
Deaths (0–1 year)	423	53	79	41	43	344	34	72	40	21
Infant mortality rate (per 1,000 live births)										
Deaths (excluding still-births)	4,962	707	650	253	187	4,756	684	712	199	129
Annual death rate (per 1,000 persons living)			14 7	16 6	‡			16 0	13 3	‡
Live births	6,773	786	969	398	292	5,609	617	849	346	
Annual rate per 1,000 persons living			19 8	26 2	‡			17 6	23 1	‡
Stillbirths	219	28	47			235	29	35		
Rate per 1,000 total births (including stillborn)			46					40		

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* Includes primary form for England and Wales, London (administrative county), and Northern Ireland

† Includes paratyphoid A and B for Northern Ireland.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

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TELEGRAPHIC ADDRESSES.—EDITOR, *Aitiology Westcent, London;* SECRETARY, *Medisecra Westcent, London.*

B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

Pneumococcal Vaccine in Pneumonia

Q.—*In treating pneumonia with sulphapyridine or with sulphathiazole is it very advisable also to administer polyvalent pneumococcus vaccine?*

A.—The principal sphere for vaccines is preventive, and their use in treatment, particularly of acute infections, where the stimulus to antibody formation by the infection itself should be at least adequate, is the subject of controversy. In pneumonia the question is complicated by the existence of many serological types of pneumococci which are immunologically distinct. A polyvalent vaccine, if it contains all or many of these, may overcome this objection, but even so only a small fraction of it can exert the effect desired, and the response will be correspondingly small. These are the main theoretical objections to vaccine treatment in pneumonia, and although its practical effect has been reported on favourably we are aware of no controlled study which supports this. In cases requiring such treatment, whether by reason of their severity or because they prove resistant to sulphonamide treatment, it is undoubtedly better, when possible, to type the pneumococcus and administer the corresponding antipneumococcal serum. It should not be forgotten that pneumonia resistant to sulphonamide treatment is often due to bacteria other than pneumococci, and in such cases treatment with a pneumococcus vaccine would naturally be fruitless.

Anterior Pituitary Sex Hormones

Q.—*The hormone of pregnant mare's serum has been referred to as "APL-hormone" on account of its anterior-pituitary-like action. I find that the usually reliable pamphlets of the two biggest drug firms on this subject make a distinction between the action, on the male, of "genuine anterior pituitary sex hormone" and of pregnant mare's serum hormone. They claim for the former an action on interstitial testicular cells ("to be used in infantilism") and for the latter an action on the seminiferous epithelium ("to be used in defective spermatogenesis"). Is there any scientific basis for such a distinction?*

A.—The anterior lobe of the pituitary secretes probably more than one combination of gonadotrophic hormones. Up to the present three separate gonadotrophic functions have been identified. (1) The first, or "follicle-stimulating," brings about maturation of multiple follicles with increase in size and weight of the ovary of the experimental infantile female mouse or rat. This function is concerned with the parenchymatous tissue of the gonad and in the male controls spermatogenesis. The effect is characteristic of extracts of pregnant mare's serum ("P.M.S."), which have therefore been employed in clinical cases of male infertility associated with defective spermatogenesis. (2) The second, or luteinizing, function is concerned with corpus luteum formation, especially of already mature or partially developed follicles in experimental female animals. This effect is produced by injection of pregnancy urine into infantile female mice in the Aschheim-Zondek test, and in segregated doe rabbits in the Friedman reaction. It is due to a gonadotrophin elaborated by chorionic tissue. This is similar to, but not necessarily identical with, "genuine anterior pituitary hormone," and is conveniently referred to as "chorionic gonadotrophin." Its action is upon the interstitial tissue of the gonads, and it therefore stimulates the interstitial cells of the testis, causing them to produce androgen (or male hormone). (3) The third function is a synergic one. Under certain conditions—e.g., in hypophysectomized or very young animals—the effects of extrapituitary gonadotrophins, such as chorionic extracts, fail to develop in the absence of the true pituitary "synergist."

It is more economical to produce a potent gonadotrophin from pregnant mare's serum ("serum gonadotrophin"), which is characteristically follicle-stimulating and spermatogenic, and from human pregnancy urine extract ("chorionic gonadotrophin"), which is luteinizing, stimulates the interstitial cells of the testis, and accelerates retarded descent of the testicles, than to produce a true anterior pituitary lobe gonadotrophin. Furthermore, the gonadotrophic function of true anterior lobe extract varies according to the species from which it is obtained—e.g., ox, horse, sow, etc. Some are predominantly follicle-stimulating, some luteinizing, some synergic. Most of the gonadotrophic extracts on the market which stimulate human testicular interstitial cells are derived from pregnancy urine ("chorionic gonadotrophin") and are not "genuine anterior pituitary extracts."

Magnesium Trisilicate for Peptic Ulcer

Q.—*What knowledge is there of any ill effects due to the prolonged habitual use of magnesium trisilicate in anastomotic ulcers?*

A.—Magnesium trisilicate appears to be the safest of all alkalis or adsorbents for the treatment of peptic ulcer, and apart from an occasional tendency to produce diarrhoea there is no knowledge of ill effects due to its prolonged employment. On theoretical grounds it might be feared that it would absorb the digestive enzymes or the food principles, particularly when a gastro-enterostomy had been performed, but there is no evidence that this really happens.

Vitamin C in Marmalade and Apples

Q.—*With regard to the ascorbic acid value of marmalade, do the cooking and storing of this fruit not cause the vitamin C value to be lost? The same question might well apply to stewed apples. Are apples not better taken raw?*

A.—There is very little destruction of vitamin C in the cooking of marmalade. The lower figure for marmalade (about 25% of the original fruit) is almost entirely due to dilution of the fruit with sugar and water. In fact it is more economical from the point of view of ascorbic acid to turn oranges into marmalade than to eat them raw, because the skin, which contains more vitamin C than the juice, is included in the marmalade, whereas it is discarded when the fruit is eaten raw. About 10% of the vitamin C in marmalade disappears after 6 months' storage, and about 20% after 1 year.

Apples are a very poor source of vitamin C. When they are stewed there is little or no destruction of the vitamin, but again the cooked fruit has a lower vitamin C concentration than the raw because it is diluted with water. The liquor, however, is invariably eaten, so it does not matter whether the apples are eaten raw or stewed.

INCOME TAX

Newcomer to England

R. H. lived in Eire before Feb. 26, 1943; since that date he ceased to be so resident and has been living and working in this country. The facts are sufficiently stated below.

⁂ He is liable to make a declaration, if so requested, to the revenue authorities of both countries for 1942–3. On the facts stated, however, the income will not be enough to produce any material liability.

As regards 1943–4 he will be liable to British (but not to Eire) tax as follows:

Earned Income		
Gross earnings		£520 0 0
Deduct Earned income relief	£52 0 0	
Personal allowance .. .	£80 0 0	
		£132 0 0
		£388 0 0
Tax on £165 at 6s 6d. in the £ ..	£53 12 6	
Tax on £223 at 10s. in the £ . ..	£111 10 0	
£388	£165 2 6	
Less Life assurance relief—£34 at 3s. 6d. in the £	£5 19 0	
		£159 3 6

(If R. H. marries in 1943–4 the personal allowance will be £140 and the tax £129 3s. 6d.)

Property in Eire

Rent £55, less ground rent £10 = £45
Tax at 10s. in the £ = £22 10s. 0d

Assuming that the property forms part of the bank's security for the overdraft the interest on the overdraft can be deducted from the £45.

LETTERS, NOTES, ETC.

Venereal Disease and Alcohol

Dr. G. ORISSA TAYLOR (Reading) writes: By now and rather late the War Office and the Government are both deploring the appalling menace of this disease in the Forces and in civilian life. Whether we feel that broadcast information in matters of sex will help or not, whether ultimate cure of the disease and its prevention are secured or not, the problem is primarily moral. It is foolish to ignore the close association of drink and this disease. We are the custodians of public health, though we may repudiate our responsibility for the morals of the nation. Either the Government does not wish to or dare not intervene in this matter; whichever way it is, this responsibility cannot be ignored without terrible consequences. Years ago Lord Rosebery said: "If the Government doesn't control the liquor traffic, then the liquor traffic will control the Government." The latter is happening now. Hundreds of thousands of the public (many of whom are not total abstainers) protest against this. If beer were rationed and not pushed down people's throats when many urgent necessities of life are scarce and controlled there would be more self-respect, more self-control, and less venereal disease.

Liq. Ferri Perchlor. for Sore Throat

Dr. ROBERT MUNRO (Abergavenny) writes: I have used the following prescription for twenty years in cases of sore throat with gratifying results:

℞ Pot. chlor.	gr. x
Liq. ferri perchlor.	♏ xv
Liq. hydrarg. perchlor.	♏ xx
Liq. strychnin.	♏ ij
Glycerin.	♏ xx
Aq. chlorof.	ad ℥ss

I have also found Mandl's paint or argyrol 20% useful as a local application. In certain cases lozenges of planacrine or potassium chlorate or carbolic acid are helpful; and in others gargles and sprays. However, the above mixture, without the aid of other measures, will generally effect a speedy cure. The sulphonamide preparations are now frequently employed in the treatment of tonsillitis. One of the most useful is a single dose of soluseptasine intravenously, followed by proseptasine orally at four-hourly intervals. It will be interesting to observe if sulphonamide chemotherapy proves more effective than the older methods, especially in view of the untoward reactions that are, unfortunately, liable to follow treatment with sulphanilamide and the related compounds.

Dr. ALEX GAVIN writes: The letter from my friend Mr. J. Cole Marshall (April 10, p. 466) reminds me that I have found that by taking liquor ferri perchlor. in soda water the therapeutic value of the drug appears to be increased, and also makes it far more palatable.

Coarctation of the Aorta as Obstetrical Complication

Dr. C. W. WALKER (Hereford) writes: I was greatly interested in Dr. W. B. Billinghurst's letter (March 6, p. 302) on this subject. His case, in which labour precipitated sudden death, affords additional proof that in these cases compensation that appears to be perfect for ordinary life is likely to break down in parturition, and thus strongly supports my plea for the adoption of Caesarean section in this, fortunately rare, eventuality. I enjoyed Dr. H. S. Gaskell's destructive analyses (April 3, p. 426) of the clinical data supporting the diagnosis of aortic coarctation in my patient (Feb. 13, p. 190). He does not, however, appear to appreciate the diagnostic significance of typical rib-notching (*x*-ray), or of the discrepancy noted between the blood-pressure readings in the proximal and distal circulations (arm and leg readings respectively).

Preparation of Hands for Operation

Dr. S. W. SWINDELLS (Grimsby) writes: This correspondence brings things to my mind which may be of interest and even of use if gloves become more scarce. When I was a resident at the old St. Mary's, then in John Street, Manchester, a method of preparing the hands gave results which were comparatively outstanding in regard to the absence of sequelae. The arms up to the elbows were immersed in a strong (? saturated) solution of permanganate of potash for several minutes; this was followed by a saturated solution of oxalic acid, and this then neutralized by sterile lime water. The feeling of absolute cleanliness which resulted has to be experienced to be believed, and there seemed to be a definite increase in tactile sensation. When I went into general practice gloves were obtainable, and I had little need to use the above—which, by the way, caused no skin irritation even when used several times a day—but I learned something by watching the delightful, fastidious, elderly practitioner whom I had joined. It was an education to see him do a dirty dressing with a pair of forceps in each hand, which he called his "tin fingers" He scoffed when he was told he was practising asepsis and denied the impeachment, declaring that he objected to touching dirty things. Nothing would make him put on a pair of rubber gloves. But he was always gloved when doing dirty gardening jobs. He had started "non-touch" technique

Treatment of Blackwater Fever

Dr. ELTON C. RICHARDSON (London, N.W.1) writes: I have read the article by Lieut.-Col. Felix Smith and Capt. R. Winston Evans on the effect of the *p*H of the blood on haemolysis with special reference to blackwater fever (March 6, p. 279), and noticed they mention that as soon as blackwater fever appears quinine should be stopped. This recalls to my mind the treatment of Dr. R. F. Armour, D.M.O. Portsmouth, Dominica, B.W.I., who in 1935 was treating blackwater successfully with massive doses of quinine by injection. Although I was not a graduate at the time I recall one definite case in which a young boy of 10–12 years, who when first seen had developed "blackwater," was treated by quinine injections, the first two doses being 10 gr. each. The effect of the treatment was observed by the change in the colour of the urine from the dark colour of blackwater to apparently normal (macroscopic) within 18 hours. In adult cases his treatment begins with doses of at least 20 gr. (injection). I feel that this note would be of interest to all who are concerned in the treatment of blackwater, as Dr. Armour, who at that time had 5 successful cases out of 5 to his credit, could not be prevailed upon to publish his findings. His cases were in Europeans and natives.

Allergy to Liver Extract

Dr. B. M. MERRIMAN (London, S.W.1) writes: I was most interested to see the answer given to the question on allergy to liver extract in your column, "Any Questions?" (*Journal*, March 20, p. 370). I have recently investigated the question of allergy to liver extract. As a result several points have clearly emerged: (1) Sensitivity towards liver principle is rarely encountered in comparison with the amount of this material used in practice. (2) Sensitivity is usually acquired during treatment or maintenance. (3) Primary idiosyncrasy is rare, and there is usually either an allergic history or a history of a previous reaction to injections of a similar nature. (4) Once a patient is sensitive to liver protein, changing the brand has little effect. Hence the suggestion raised in the question—"The only preparation which did not produce a reaction of the kind is now unobtainable"—is meaningless. (5) Desensitization can usually be accomplished quite simply; the elaborate series of doses given in your answer is generally unnecessary. The following dosage is usually successful: the administration of 0.2 c.cm. intradermally, followed by 0.5 c.cm. intramuscularly twenty minutes later, and the remainder of the dose intramuscularly after a further twenty minutes. (5) I agree that preliminary skin tests should be made in patients with an allergic history, but suggest in cases showing a strong cutaneous reaction, instead of dilution with saline, simultaneous administration of adrenaline with the liver principle is more satisfactory.

Dr. WM. CORNER (Hove) writes: With reference to the subject of allergy to liver extract (March 20, p. 370) I would recommend the injection of 0.5 c.cm. adrenaline five to ten minutes before the liver injection. This should prevent the development of allergy, and can be continued about six times, which in the ordinary pernicious anaemia case would be five or six months. Thereafter 1/4 gr. to 1/2 gr. ephedrine given one hour before can be substituted cautiously for another six months. Thereafter it probably can be left off, as there seems a natural tendency for sensitivity gradually to clear up. In my experience minor degrees of allergy, such as urticaria, flushing, and tightness of the chest, are common even with the concentrated liver extracts now in use (dose 1 to 2 c.cm.). For these cases ephedrine as directed above usually prevents their development next time. My worst example was the onset of severe acute asthma after the first injection in a newly diagnosed pernicious anaemia case. Adrenaline soon helped to allay the more distressing symptoms Further injections of adrenaline preceding the liver as above prevented any more asthma and proved invaluable in allowing toleration during the intensive early treatment. I may say that most of my liver injections are given at the patients' houses. I would not give adrenaline and liver at my house as adrenaline makes most patients feel shaky.

The Cotton-wool Sandwich

MISS ISOBEL W. BURTON, M.R.C.V.S., writes from the Department of Animal Pathology, Glasgow Veterinary College: Having read Dr. Richard Fawcitt's article (March 20, p. 352) on the use of the cotton-wool sandwich in cases of sharp-pointed foreign bodies in the intestinal tract, I thought it might be of interest to your readers to know of a modification of this method which has been in use in the veterinary profession for some time. Dogs and cats often swallow pins or needles. Usually these are found with the points embedded in the walls of the mouth or pharynx, but sometimes they reach the stomach. In these cases we give the animal twenty to thirty small pellets of tightly rolled cotton-wool, lubricated with lard or vaseline. This is followed in about an hour by a dose of liquid paraffin. The pins or needles are delivered in due course, neatly wrapped up in the centre of a roll of cotton-wool. This treatment has saved many patients from the surgeon's knife.

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THE INVESTIGATION OF HAEMOLYTIC TRANSFUSION REACTIONS*

BY

P. L. MOLLISON, M.B., M.R.C.P.

A haemolytic transfusion reaction may be defined as the occurrence of an abnormal destruction of the red cells of either the donor or the recipient immediately after transfusion. Following a normal compatible transfusion of fresh blood the donor's erythrocytes are destroyed only at a slow rate, approximately 1% of the total being eliminated each day; since this is (presumably) the rate of destruction of the recipient's own erythrocytes no signs of increased blood destruction are observed. When incompatible blood or blood that has been stored for an excessive length of time is transfused, however, the donor's erythrocytes are rapidly destroyed and signs of increased red cell destruction develop. Destruction of some of the recipient's *own* red cells may follow the transfusion of blood the plasma of which contains high-titre incompatible agglutinins.

When transfusions are given to persons affected with certain varieties of haemolytic anaemia the signs of haemolysis may temporarily become more pronounced. Such reactions may not be due to one of the causes already considered, and may be listed as rare varieties of haemolytic transfusion reactions.

Haemolytic reactions may be mimicked by the injection of haemolysed blood. This, by the above definition, cannot be considered as a true haemolytic reaction, since the destruction of the donor's erythrocytes precedes transfusion. Nevertheless, the signs produced may be indistinguishable from those of true haemolytic reactions. These various types of haemolytic reaction may be indistinguishable clinically. Each may give rise to jaundice, with or without haemoglobinuria, and each, if fatal, may produce the same post-mortem appearances. On the other hand, each variety may pass unnoticed unless special tests are applied. The purpose of this report is to discuss the pathological features of each type and to describe methods of differential diagnosis.

The establishment of the diagnosis falls conveniently into two parts: (1) the demonstration of the occurrence of increased blood destruction; and (2) the demonstration of the cause of the increased destruction.

The Signs of Increased Blood Destruction

The signs produced by increased blood destruction vary according to whether destruction is predominantly intravascular or extravascular (intracellular).

Intravascular Destruction.—Intravascular destruction results in the liberation of haemoglobin into the plasma. Knowledge of the rate of removal of free haemoglobin from the blood stream has been chiefly derived from experiments in which haemoglobin solutions have been injected intravenously into human subjects. The rate of elimination varies with the initial concentration, being more rapid at high concentrations. For instance, when the initial plasma level is approximately 200 to 300 mg. per 100 c.cm. 50% or more may be removed in three hours (Ottenberg and Fox, 1938), although the plasma may not be entirely cleared for from 8 to 12 hours (Ottenberg and Fox, 1938; Gilligan *et al.*, 1941). When the initial plasma level is only 40 to 60 mg. per 100 c.cm. the plasma may not be cleared for 5 hours.

Haemoglobin liberated intravascularly may be dealt with in three different ways (Fairley, 1940). (1) It may be absorbed by the reticulo-endothelial system and converted to bilirubin, which is then discharged into the blood stream and excreted by the liver. This is probably the only mechanism brought into play when intravascular haemolysis is slight. (2) When intravascular haemolysis is of greater degree part of the haemoglobin is broken down intravascularly and haematin is liberated; this combines with serum albumin to form methaemalbumin, a pigment which may be recognized by spectroscopical examination or, when it is present in only small amounts, by Schumm's test (Fairley, 1940). The rapid intravenous injection of 14 g. or more of haemoglobin (equivalent to the rapid intravascular breakdown of 100 c.cm. of blood) will lead to the formation of sufficient methaemalbumin to produce a positive Schumm reaction, but the rapid intravascular breakdown of two to three times this amount is necessary to produce enough methaemalbumin to be recognized spectroscopically. Methaemalbumin may be detected in the plasma 5 hours after the intravenous injection of haemoglobin, and then persists for 24 hours or more (above data from Fairley, 1940). (3) Some haemoglobin is excreted by the kidney, but only when the concentration of haemoglobin in the plasma exceeds approximately 135 to 180 mg. per 100 c.cm. (Gilligan *et al.*). This concentration may be reached after the rapid intravascular breakdown of approximately 60 c.cm. of blood. Patients who are already passing albumin in the urine may excrete haemoglobin at a lower threshold (Gilligan *et al.*). Once haemoglobinuria has begun it may continue when the plasma haemoglobin level has fallen far below the initial threshold, so that haemoglobinuria may persist for 24 hours or more after transfusion.

When the urine is alkaline the majority of the haemoglobin will be present in the form of oxyhaemoglobin and the urine will be red in colour. If the urine is neutral or acid, however, methaemoglobin will be formed and the colour will be brown or black. Moreover, acid haematin will be precipitated in the kidney tubules, and small casts of this substance will be found in the urine. The latter may persist for several days after transfusion.

Haemoglobinuria is always accompanied by albuminuria (Gilligan *et al.*), and when haemoglobinuria follows an incompatible transfusion it may also be accompanied by glycosuria, as shown in animal experiments by Ottenberg and Thalhimer (1915) and as exemplified by Case 6 below.

Following intravascular haemolysis, some degree of renal failure may occur, with oliguria and a progressive increase in the blood urea concentration. This renal insufficiency is thought by some authorities to be due to blockage of the renal tubules with acid haematin, a relatively insoluble compound of haemoglobin which is formed in acid urine. This theory was originally based on the observations of Baker and Dodds (1925), who showed that in rabbits renal failure after the injection of haemoglobin solutions could be prevented by alkalinizing the urine. The theory has been challenged by De Navasquez (1940), who believes the anuria is the result of a decrease in the rate of blood flow through the glomeruli. DeGowin *et al.* (1938)

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* A report to the Medical Research Council from the S.W. London Blood Supply Depot.

have stated their belief that, in man, blockage of the tubules is insufficient in many cases to account for the degree of renal failure, and they believe that damage to the tubules by some "nephrotoxic factor" may be responsible.

When renal damage occurs signs of uraemia may not be apparent until at least the second or third day after transfusion, and meanwhile the recipient may appear well. Thereafter a critical phase occurs, usually between the sixth and twelfth days (Bordley, 1931), in which the patient may become comatose and die or else start passing large quantities of urine and recover.

Extravascular Destruction.—The extravascular destruction of red cells results in the production of bilirubin. The degree of bilirubinaemia depends upon the rate of blood destruction and also upon the efficiency of the liver in removing bilirubin from the blood stream.

Signs Common to Blood Destruction, whatever the Mechanism

When, as the result of intravascular or extravascular destruction, the serum bilirubin concentration exceeds 4 mg. per 100 c.cm. (approximately) the recipient becomes jaundiced. Although the serum bilirubin concentration rises rapidly after red cell destruction, usually reaching a peak 5 to 6 hours later (Vaughan, 1942), clinical jaundice is unlikely to occur before the end of 12 hours or so, because time is required for staining of the tissues. As mentioned above, the degree of bilirubinaemia depends upon the rate of blood destruction, so that slow blood destruction is less likely to produce jaundice, other factors being equal. It may also be mentioned that the other main factor affecting the onset of jaundice—namely, the adequacy or otherwise of liver function—may be affected by the transfusion of incompatible blood. Following such a transfusion, evidence of liver damage is sometimes apparent at necropsy and may be manifested during life by the development of signs of toxic jaundice after transfusion. For instance, the van den Bergh reaction may become "direct" (see Case 5) and bile pigments may appear in the urine (see Case 6). Normally, once the destruction of the blood is complete the serum bilirubin concentration falls again, and has usually returned to the pre-transfusion level by the end of three days, and jaundice of the patient seldom lasts for more than two or three days after transfusion.

Because of the blood destruction, the increase in haemoglobin concentration expected as a result of transfusion does not occur when there is a haemolytic reaction. Evidence based on haemoglobin estimations before and after transfusion may be misleading, however, because the patient's haemoglobin concentration may be changing at the time of transfusion (due to the nature of the anaemia, for instance) or the patient's blood volume may undergo alteration. For this reason far more reliable evidence may be obtained in the majority of cases by estimating the survival of the transfused cells by the differential agglutination technique (see below).

Apart from the signs of increased blood destruction, the recipient may show signs of constitutional disturbance and complain of symptoms. For instance, a rise in temperature with or without a rigor is common and the transfusion of incompatible blood may be followed by particular symptoms, which are referred to below. It is important to realize, however, that a haemolytic transfusion reaction may occur without giving rise to any symptoms; and, conversely, it must be emphasized that in the majority of cases the occurrence of a rigor following transfusion does not indicate blood destruction.

Although it is possible to make a theoretical distinction between extravascular and intravascular destruction it is doubtful whether the distinction is a valid one. It may be that destruction is always intravascular, but that when it occurs slowly the free haemoglobin in the plasma never reaches a detectable concentration because it is rapidly absorbed by the reticulo-endothelial system, probably at the site of liberation. That this is so is suggested by the observation that in mild haemolytic anaemias no free haemoglobin can be detected in the plasma as a rule, although in an exacerbation haemoglobinaemia and haemoglobinuria may be noted. It is doubtful whether this represents a change in the mode of destruction, and it seems more likely that it merely indicates an increase in the rate of destruction.

In describing the signs characteristic of various types of haemolytic reactions it should be borne in mind, therefore, that when the signs of extravascular destruction occur the inference is probably simply that destruction has taken place at a slower rate than when the signs of intravascular destruction are noted. There are, however, other features of the various types of haemolytic reaction which are of some assistance in arriving at a correct diagnosis, and these different types will therefore be described.

Destruction of Incompatible Blood

Incompatible red cells may be either agglutinated or haemolysed by the recipient's plasma *in vitro*. Only about 30% of sera will haemolyse as well as agglutinate cells containing the corresponding agglutinogen (Wiener, 1939), but it is important to realize that even when only agglutination occurs *in vitro* intravascular haemolysis may occur *in vivo*. For instance, when Rh-positive blood is transfused to a recipient whose serum contains anti-Rh agglutinins severe intravascular haemolysis may follow (see Case 6, below, and cases described by Wiener and Peters, 1940), although haemolysis never occurs *in vitro* when Rh-positive cells are incubated with sera containing anti-Rh antibodies. The chief factors affecting the mode of destruction would appear to be the titre of the incompatible agglutinins in the recipient's plasma and the rate of transfusion.

In practice intravascular haemolysis is common after incompatible transfusions, although not invariable (see Case 5, for instance). When intravascular haemolysis occurs it is often followed by some degree of renal failure.

After the transfusion of incompatible blood, clumps of agglutinated donor cells may be found in blood samples withdrawn from the recipient. These agglutinates may persist for at least 48 hours after transfusion (as in Case 4), although they may not be detectable in a sample taken immediately after transfusion (as in Case 5). It may be added that whenever there are preformed agglutinins incompatible with the donor blood—that is to say, when the anti-A or anti-B agglutinins are involved or when atypical incompatible agglutinins (usually anti-Rh) are present in the recipient's plasma at the time of transfusion (as a result of previous stimulation by pregnancies or transfusions)—the majority of the donor cells are usually eliminated within a few hours of transfusion. In such cases the agglutinins in the recipient's serum undergo characteristic changes in titre (Rø, 1937; Wiener *et al.*, 1941; Mollison and Young, 1941). There is usually an initial reduction in titre, lasting for one to two days after transfusion, which is probably due to absorption by the incompatible erythrocytes. Then there is a rapid increase, which usually reaches its peak 10 to 20 days after transfusion. Observation of these changes may present valuable evidence, particularly when the donor cannot be traced. When the recipient's plasma does not actually contain incompatible agglutinins but there is potential incompatibility, as when Rh-positive blood is transfused to an Rh-negative recipient, the rate of elimination is variable. If the recipient fails to react to the stimulus of the foreign agglutinogen contained in the donor blood the latter may survive perfectly normally in the recipient. Even after a first transfusion, however, in a person not previously immunized, the recipient may respond by producing anti-Rh agglutinins (although slowly), so that the total survival of the donor cells is reduced from the normal 100 to 120 days to about 60 days (Dacie and Mollison, 1943). In such a case it is of course impossible to detect signs of increased pigment metabolism, and the only evidence of increased blood destruction is the diminished survival time of the transfused cells. In cases in which the recipient has been sensitized by previous transfusions of Rh-positive blood he may respond to a further transfusion by a rapid production of anti-Rh agglutinins and the rapid elimination of the donor cells (i.e., within five to seven days of transfusion). In such a case an increase in serum bilirubin may be detected and the response to transfusion from the point of view of increase in haemoglobin concentration is disappointing (see Wiener, 1941, and Case 1 described by Boorman, Dodd, and Mollison, 1942). Although any case in which the survival of the donor cells is diminished may be considered to be an instance of a haemolytic reaction, the term is in practice restricted to those cases in which destruction starts during transfusion. The term "inapparent haemolysis" has been applied by Wiener to cases in which destruction occurs more slowly after transfusion.

Immediately after the start of a transfusion of incompatible blood the patient may complain of severe lumbar pain (see Cases 1, 2, and 3, for instance), together with various other symptoms, such as burning of the face, tightness of the chest, etc.; some degree of collapse followed by a rigor is common. These symptoms may be delayed, however (see Cases 5 and 6), or abolished by morphine (see Case 3), or may be entirely absent (Case 4). Conversely, they may be produced by the transfusion of apparently compatible serum. One has the impression that the sequelae of the transfusion of incompatible blood are less severe now than formerly, and, if true, this may be due to the increasing tendency to administer blood at a drip rate (apart from cases of acute haemorrhage and "shock"), compared with the more rapid rate that used to be adopted.

Destruction of Stored Blood

(Data from Mollison and Young, 1942)

The rate of destruction of the erythrocytes of stored blood in the circulation of a normal recipient after transfusion depends mainly upon their previous length of storage, the preservative solution used, and the temperature of storage. The erythrocytes of blood stored with a citrate–glucose diluent (M.R.C. War Memorandum No. 1; 1940) at 5° C. for periods up to 10 days or so survive very well in the recipient's circulation, only a very small proportion being broken down during the 24 hours following transfusion and the total survival time being for all practical purposes indistinguishable from that of fresh blood. The increase in serum bilirubin concentration in the recipient's plasma after such a transfusion seldom exceeds 1 mg. per 100 c.cm. Even when the period of storage in this diluent reaches 21 days only about one-fifth of the erythrocytes are destroyed during the 24 hours after transfusion, and the increase in serum bilirubin concentration is unlikely to exceed 2 mg. per 100 c.cm. in our experience, although it should be noted that greater increases were found by Vaughan (1942). The transfusion of blood stored for 21 days in citrate–glucose mixtures is not followed by haemoglobinaemia, and, as Vaughan has shown, methaemalbuminaemia does not occur. Thus, following the transfusion of blood previously stored for 21 days or less with the preservative solution which is in general use, the only signs of increased blood destruction will be the small increase in serum bilirubin (only to be detected by the taking of a venous sample within a few hours after transfusion) and a slightly diminished survival of the donor cells; and the response should be scarcely less satisfactory even from the point of view of the increase in haemoglobin concentration than when fresh blood is used.

The erythrocytes of blood stored in a simple solution of sodium citrate, however, survive far less well in the recipient's circulation than the erythrocytes of blood stored for a similar period in a solution to which glucose has been added. For instance, the erythrocytes of blood stored for, say, 17 days in a simple sodium citrate solution are almost completely eliminated from the recipient's circulation within 24 hours of transfusion. A part of this destruction occurs instantaneously, owing to the rupture of the most fragile cells in the recipient's plasma, although the majority of the cells are not destroyed in this way. The haemoglobinaemia produced by this intravascular destruction is reinforced by the amount of free haemoglobin present in the plasma of the transfused blood, since blood stored with sodium citrate alone haemolyses far more rapidly than blood stored in solutions containing glucose (Rous and Turner, 1916). For instance, blood stored in sodium citrate is about one-tenth haemolysed by the end of 21 days, whereas blood stored for a similar period in citrate–glucose is only about 1% haemolysed. Thus the use of blood stored in a simple citrate solution for 17 days or more is very likely to produce haemoglobinuria and jaundice in the recipient. It may be mentioned that some of the prejudice that still exists against the use of stored blood dates from the early days of the present war, when glucose was not added to blood during storage.

Blood haemolyses more rapidly at room temperature than at 5° C., and it is almost certain that the power of the intact erythrocytes to survive in the recipient's circulation is adversely affected by prolonged exposure to room temperature. It is, however, only of academic interest to separate the effects of the injection of free haemoglobin from the effects of the more rapid destruction of the intact erythrocytes, and it is simply necessary to realize that blood that is left standing about at room temperature before transfusion may give rise to the signs of blood destruction when it is transfused. It may be added that blood stored in the standard 540-c.cm. bottle does not reach room temperature for approximately five hours after being removed from the refrigerator (Oliver and Young, 1940).

Destruction of Recipient's Red Cells by High-titre Incompatible Agglutinins

Intravascular agglutination and haemolysis, followed by bilirubinaemia, have been produced experimentally by the injection of plasma containing high-titre incompatible agglutinins, but only when these agglutinins were present in exceptionally high titre (Aubert *et al.*, 1942). When group O blood the plasma of which contains very-high-titre agglutinins is transfused to recipients of other groups, and a haemolytic reaction follows, it is of course possible to demonstrate that the donor cells survive normally and that it is the recipient's cells which are destroyed (Aubert *et al.*, unpublished observations).

Haemolytic Reactions in Persons Affected with Haemolytic Anaemias

The transfusion of blood to patients affected with at least one variety of haemolytic anaemia may result in an exacerbation of the haemolytic process for a cause other than one of those already mentioned. As an illustration, in a case of nocturnal haemoglobinuria observed by Dacie and Firth (1943) the transfusion of agglutinin-free plasma resulted in the production of haemoglobinaemia, and the transfusion of a concentrated suspension of red cells brought about a very violent haemolytic reaction which was not due to the destruction of the donor cells, since, in fact, the latter survived normally (Dacie and Mollison, 1943).

Haemolytic Reactions Simulated by the Transfusion of Haemolysed Blood

Blood may become haemolysed by the action of contaminating organisms, by being overheated, or by being stored for excessive periods under unsuitable conditions. Certain bacteria will grow freely in stored blood at refrigerator temperature. These organisms usually cause haemolysis of the blood, so that, apart from the possible toxic effects of the bacteria or their breakdown products, the transfusion of infected blood may be followed by the signs of a haemolytic reaction. The consequences of the transfusion of infected blood may be very serious (as in Case 11). When blood is carelessly heated before transfusion it may become haemolysed—for instance, if it reaches a temperature of approximately 55° C. and is kept at that temperature for more than 10 minutes. Inquiry should always be made, therefore, to find out the method of heating (if any).

As mentioned above, blood may become grossly haemolysed if left for a long time at room temperature. The results of the transfusion of blood that had become haemolysed in this way are illustrated by Case 10 (see below).

Investigation of Haemolytic Reactions

At the outset it may be mentioned that the investigation of transfusion reactions suspected of being haemolytic in nature is greatly facilitated if certain samples are available at the time of investigation. These are: (1) a sample of the donor blood, and (2) a pre-transfusion sample of the recipient's blood. In order that these samples shall be available when they are wanted it is desirable that they should be obtained as a routine and kept for a period of 24 hours after every transfusion. It may prove impracticable to obtain a pre-transfusion sample of blood from the recipient before every transfusion, but it should be made an invariable rule that a sample of the transfusion fluid is kept. This is most easily secured by leaving the dregs in the bottle. The apparatus used may be washed immediately after transfusion, but the bottle itself should be recapped and put on one side, preferably in the refrigerator. In all cases the name of the donor or the serial number of the bottle of transfusion fluid should be recorded on the patient's notes. When there is a detachable label on the bottle this should be fastened to the notes.

When pre-transfusion samples of blood are taken from the recipient as a routine they may be conveniently obtained through the needle used for transfusion if the latter is connected with the apparatus by means of an adaptor. Ideally, a few cubic centimetres of blood should be taken into a plain tube and allowed to clot, and a similar quantity should be taken into a tube containing oxalate. These samples should be kept in a refrigerator and not be discarded until the end of 24 hours after transfusion, when the patient has been seen again and been found to respond favourably to the transfusion. When the patient is seen within 24 hours after a transfusion and a haemolytic reaction is suspected, a large sterile venous sample of blood should be obtained and also a clean sample of urine. If the patient is seen later the same samples should be obtained, although many of the tests set out below will be inapplicable.

Precautions to be Observed in Obtaining the Venous Sample.—A large (20 c.cm.) sterile syringe with a needle of not less than 20 S.W.G. should be used. The syringe and needle should be absolutely dry or else must be rinsed in sterile isotonic saline. Venepuncture must be clean. After venepuncture the needle must be removed from the syringe before the blood is squirted into the sample tubes. The sample should be partitioned between two plain tubes (one sterile) and one tube containing dry oxalate.

The Sample of Urine.—It will be sufficient to obtain a clean sample of urine, unless there is any risk of contamination with blood (in a recently delivered woman, for instance); in such cases a catheter sample must be obtained.

Examination of the Samples

In an obscure case the majority of the following tests may have to be made:

(*a*) *Donor's Blood (from the Transfusion Bottle if Possible).*—(i) A sample should first be withdrawn from the bottle with a sterile pipette and kept in a sterile tube in case bacteriological examination is required. (ii) A mixed sample should next be centrifuged to determine the amount of free haemoglobin in the supernatant plasma. (iii) The blood should be regrouped, testing both cells and plasma; if necessary, the Rh group of the cells should be determined. (iv) The cells should be tested against the recipient's serum, using the pre-transfusion sample of the latter when available. (v) The titre of the agglutinins in the donor's plasma should be estimated if necessary.

(*b*) *The Recipient's Blood (Post-transfusion Sample).*—(i) The sample in the sterile tube should be submitted for bacteriological examination. (ii) The serum from the second clotted sample should be examined by naked eye for the presence of haemoglobin or excess bilirubin. If there is no obvious pinkness the serum should be examined spectroscopically. The amount of bilirubin or the icterus index should be estimated, and Schumm's test for methaemalbumin should be applied. The examination of the pre-transfusion sample, when available, is a valuable control. A small amount of serum should be reserved for serological tests. (iii) The oxalated sample should be divided: one-half should be centrifuged, so that the plasma can be examined for pigments as a check on the examination of the sample of serum; the other half should be kept for serological tests. (iv) *Serological Tests.*—(*a*) A suspension of the recipient's blood should be prepared by adding one drop of blood to approximately 2 c.cm. of isotonic sodium citrate or saline (to make a 2% suspension approximately). This suspension should be examined under the low power of the microscope for the presence of agglutinates. With experience it is possible to recognize the difference between weak diffuse clumping due to auto-agglutination and the presence of small scattered well-formed agglutinates lying in a field of free cells, the latter appearance being due to the presence of clumps of donor cells in the suspension. (*b*) The blood should be regrouped, testing both cells for agglutinogens and serum (the latter from the clotted sample) for agglutinins. If necessary, the Rh group of the cells should be determined and the serum examined for the presence of anti-Rh agglutinins. (*c*) The agglutinins in the serum should be titrated for comparison with the results of titrations carried out on samples obtained later and on the pre-transfusion sample (when available). As explained above, characteristic changes occur after the transfusion of incompatible blood, and if a sample of the donor's blood is not available, or if there is any question of the faulty labelling of a bottle so that the true donor is not known for certain, this investigation may be invaluable. (*d*) If necessary, differential agglutination tests should be carried out.

Note on Methods of Differential Agglutination.—Application of the technique of differential agglutination permits the recognition, in a sample of blood taken from the recipient, of foreign red cells derived from a previous transfusion. The donor cells can be recognized either by being agglutinated by a test serum which does not agglutinate the recipient's cells, or by their failure to be agglutinated by a test serum which completely agglutinates the recipient's cells. For example, when the donor is Rh-positive and the recipient Rh-negative, by testing with an anti-Rh serum the donor's cells (if surviving) can be recognized as discrete clumps lying in a sea of free cells. Alternatively, when the donor belongs to group O and the recipient to group A the recipient's cells can be completely agglutinated with an anti-A serum and the free (donor) cells can then be counted in a haemocytometer. Many further possibilities of differentiation are available if anti-M and anti-N test sera are also used.

Application of the method of differential agglutination is practically essential for the solution of many transfusion problems, but reliable results can only be obtained with considerable experience. For a description of methods see Wiener (1942) and Dacie and Mollison (1943).

(*c*) *Sample of Recipient's Urine.*—The urine should be examined by naked eye and its colour noted; it should then be examined spectroscopically for oxyhaemoglobin and methaemoglobin. If the supernatant fluid contains no pigments a sample should be centrifuged and the deposit examined for the presence of pigment casts. The urine should also be examined for the presence of urobilin (Schlesinger's test). The usual tests for specific gravity and for albumin should be carried out and the reaction determined.

(The concluding part, with case reports and a list of references, will appear in next week's issue)

THREE CASES OF PROLONGED FAECAL FISTULA FOLLOWING OPERATION FOR APPENDICITIS

BY

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A slight temporary faecal fistula following the removal of a gangrenous or perforated appendix is not an uncommon occurrence, but in our experience it closes naturally in a few weeks. One may look for it in those cases in which the inflammation has spread on to the wall of the caecum, or in which closure of the appendix stump has been unsatisfactory. In the past 15 years three persistent and complete faecal fistulae following appendicectomy operation have been encountered, the duration being one, three, and four and a half years. Once the fistula had become established no motions were passed by the normal route, there was marked incapacity for work, and the social result was appalling.

Case I

The first case was that of a child of 6 who was brought to Queen Street Children's Hospital 15 years ago. The child was wasted, anaemic, in a filthy condition, and had been confined to the house for a year. Its condition did not permit of attendance at school. There was a history of two operations—one for removal of the appendix, with drainage of an abscess; and a second one for the cure of an incisional hernia. It was after this second operation that the faecal fistula appeared.

On examination we found the ileo-caecal valve opening on the surface of the right iliac fossa and discharging squirts of fluid faeces. The entire caecum appeared to be absent, and it was decided that a local closure was impossible. After some building up, the abdomen was opened through the left rectus, and a diversion route established in the following way: terminal ileum divided, and both ends closed; transverse colon divided, and both ends closed; lateral anastomosis between the proximal end of the ileum and the distal end of the transverse colon.

As a result of this severe operation the child had a stormy period of five days, but recovered, and was left with a mucous fistula in place of a faecal fistula. The child returned home, put on weight, recovered strength, and was able to attend school. She attended occasionally at the out-patient department, but one was inclined to postpone the removal of the isolated bowel for some years. However, our hands were forced, as some six months after her diversion operation she walked into the out-patient department with the entire ascending colon prolapsed through the fistula and hanging down under her skirt. She was admitted to hospital, the fistula circumcised, and the terminal ileum, ileo-caecal junction, and ascending colon removed. The operation turned out to be extremely easy, as the bowel had already mobilized itself. A few vessels were ligatured and divided and the isolated bowel was removed. There was no reaction, and the wound healed in one week.

The specimen was mounted, and is in the Queen's University museum. It shows a very atrophic terminal ileum (usually mistaken for an appendix by the students in the final examination), the fistulous opening surrounded by a ring of skin and the ascending colon (Fig. 1).

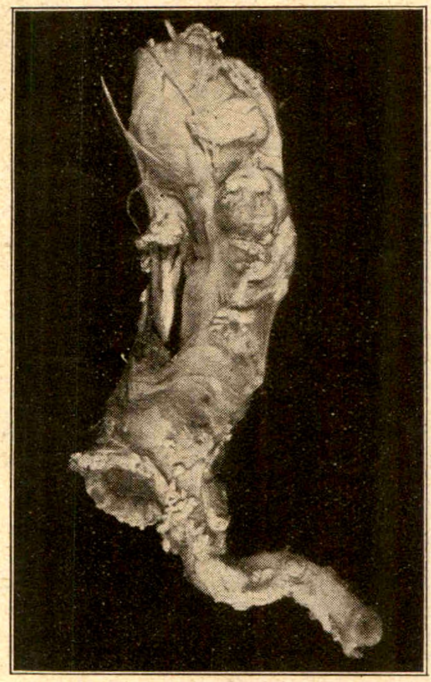

FIG. 1.—The terminal ileum, caecal fistula, and ascending colon removed from a child aged 6 years. Note the atrophic terminal ileum and the almost complete absence of the caecum.

Case II

A young man aged 19 was admitted to the Royal Hospital on Feb. 14, 1937, with a faecal fistula in the right iliac fossa which had been present for three years. A gangrenous appendix had been removed in March, 1934, and a drainage tube had been left in for nine days. The faecal fistula followed the removal of the tube, and persisted. His general condition was quite good, and he was under the impression that a faecal fistula was the usual result of the operation he had undergone. He came to the Royal because he desired to join one of the Services, and had been told that he could not be accepted in his condition. All his motions passed by the fistula, but he kept reasonably clean by packing wool into the opening. Examination of the fistula revealed that it was large bowel, and it was thought that a local closure might succeed.

Technique of Operation.—Fistula circumcised and closed by suturing the skin edges together. Clean towels, gloves, and instruments supplied. Peritoneal cavity opened and caecum separated from the anterior abdominal wall. Narrow-bladed Schoemaker clamp applied to long axis of caecum and the muco-cutaneous tissue distal to the clamp removed, leaving a cuff of bowel wall distal to the clamp. The cuff was then sutured, the clamp removed, and the suture line enfolded.

The wound healed by first intention. The patient had a natural motion on the fifth day, and left hospital on March 3, 1937, with a normal alimentary canal. It was fortunate in this case that there was enough caecum left to permit of closure without in any way obstructing the ileo-caecal valve.

Case III

This case was that of a young unmarried woman aged 19 who had passed nothing by the rectum for four and a half years. In June, 1937, after an operation for appendicitis, a faecal fistula developed, and since then no faeces had ever passed by the rectum. In 1939 three attempts were made to cure the condition, but they were unsuccessful. The first attempt was a lateral anastomosis between two loops of ileum, but this produced no change in the fistula. In the second the two bowel loops distal to the anastomosis were divided and closed, but again with no improvement. (These two operations were presumably done under the impression that the fistula was purely ileal, and involved a portion of bowel some distance from the valvula coli.) The third operation was a direct attack on the fistula, and as it caused complete intestinal obstruction it had to be reopened. She left hospital in fair condition with a complete faecal fistula.

On Jan. 14, 1941, she was admitted to our unit with a history of having four fluid motions daily. She had done no work, but led a fairly normal life. She walked and went to the pictures. There was no emaciation, but she was pale in colour. The whole right iliac fossa showed a skin stippled with small ulcers and areas of white (Figs. 2 and 3). The actual fistula was a complicated arrangement of openings surrounded by a very tender cutaneous margin. The medial half was occupied by the prolapsing end of small bowel (ileum), which discharged no faeces and no gas. The entire index finger could be inserted into it. The lateral half showed two openings, both of which discharged faeces. The upper one could be seen, and it could

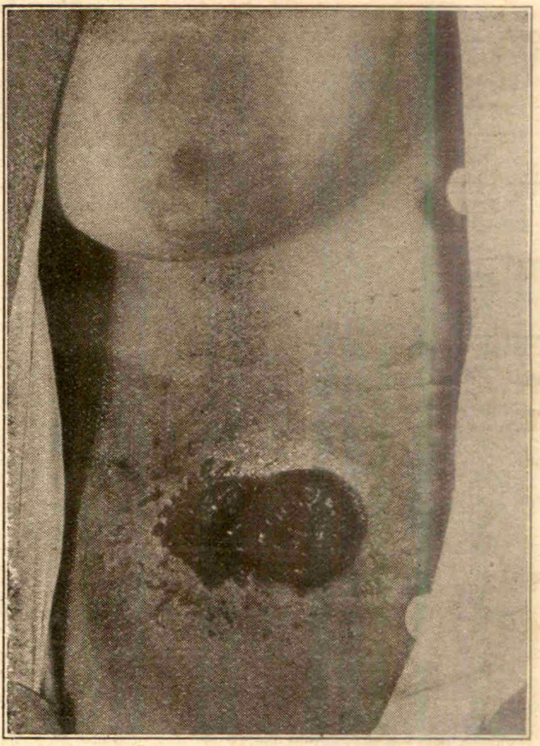

FIG. 2.—The right side of the abdomen in Case III. Note the extensive area of ulcerated skin surrounding the large fistula. Three weeks after the short-circuit operation this skin was entirely healed.

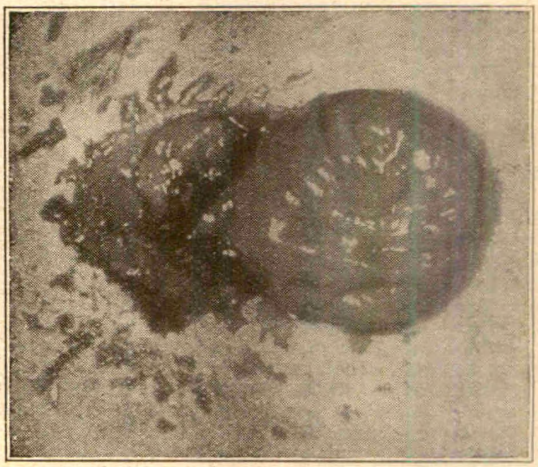

FIG. 3.—An enlarged view of the faecal fistula in Case III. The medial half of the fistula consisted of the prolapsed end of ileum. The lateral half was mainly colonic mucous membrane. Note the ulcerated skin.

be explored with the finger. Its mucous membrane was much paler than the ileal mucous membrane and had the appearance of colonic mucosa. The lower one was too tender to permit examination, and we were uncertain whether it was large or small intestine. Medial to the fistula were two incision scars, one midline and the other right rectal.

Rectal examination revealed a plug of mucus in the ampulla. The patient wore a colostomy belt, which included a large celluloid cup. She was very depressed, had no hope of cure, and showed little enthusiasm for further operative treatment.

Procedure.—The first point was to establish the nature and anatomy of the bowel distal to the fistula. One wanted to be certain that the bowel, which had not been used for four and a half years, was patent, and that the pelvic colon was not involved in the fistula. Olive oil was injected into the rectum and escaped from the two lateral fistulae. Two days later a water enema escaped from the same two fistulae. An opaque enema was then given, and this outlined the colon up to the middle of the ascending colon. It showed a bowel narrow but otherwise normal (Fig. 4). On Jan. 21 the abdomen was opened through a left rectus incision. No adhesions were found in this region, and there was no difficulty in tracing the small bowel from the beginning of the jejunum to that part of the lower ileum which was adherent to the region of the fistula. This portion of the ileum was divided and the two ends closed. The transverse colon was then withdrawn. It was somewhat small and atrophic, and the great omentum was reduced to a short apron about two inches long. The transverse colon was divided to the right of the middle line and the two ends closed. A side-to-side anastomosis was carried out between the proximal ileum and the distal transverse colon.

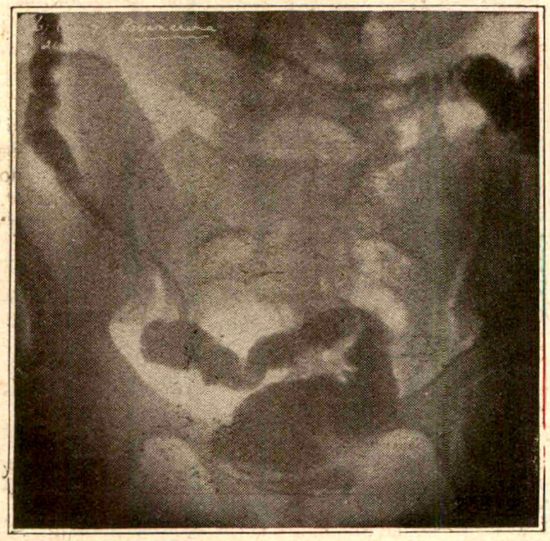

FIG. 4.—Opaque enema of the third case of faecal fistula. The whole colon up to the hepatic flexure is outlined. The pelvic colon has no connexion with the fistula, and the transverse colon is very narrow. This colon had not functioned for four and a half years.

Post-operative Course.—Small quantities of fluid were given by the mouth, and there was constant vomiting for five days. On the 25th she had 53 oz. by mouth and vomited 26 oz. On the 26th she had 38 oz. by mouth and vomited 14 oz. The pulse remained good, and ran between 84 and 100. There was slight evening pyrexia. Constant lower abdominal pain was felt, and the patient remained depressed and irritable.

The fistula was dressed for the first time on the 25th, and was found to be covered with a quantity of faeces. It was thought that this had been extruded from the isolated bowel. The lower abdomen was somewhat distended. On the 27th a little flatus was passed, the pulse and temperature had fallen, the abdominal pain was much less, and the patient for the first time was cheerful. Subsequently the left rectus incision discharged a little faeces for a few days, but it had completely closed by Feb. 5. This was an indication that the ileo-colic anastomosis had leaked. At first there was no control over the rectal discharge, but rapidly control was regained, and by Feb. 7 there was normal control of the sphincters. She left hospital in good condition on Feb. 25. The left rectus incision was healed. The skin around the fistula was free from ulceration, and the fistulous area had contracted and was discharging a little mucus.

Lessons from these Three Cases

1. All were cases of the "late appendix" which required drainage, and the condition would never have arisen if the appendicitis had been diagnosed in the first twenty-four hours.

2. If drainage is necessary, never use anything more rigid than a strip of corrugated rubber or a little piece of gauze. A rigid piece of rubber tubing left in for nine days may quite easily perforate the wall of the caecum.

3. Great care must be exercised in handling inflamed or adherent gut, as it is quite easy to tear or rupture such intestine. If the search for the appendix endangers the gut, it is better to leave the appendix *in situ* and content oneself with drainage.

4. It is remarkable how well a patient may be without the use of the colon. The man aged 19 was in excellent condition, and was well enough to desire to join one of the Services. He was not even depressed with his condition, and kept himself reasonably clean with a large plug of cotton-wool packed into the ascending colon. The woman (Case III) was in fairly good health, and, apart from the fact that she did no work, led a normal life. The surrounding skin in her case was a constant source of trouble.

5. Local closure should only be attempted when the fistula involves the caecum or ascending colon and is some distance away from the valvula coli. For example, the planned caecostomy is the ideal one for local closure.

6. In the presence of multiple openings or where the fistula is close to the valvula coli, one should sacrifice the whole right colon and ileo-caecal region by carrying out a two-stage operation: first a diversion operation, and later a right colectomy.

7. In Case III the essential points were the condition of the colon distal to the fistula and the condition of the small bowel proximal to the fistula. The first point was settled by the injection of olive oil into the rectum (this showed a clear route between the rectum and the fistula) and an opaque enema (which showed non-involvement of the pelvic colon). The second point had to be demonstrated at operation. Had there been numerous adhesions in the left side of the abdomen one might have found it impossible to determine the upper from the lower end of a coil of bowel. Fortunately there were no adhesions, and this problem did not arise.

Classification of Faecal Fistulae

(*a*) Slight temporary fistulae following appendicitis operations.—These require no treatment, and tend to heal in two or three weeks.

(*b*) Fistulae following bowel resection.—These arise at the anastomosis or at the closed bowel end, are usually partial, and close naturally. It is easier for the faeces to pass along the mucous channel than to overcome the fibrotic contraction of the fistula.

(*c*) Injury to bowel during operations on adjacent viscera.—Long-standing gall-bladder or kidney disease may lead to adhesions and weakening of the bowel wall. The removal of the gall-bladder or kidney may leave a weak area of bowel wall unsupported, or the bowel may be injured by the surgeon's manipulations, with the result that a few days after the operation a fistula develops. In one case in which the duodenum was involved death resulted. In a second case the ascending colon gave way after the removal of a very adherent tuberculous right kidney. This fistula closed naturally, but was succeeded by a purulent discharge of some months' duration.

(*d*) The operation of caecostomy.—This can be closed by a local operation when the distal route has been restored.

(*e*) The gross permanent fistula involving the caecal wall, some distance from the valvula coli, following an appendix operation.—This is suitable for local closure as in class *d*.

(*f*) The gross permanent fistula in the immediate neighbourhood of the valvula coli or the fistula with several openings.—This should be treated by a two-stage operation. In stage 1 a short circuit is performed by dividing the ileum (as low down as possible), dividing the transverse colon (closing the distal end), and performing an end-to-side anastomosis between the proximal ileum and the distal transverse colon. This converts the faecal fistula into a mucous fistula. In stage 2 a right colectomy is performed.

Conclusion

A final word of warning with regard to purulent or faecal fistulae in the region of the terminal ileum is that there is a tendency for some of these patients to develop small-bowel obstruction after even slight abdominal operations. They would appear to be balanced on the threshold of obstruction, and are pushed over the edge by any manipulations in that region. It is possible that such catastrophes would be avoided by a preliminary short circuit between the ileum and the transverse colon.

COMPLACENCY IN RESUSCITATION OF THE DROWNED

BY

F. C. EVE, M.D., F.R.C.P.

The manuscript directions for resuscitation by the Schäfer method are in the hands (copyright) of the Royal Life Saving Society, who still regard the method as completely adequate. But knowledge of the very intricate subject of respiration has naturally advanced much since Schäfer's day, and an attitude of complacency will cause us to drift behind other countries. An excellent paper by Surg. Lieut. G. H. Gibbens (1942) has given us a useful jog. He had been bitterly disappointed with Schäfer's method when he used it in his ship on drowning cases—now so urgent a problem. Instead of the normal elastic inspiration on removing pressure to which he was accustomed in normal subjects, the victim's abdomen and thorax "felt like putty." Schäfer's method relies for inspiration on elastic recoil, and this was absent owing to lack of muscular tone. He therefore adapted to ships my rocking method (Eve, 1932), in which a dozen times a minute the patient (lashed to a stretcher) is rocked, face downwards, through a total angle of 60 to 90 degrees on a pivot—provided either by a trestle or by a rope from hammock hooks passed under the middle of the stretcher. On this see-saw the weight of the abdominal contents pushes and pulls the diaphragm alternately up and down by a piston action which is actuated by gravity and does not depend on elastic recoil for inspiration. The ventilation thus secured is quite adequate, and is equal to Schäfer's in the normal subject (Killick and Eve, 1933). The air can be felt, and heard, passing in and out freely; there is no need for voluntary breathing. A manual method is used till rocking has begun. On shore, a builder's two-wheel hand-cart would do well for rocking. Prof. Cordier of Belgium points out that in Scandinavia and Eastern Europe Silvester's method—in spite of its disadvantages—is considered more efficient, especially when tested on the warm cadaver which is toneless. They advance excellent reasons for this preference, which are too lengthy to quote here.

Schäfer's Method

On reading Schäfer's (1907-8) splendid Harvey lecture I see that he started experiments in the dead-house, but found rigor mortis an insuperable difficulty; warm cadavers are not mentioned, nor are drowning cases. Then he proceeded to anaesthetized dogs (drowned) and afterwards to normal humans. Speaking of his method, he says that you should "press gradually for three seconds with both hands close together flat on the back over the loins, the fingers extending over the lower ribs. . . . Of course, on relaxing the pressure the same volume of air must pass in again as the chest resumes its former shape and size."

Unfortunately, this perfectly natural assumption, justified by his experiments on normal people, does not hold good in the nearly drowned, in whom the elastic tone of the respiratory muscles fails progressively. Later, he modified his directions so as to compress the diaphragm only; but with large hands and small loins the ribs cannot always be avoided—neither, in my opinion, can it be an important point when fighting to save a life.

Other Imperfections of Schäfer's Method

The fact is that Schäfer's method has many well-known advantages and may be the best manual method; but it is not a perfect method, and it is deplorable complacency—especially in these days of U boats—not to make every effort to find a better one. We must think not so much of the very numerous successes of Schäfer's method but rather of the distressingly greater number in which it fails, and try to diminish this. A drawback of Schäfer's method is that the weight of the shoulders and upper back opposes inspiration. This, in other countries, has been met by a second operator, who lifts the folded elbows (arms extended high over the head) upwards from the ground during inspiration—thereby greatly improving ventilation and circulation (Hederer). Radiographs have recently shown (Barclay) that in the prone position the diaphragm is pushed up into the full expiratory position, and this second drawback would be increased in the toneless body. This is partly countered (Henderson, 1937) by extending the arms above the head, but both of these methods rely on muscle tone.

The main defect in the nearly drowned is muscular tone, both for circulation and for respiration. It is therefore useless to judge any resuscitation method by its effects on normal persons: the best criterion is the toneless warm cadaver, and I have rocking stretchers at various hospitals to test this aspect.

Tone of the Diaphragm

The diaphragm is the chief and only indispensable muscle of respiration. It achieves inspiration by contracting its high dome into a low dome. In the warm cadaver, as it has lost all tone, the diaphragm is pulled fully up by the elastic contraction of the lungs, and by the pressure of the abdominal contents.

In the semi-final stages of incomplete death, of the three methods of resuscitation Schäfer's will be the first to become impotent with the loss of elasticity (due to tone of the diaphragm), on which he relies for inspiration; Silvester's method will still have some elastic recoil around the ribs to rely on; the piston action of my rocking method should work even more freely as the tone of the diaphragm declines. How swiftly this may happen was shown by H. W. Haggard (U.S.A.), who tried artificial respiration on a man who had just had a fatal heart attack. Ventilation of the lungs was normal at first, but after 10 to 15 minutes it failed completely. The asphyxiated nerve cells of the bulb and spinal cord which maintain the muscles in tone had died, so that the lungs collapsed in the toneless thorax. Henderson (1937) demonstrated another instructive point by measuring the total air respired in a quarter of an hour by various students. Then he tried artificial respiration on them and found the same figure, however hard the operator tried to increase the ventilation of the lungs. The respiratory centre—amazingly sensitive to CO_2—knew exactly how much ventilation was necessary, and by modifying the tone of the diaphragm set the stroke of its piston to give the correct ventilation both in natural and in artificial respiration.

Attempting Better Methods

The trouble with apparatus for the rocking method is that it may not be at hand when needed; but, in a ship, a stretcher which can be rocked could be instantly available, and if resuscitation drill is practised the interval between the victim's lying on the deck and rocking on the stretcher will already have been reduced—with my later gadgets—to 25 seconds. I find, from the officer responsible for first aid in one of the small ships (a mine-sweeper) which carry out many of the rescues from drowning in convoy, that there is no difficulty—as he showed me—in storing, suspending, and rocking a stretcher; he was enthusiastic about it. The short boat journey to the ship is the weak but vital stage. Thwarts and crowding may render the Schäfer method impossible in a boat. So our St. John men at Beverley are trying rocking each other on the four bent forearms of two men (opposite), with their two pairs of legs steadied by a thwart between them. Improvements need working out; e.g., for the two operators to grasp mutually a pair of rings like deck quoits: suggestions are welcome—if tried out. When the method, even in its provisional form, was tried on me in a ship's lifeboat it seemed quite effective. Mr. Akrill, our local first-aid expert, whose help has been invaluable, has to his credit a resuscitation from drowning after 70 minutes of artificial respiration by alternate Schäfer and Silvester—aided by epigastric pushes in expiration, which would help both heart and diaphragm. This seems an excellent plan, for if the current of air at the mouth is not satisfactory by one method you should try another. A local unsuccessful case (by Schäfer only) was that of a short stout woman from whose lungs a pint and a half of water had first been emptied. Such people already have a high diaphragm, and in the prone position her heavy weight pressing on her prominent abdomen would force it higher still. Silvester's method might well have been better for her. Schäfer's method does not always drain away the water as alleged, for in a Hull child recently the water merely bubbled to and fro. Water in moderate amount is quickly absorbed from the lungs into the blood. Drowning cases always suffer from shock, so that in the U.S.A. they are resuscitated in the head-down posture—say 10 degrees—if sloping ground allows. Gibbens points out that this would impede inspiration, but it should help the heart—probably more important.

Other Respiratory Aids

In its very complete review of "breathing machines" the Medical Research Council (1939) states: "For short emergencies we would recommend insufflators of the Oxford or the McKesson type actuated by oxygen pressure and a tilting stretcher based on the Eve principle, which is almost foolproof and needs little attention; its use is a simple extension of instruction in manual methods of artificial respiration. It is therefore particularly valuable in industrial establishments and places where respiratory accidents are frequent." Gibbens (1942) has shown its adaptability to ships. Messrs. Siebe Gorman are (presently) making to my design a simple latticed metal stretcher in which bandaging is nowhere impeded by canvas. If desired it can be rocked, and the rock is reinforced by a jerk—whereby the momentum of the moving viscera and blood columns is valuably enhanced.

The respiratory centre judges the need for deeper respiration by the minutest increase of CO_2 in its blood. Hence inhalation of CO_2, preferably 5 to 8% in O_2, is a potent respiratory stimulant, telling the centre to cause deeper breathing so as to wash out of the lungs the unnatural excess of CO_2. The Novox apparatus is efficient for this purpose, its tube being led via the pivot of the stretcher.

Warmth.—The value of this in shock is well known, and every drowning case is shocked. Heat production is therefore minimal and heat loss very serious, especially in a cold wind and from the evaporation of wet clothes. Hence, besides blankets and hot-water bottles, impervious coverings such as waterproofs are very valuable. Heat loss can only be visualized by the imagination, and even nurses often fail to perceive it. Always we must bear in mind that in resuscitation it is the nerve cells of the respiratory (and spinal) centres which we have to revive with warm circulating blood, oxygenated by moving lungs. With circulation vastly enfeebled the neck and its vital nerve cells may rapidly be chilled. I (Eve, 1900-1) found that the sympathetic nerve cells of the rabbit were killed by a temperature of 50° C., and were paralysed, till re-warmed, by cooling 20° C. below blood heat. High-grade nerve cells should be still more sensitive to cooling, and their blood vessels may be constricted by chill, so that it seems well worth while to apply a rubber hot-water bottle to the cervical spine as soon as Schäfer or rocking has started. A. T. Cholerton writes (March, 1943) from Moscow: "In this winter offensive, even a lightly wounded man, if left lying, dies of frost-shock in 10 to 30 minutes.

Another argument for warmth—to the chest—is that plain muscle, with which the lungs are well supplied, contracts with cold and relaxes with warmth. This is evident in many parts of the body, conspicuously in the scrotum and veins of the hands. Hence the lungs should shrink when chilled externally or internally by cold air and evaporation from redundant ventilation. Warmth should relax the lungs and assist inspiration.

It would be valuable to compare the statistics of successful resuscitation after drowning in cold seas and warm. In Australia there were for ten years no failures in resuscitation on bathing beaches patrolled by the Australian Surf Life-Saving Association. Rescues were prompt and a modified Schäfer's method was employed. But I have seen pictures of these fine young men carrying also a rocking stretcher.

Heart and Circulation

The very important needs of the heart and circulation are not studied enough here. In the U.S.A., Henderson (1937) considers that hypotonia is the essence of shock, and he finds that when, as in drowning, the tone of the muscles is lost the heart fails because it does not get enough blood from veins unsupported by muscle tone. Obviously an empty pump can't work. This theory rings true to me, and I see no inadequacy in it (as he does). For let us substitute—for the heart and artery, veins, and capillaries of the leg of a standing person—a rubber pump and a long vertical rubber U-tube with some cotton-wool in the bottom of it to imitate the capillary resistance. The model will work all right unless the venous return half is replaced by thin-walled tubing, which the blood will distend and in which it will stagnate without reaching the heart. Even if this model is laid horizontally in bed its arterial side will be ill filled (and thus low-pressured) until the "heart" is filled by raising the bed-foot. Similarly, the venous return to the actual heart will fail when the veins and capillaries are deprived of their external support by the muscles universally losing their tone as they do in drowning. Schäfer's method is helpful here because incidentally it squeezes venous blood from the abdomen to the heart. The well-intentioned efforts of first-aiders to stroke venous blood from the limbs appear to me rather fatuous. In this respect the rocking method should be pre-eminent, though the point should by proved by the physiologists; for while gravity will propel the venous blood alternately from the legs and the extended arms towards the heart, the valves in the veins and right heart will prevent the return current. Similarly, the alternating pressures in the chest fill and empty the pulmonary blood into the left heart. The accompanying diagram clarifies the various valuable effects of rocking on the two circulations and the coronaries. Smart but slow rocking (10 to 12 a minute) is probably best for the circulation. As you rock try to visualize the flow of blood in the long veins and arteries.

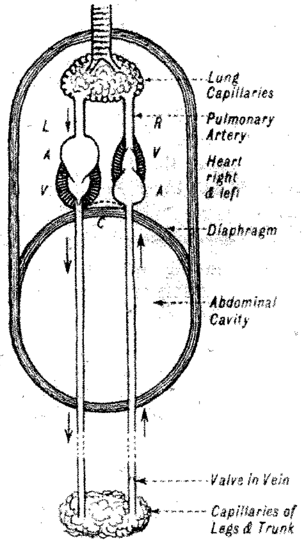

Diagram analysing the effects of rocking on the two circulations

Anaesthetists find (personal letter from Mr. G. H. Colt) that the stopped respiratory centre seldom restarts working unless it is congested; in the rocking head-down posture one can see and feel congestion in the head. This may also restart a stopped heart.

Conclusions

Artificial respiration is a very misleading and therefore, maybe, a life-losing name. For resuscitation is not a simple matter of ventilating the lungs; it is a trinity of *ventilation, circulation,* and *warmth.* Essentially it is an attempt to revive asphyxiated *nerve cells* in the medulla and spinal cord by a circulation of warm blood oxygenated by moving lungs.

Ventilation.—When asphyxiated by failure of respiration or circulation these nerve cells gradually die—usually in a few minutes, but they may remain viable for an hour, rarely more. When they are dead all hope is gone. As they die, the elastic *tone* of the muscles—which they maintain—progressively declines. When the diaphragm has in this way lost all its tone the lungs contract by their own elasticity; they pull the diaphragm right up and become deflated (as in the warm cadaver). At this stage (1) Schäfer's method has become impotent because the elastic recoil of the diaphragm (for inspiration) has gone; (2) Silvester's method will still produce some ventilation owing to elasticity in the thorax independent of its pectoral muscles; (3) the rocking method will effectively shift the flaccid diaphragm up and down independently of tone, and hence should save cases in which loss of tone had gone too far for the Schäfer method to revive.

Circulation.—The heart muscle itself does not die quickly, for after drowning it can be revived by perfusion with oxygenated saline solution—a baby's heart after several hours. The diagram shows how well the head-down tilt perfuses the coronaries. But in shock (hypotonia of muscles) the heart may also fail from mere emptiness because insufficient venous blood gets back to it through veins and capillaries unsupported by tone of muscles. Hence in drowning cases (always shocked) it is important to encourage venous return, as by the compression of abdominal veins which occurs in Schäfer's method or, far more potently, by the rocking method—as already explained. To fill the heart and respiratory centres with blood a head-down slope of about 10 degrees (1 in 6) should be chosen (as on a beach) for manual resuscitation when possible. To fill an empty heart is a quick way to restart it beating. When you tilt steeply to empty out water you incidentally fill the heart and change the coronary blood.

Warmth.—This is indispensable in shock treatment generally—e.g., by hot-water bottles and blankets; also by impervious coverings, to prevent heat loss from evaporation and cold winds. Nerve cells are paralysed by cooling but revive at once on re-warming. With a crippled circulation the indispensable nerve cells in the upper spinal cord will quickly cool and their blood vessels constrict. Hence it may prove very important to warm the back of the neck by a rubber bag early in the resuscitation.

Finally, transcending all else, it is essential to start Schäfer's method instantly: if ventilation (checked at the mouth) is satisfactory, persevere; if not, try Silvester plus expiratory pressure on the upper abdomen, or, better, proceed to rocking if available.

Confronted with so many lamentable failures of Schäfer's method our Naval medical officers seem entirely justified in advising for preference the rocking method, which is now included in BR 25/43, "First Aid in the Royal Navy."

Explanation of the Diagram

Since gravity in rocking affects only the longitudinal components of the blood vessels they may be represented as straight tubes. For clarity, the vessels of the arms (extended on the stretcher handles) and head are omitted: they are similar to the legs. Natural circulation is assumed to have stopped. The piston of this air-pump is formed by the weight of the abdominal viscera (capped by the flaccid diaphragm) sliding up and down. The patient is prone on the rocking stretcher.

When *head-down,* venous blood from the legs and abdomen falls past the right heart into the lung capillaries—reflux prevented by valves in the right heart and leg veins. Veins in the head and extended arms fill. The right heart fills (which may restart it). The aortic valves are banged shut by a pressure of 2 to 3 feet of blood: hence blood is forced into the coronary arteries and joins the stream flowing from the right heart into the lungs (course indicated by the dotted line C).

When *feet-down,* the venous blood which has just been oxygenated in the lungs cannot flow back into the right heart or into the legs (valves closed), but is free to flow past the open aortic valves into the leg capillaries. Blood from head and extended arms refills the right heart.

Thus analysed, slow rocking appears able to aid, or even to maintain unaided, both circulations in the drowned—including the all-important coronary circulation. Silvester's method—unless the epigastrium is compressed—seems to be ineffective on the circulation: Schäfer's method should push some abdominal blood into the lungs but perhaps no further.

My grateful thanks are due to Surg. Lieuts. G. H. Gibbens and D. de Launay, R.N.V.R., for their helpful collaboration and to Prof. R. Hemingway on the physiological side. Also to Mr. Akrill and the Beverley Division of the St. John Ambulance Brigade, and for the use of their hall for experiments.

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BLAST INJURY TO THE ABDOMEN BY DEPTH CHARGE

BY

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As little information has been published concerning the effects of blast injury to the abdomen the following cases are recorded in order to supply additional data. Under conditions of active service it is not possible to do justice even to the very scanty literature. However, it can be mentioned that, in Zuckerman's (1940) experiments on animals exposed to air blast, haemorrhagic pulmonary lesions were the chief feature, and that according to Hamilton Bailey (1942) blast injury to the abdomen may be followed by melaena. That author also states that, although laparotomy has been performed with negative findings on several occasions, rupture to the colon has been revealed by timely operation. Breden, d'Abreu, and King (1942) record a number of cases of abdominal blast injury from depth charge, and they refer to papers by Atkins (1940) and by Gordon-Taylor (1940). These records show that persons swimming in the water close enough to an exploding depth charge may suffer blast injury to the abdominal viscera, characterized by shock, haematemesis, melaena, and pyrexia; recovery may take place without surgical intervention; perforation of the gut may sometimes be successfully treated by surgical repair; many of these patients have died before conditions were suitable for careful study or surgical help. Associated blast injury to the lungs is common.

In December a naval vessel was torpedoed and sank rapidly. The crew took to the water and were swimming away from the ship when two depth charges exploded in quick succession. Some who had managed to clamber on to rafts escaped all injury; others who had swum further afield felt the shock but suffered no ill effect; while about 15 felt as if kicked in the stomach or pelvis and were sufficiently injured to be taken to hospital. Of these 15, five were seriously ill and form the subject of this report. The other ten did not appear ill and had no symptoms suggesting serious trauma to internal organs; they recovered uneventfully.

The history given by four of the seriously ill patients was very similar (the fifth was more or less unconscious owing to a head injury received on the ship): they were all swimming in the water with their heads out and supported by life-jackets. Three felt as if kicked in the stomach, the other in the back of the pelvis. After receiving the injury they were still able to swim until they were picked up. They were all seen in hospital within four hours of the event.

Case I

This patient had most of his chest out of the water when the depth charge exploded, for he was trying to lift himself on to a raft. He complained of increasing abdominal pain and had vomited blood, but he developed no pulmonary signs or symptoms.

Examination revealed board-like rigidity with considerable tenderness all over the abdomen, normal lungs, and no fractures or external injuries. His general condition seemed good; the pulse rate was 90 beats a minute and the pulse volume fair. The following day he still seemed fairly well, the haematemesis having stopped and the pulse rate and blood pressure remaining in the region of 90 and 110 respectively, but the board-like rigidity and tenderness of his abdomen had lessened very little. A radiograph of his lungs confirmed the fact that there was no pulmonary blast injury. On the third day it was decided to operate, as his general condition was deteriorating and the abdominal signs were not improving. He was given a pint of plasma before and a second pint during the operation. Laparotomy revealed perforation of the transverse colon with localized peritonitis and two small tears in the peritoneum of the floor of the pelvis. The perforation was repaired and a proximal colostomy tube inserted. The peritoneum was drained.

Rather unexpectedly the patient went steadily downhill, with signs of increasing circulatory collapse, despite repeated infusion of plasma, rectal saline, and fluid by mouth. He died on the fifth day. No necropsy was performed.

Case II

This patient gave the typical history and noted that there was no pain in his chest immediately after the explosion, but that within the next four hours pain around the lower thorax increased steadily. He vomited a good deal of blood and may have coughed up some also.

On examination he was found to be considerably shocked, with a pulse rate of 136 and a small pulse volume. There was board-like rigidity and marked tenderness over the whole of his abdomen, and, although it was thought he had ruptured some viscera, he was too ill for surgical intervention. Repeated infusion of blood plasma and continuous oxygen administration failed to improve his condition, and he died with signs of increasing shock in about 24 hours. No necropsy was performed.

Case III

The history in this case was similar to that of the others: after being withdrawn from the water the man felt increasing pain across the lower thorax and began to cough up blood; there was no haematemesis.

Examination revealed coarse rales over the left lower lobe, with diminished air entry and normal percussion note. There was moderate rigidity of the abdomen, but in less degree than in the previous two cases. The pulse rate was 100 beats a minute, with fair volume. The patient's general appearance was good and he did not look as if he had suffered serious intra-abdominal injury. When seen 24 hours later, however, his condition was worse, shock having increased and signs of injury to the bowel being more evident. There was board-like rigidity of the abdomen with considerable tenderness, but still no haematemesis; haemoptysis was less, but the pulmonary signs were more extensive.

After adequate resuscitation laparotomy was performed and seven perforations of the small intestine were found. The appearance of the gut suggested that many loops of small intestine were severely bruised at the point where they crossed the pelvic brim. There were localized areas of simple bruising, localized areas where bruising had progressed to gangrene, and seven places where a gangrenous section had perforated. In several areas loops of intestine obviously damaged had become stuck together and were not separated; fistulae could well have formed between these adjacent loops. There was widespread peritonitis. Repair was effected by sewing up the perforations and inverting the gangrenous areas that had not yet perforated. The peritoneum was drained, but jejunostomy was not carried out.

The subsequent course was steadily downhill, and was characterized by fever and extending signs of blast-lung, by increasing circulatory collapse—despite almost continuous intravenous infusion of blood and plasma—by complete paralysis of the gut, and by evidence of increasing peritonitis.

After a gallant but hopeless fight the patient died five days after the injury. Necropsy showed extensive haemorrhagic lesions in the lung, with secondary bronchopneumonia, widespread peritonitis, and gross distension of the gut, but no new perforations. A long section of the small intestine was gangrenous, possibly from mesenteric thrombosis following the injury, as no damage to the mesentery was found at the operation.

Case IV

This patient was the only one who received the shock of the explosion in the back of the pelvis, instead of in the stomach. After being dragged out of the water he complained not only of pelvic pain but of increasing raw bilateral lower thoracic pain; he then developed a painful cough with haemoptysis, and each time he coughed it was stated that red blood was forced from the rectum, but the amount was not noted. He tried repeatedly to pass water, but was unsuccessful for four hours, when a catheter was passed with difficulty and normal urine was withdrawn.

On examination he had obvious signs of blast-lung with widespread rales and diminished air entry over the right lower lobe. A radiograph of his chest confirmed the diagnosis and also revealed changes at the left base. In order to avoid further damage the rectum was not examined (what bleeding there was having stopped), nor were there further signs to suggest serious trouble here.

This patient differed from all the others in that his abdomen was soft and not tender. His general condition was good—the pulse rate 90 to 100, with fair volume. He received no special treatment, had no infusion of blood, plasma, or fluid, and made a steady and fairly rapid recovery, so that within 48 hours he was obviously out of danger.

Case V

This patient was unable to give an adequate history owing to the fact that he had received a head injury when the ship was torpedoed and was unconscious in the water when the depth charge exploded. When first seen he was extremely ill, with haemoptysis and physical signs of blast-lung, haematemesis, and board-like rigidity of his abdomen with extreme tenderness. His mental state was confused and drowsy, but there were no localizing signs in the C.N.S. He was badly shocked, and died within 48 hours. He was far too ill to stand surgical intervention. No necropsy was performed.

Commentary

It is not the purpose of this report to discuss the features of blast-lung; but attention is drawn to the fact that in the one patient (Case IV) who had a proved lung lesion the abdomen remained perfectly soft but without gut injury within the peritoneum. Bleeding from the rectum in this case may have been due to damaged haemorrhoids or to small tears in the bowel wall, and it will be remembered that it was this same patient who felt the shock in the back of the pelvis instead of in the abdomen. In contrast, Case I, in which there was a proved gut injury but no symptoms, signs, or radiographic evidence of blast-lung, had marked rigidity of the abdomen. In considering the management of these cases the significance of the abdominal rigidity was questioned, for it has been stated that blast-lung may produce such rigidity. These cases suggest that board-like rigidity of the abdomen should be regarded as evidence of perforation of the gut, and should not readily be put down to blast-lung.

All four patients who had gut injury died, which suggests a worse prognosis than that indicated in the literature described above. When first seen, and for 36 hours afterwards, the condition of two of them was deceptive in that they did not look severely shocked or as ill as one might expect in patients with perforation of the intestine: the facies of moderate well-being was completely unlike the aspect of the common abdominal catastrophe. The rigidity was much more pronounced than we had previously seen in any case of perforation of the intestinal tract; we had only once seen it equalled, and that in a man with rupturing dissecting aneurysm of the abdominal aorta.

That the general appearance was so good misled us to the extent that we were loath to accept perforation as the cause of the rigidity (recollecting what we had read in the Army Medical Bulletin No. 5 of the great rigidity encountered in cases of blast-lung), and the opinion was formed that the condition was due to blast-lung, with probable actual damage to the abdominal muscles. Even 24 hours later, when there was obvious deterioration in the condition of these patients and when operation was decided upon, one of our surgical colleagues remarked that he had not seen a patient with a perforated viscus of so many hours' standing with so good a facial aspect, and could not believe that such a catastrophe had occurred.

It is probable that these patients would have done better with immediate surgical intervention. On the other hand, the lesions found at laparotomy in Case III make it clear that perforation results from gangrene supervening on gross bruising, and that many patches of bruising do not lead to gangrene and perforation, so that too early laparotomy might defeat its purpose if perforation were to occur subsequently. However, the findings point to the necessity for exploration of the abdomen in cases of this type, and in future one would prefer to explore—even in the early hours—and find nothing more than bruising of the viscera, and would be prepared to operate a second time if a later perforation occurred.

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INTOLERANCE TO LIVER EXTRACT IN PERNICIOUS ANAEMIA

BY

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It is a matter of common experience in clinics devoted to the treatment of pernicious anaemia that a certain small proportion of patients treated with liver by the parenteral route in course of time become "sensitive" to the injections. In such cases treatment may successfully be carried on by the oral route; this method of administration of liver extract is, however, extremely wasteful, and the Ministry of Health has made an Order, dated May 21, 1941, under Regulation 55 of the Defence (General) Regulations, 1939, which lays it down that liver extracts shall not be administered otherwise than by injection. At the suggestion of Dr. S. C. Dyke, Director of the Pathological Department of the Royal Hospital, an inquiry has therefore been undertaken into the possibility of inducing patients who had become sensitive to liver to tolerate their requirement by parenteral injection.

Out of about 200 patients with pernicious anaemia attending the department over the past fifteen years 14 were known to have become intolerant to liver by parenteral injection. None of these gave any previous history of allergic manifestations, but in all cases the symptoms of intolerance were those usually associated with allergic hypersensitivity. These ranged from slight local manifestations at the site of injections, such as redness, induration, and itching, through all gradations up to severe constitutional reactions associated with generalized urticaria, vomiting, failure of vision, and attacks of typical spasmodic asthma. In some cases the symptoms were alarming, and necessitated the detention of the subjects in hospital; in the milder cases they responded readily to ephedrine by mouth, and in the more severe to adrenaline hypodermically. It was found that once sensitization had been established it extended to all brands and types of liver extracts; attempts to carry on treatment with preparations other than those responsible for the sensitization were uniformly unsuccessful. In some cases the allergy was only transient; in others it was persistent and had necessitated a change-over to administration by the oral route. Three cases of this latter type formed the subject of this investigation.

Treatment of Three Cases

Case 1.—Man aged 52. Under treatment for pernicious anaemia since May, 1939. Maintenance dosage, 4 c.cm. of liver extract parenterally every six weeks. In Oct., 1940, after the usual injection he developed generalized urticaria, with puffiness of the face and failure of vision; thereafter he was treated with liver extract orally, 1 oz. daily, until Dec., 1941, when it was decided to attempt desensitization. Intradermal tests with 0.1 c.cm. of two different brands of liver extract gave strongly positive skin reactions. The attempt at desensitization was begun with a dose of 0.1 c.cm. of liver extract, which was tolerated well; increments of 0.1 c.cm. were made at each successive dose, given every second day until a dose of 1 c.cm. was reached; thereafter an increment of 0.2 c.cm. was used. The patient attended every third day, and remained in hospital for two hours after each injection until he could tolerate 3 c.cm. of liver extract in one dose. This dose was increased by 0.5 c.cm. at two-weekly intervals until 4 c.cm. could be given in a single injection. The patient now tolerates this dose every four to five weeks, and on it a normal blood picture is maintained. On some occasions after this injection of 4 c.cm. of liver extract he complains of slight headache and shows some swelling of the forehead; this disappears on giving ephedrine. He is admitted to hospital for two hours for each monthly injection; probably it will be possible to dispense with this precaution in the future. The intradermal tests with liver extract are still strongly positive, though less so than before desensitization.

Case 2.—Woman aged 61. Under treatment for pernicious anaemia since May, 1939. On maintenance dose of 4 c.cm. of liver extract parenterally every two months until 1940. In March, 1940, she collapsed after her injection; the same thing happened again in May, 1940. Treated by liver extract orally, at first 1 oz. and later 2 oz. daily. This dose was not enough to maintain a normal blood picture, and in Sept., 1941, it was decided to attempt desensitization. Somewhat surprisingly, skin tests with liver extract gave negative results. For the next five months she was admitted to hospital for one day every four weeks and received her liver extract parenterally in divided doses, starting with 0.1 c.cm., with increments of 0.1 c.cm. every 20 minutes so long as no reaction occurred; on the occurrence of a reaction time was allowed for the symptoms to subside, when the previous dose was repeated. The reactions consisted of tachycardia, vomiting, and malaise; there were never any dermal manifestations. By Jan., 1942, the patient tolerated a dose of 2 c.cm. of liver extract in two injections of 1 c.cm. at an interval of one hour. At this time the state of the blood was not satisfactory, but an attempt to raise the total dose to 2.5 c.cm. resulted in severe collapse. In March, 1942, owing to the unsatisfactory state of the blood picture she was admitted to hospital. She then received 6 c.cm. of liver extract parenterally in divided doses over two days. After a single dose of 1 c.cm. she developed for the first time generalized urticaria, and intradermal tests with 0.1 c.cm. of liver extract were found to be strongly positive. In spite of this she now tolerated a dose of 0.5 c.cm. of liver extract, and a desensitizing course was started from this level with increments of 0.1 c.cm. daily up to a single dose of 1.5 c.cm. This injection, however, again gave rise to generalized urticaria, and had to be repeated the next day, when it was well tolerated. Desensitization was thereafter continued with increments of only 0.1 c.cm. up to a dose of 2 c.cm., and later of 0.5 c.cm. until 4 c.cm. was tolerated in one dose. A total of 34.5 c.cm. of liver extract was given in 21 days. The patient now receives 4 c.cm. of parenteral liver extract in a single dose every four weeks without disturbance.

Case 3.—Female aged 44. Under treatment for pernicious anaemia since Aug., 1940. Maintenance established on a dose of 2 c.cm. of liver extract parenterally every two months. In May, 1940, after her usual injection, she developed generalized urticaria and collapsed. On three more occasions she developed urticaria after her injection. In Jan., 1942, intradermal tests with 0.1 c.cm. of liver extract were strongly positive. This patient has been unable to spare the time for frequent attendances at the hospital, and in her case no serious attempt at desensitization has therefore been made. She attends every six weeks and receives her requirement of liver extract in divided doses, starting at 0.1 c.cm., with increments of 0.1 c.cm. at intervals of 20 minutes until the first signs of intolerance appear; these in this case are flushing of the face and a feeling of tightness of the throat, and usually appear after a single dose of 0.3 to 0.4 c.cm. She then goes home and returns on the following day, when we have found the injections to be well tolerated. Dosage is started at the level reached on the previous day and proceeds at increments of 0.2 c.cm. at 20-minute intervals. The full requirement of 4 c.cm. for six weeks is usually injected in two days.

In all our cases the symptoms of intolerance to liver injections appeared only after several months or years of parenteral treatment; the interval between the injections was at least six weeks, for the reason that no patients under maintenance treatment in this department receive their injections at shorter periods.

Discussion

In view of the facts there is every reason to suppose that the intolerance is an anaphylactoid phenomenon and due to "allergic" sensitization, the liver acting as an antigen. This is the usually accepted view (Criep, 1938; Jones, 1939). Our experience, using different brands and types of liver extract, would lead us to believe that none are free from bodies capable of this antigenic action. Various methods of desensitization have been suggested: splenic extract (Schlesinger, 1930); histamine (Corelli, 1935); "quotientin," which appears to be an empirical remedy alleged to contain hypophysial, parathyroid, and suprarenal extracts (Lasch, 1936); various preparations of calcium (Lasch, 1936; v. Herff, 1937; Gigante, 1939); liver powder orally in increasing dosage (Diena, 1938); and the parenteral injection of liver extract in divided and increasing dosage (Engel, 1933; Grün, 1933, 1934; Krantz, 1938). This last, in view of known facts as to sensitization and allergy, appears to be rational, and was therefore adopted in this investigation.

That negative skin tests do not exclude intolerance to liver extract is shown by Case 2, in which these were negative 18 months after the onset of symptoms and became positive only during the attempt at desensitization. Two methods may be adopted for the parenteral administration of liver extract to intolerant patients: lasting desensitization can be achieved by a course of liver injections in increasing doses over several weeks; alternatively, the required dose may be given in small injections, preferably over two days. The latter method does not increase the tolerance of the patient to future doses.

Summary

Three cases of pernicious anaemia are described in which the patient had become "sensitive" to the parenteral injection of liver extract.

Skin tests cannot be relied upon to indicate intolerance.

By the use of divided doses of liver extract over a period of several weeks it proved possible to desensitize two patients to the extent that they became able to tolerate their full requirement of liver extract in one injection at monthly intervals. In a third case the required dose is being given in small injections over two days without attempt at permanent desensitization.

My thanks are due to Dr S C. Dyke for access to records and advice, and to Sister Dora Martin for care and supervision of the patients while in the wards.

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Medical Memoranda

Irritation of the Urinary Tract by "Doped" Beer

On the afternoon of Oct. 6, 1942, two ratings reported sick on board, one with the clinical features of acute pyelitis and the other with those of acute anterior urethritis. Provisionally these were regarded as infections with *B. coli communis* and the gonococcus respectively, and in both cases treatment with sulphapyridine and alkalis was instituted. There appeared, however, to be something unusual about these cases. First, acute pyelitis is an uncommon condition in young men; and, secondly, the rating with urethritis had a temperature of 102° F, with only a very slight mucous discharge. This pointed to the possibility of some causative factor common to both, and on close questioning it transpired that these two men and a companion had on the previous afternoon visited a brothel when the ship had put into port for a few hours. There they had had some beer, which, though it tasted normal, probably contained an aphrodisiac of the nature of cantharides, which had acted as a violent irritant of the urinary tract. It is known that for business purposes the proprietors of brothels do "dope" their drinks in this way, and naval personnel are advised never to quench their thirst at such places.

The third rating in the party complained of no symptoms whatever, and subsequent microscopical examination of his urine revealed no evidence that he had been affected. The stories of all three, however, combined to make it clear that he had drunk much less beer than his two companions, and that the one with pyelitis had had considerably more than the one with urethritis. There was thus a fairly close correlation between the amount of suspected beer consumed and the severity of the subsequent symptoms.

Case Records

Case 1.—Able Seaman "X," aged 22, reported sick on Oct 6, 1942, complaining of severe pain in the penis at the end of micturition during the past few hours; he was passing water about every half-hour with some urgency. Aching pain was also felt across the loins, spreading down the back of the thighs into the calves. Frontal headache and nausea were present. He had never had a similar attack in the past nor any other urinary trouble. Examination showed: temperature 103° F.; tongue furred; tenderness in both loins and over the pubes; neither kidney palpable. The urine was cloudy, with a naked-eye deposit of pus on being left to stand (Microscopy was not possible until two days later.) Progress was as follows: Oct. 7: Restless the previous night and vomited four times. Morning and evening temperatures 99.2° and 98.4° F. respectively. Frequency becoming less. Oct. 8: Pain now present during whole act of micturition. Nausea and generalized abdominal discomfort. Tender in both renal angles. B.P. 110/80. Urine clear to naked-eye inspection, but many pus cells and an occasional red cell seen on microscopy; no casts or organisms seen. Oct. 9: All symptoms diminished, but back still weak. Developing herpes labialis. Some pus cells and an occasional red cell present in urine. Oct. 14: Return of pain in the back and painful micturition. Temperature up to 101° F. Tender in loins, above Poupart's ligaments, and over pubes. Many more pus cells present in urine. Oct. 22: Patient completely recovered; symptomless; no pus cells visible even in a centrifuged specimen.

Case 2.—Able Seaman "Y," aged 24, reported sick on Oct. 6, 1942, complaining of pain in the penis on micturition during the past few hours; pain worse at the end of the act; a little frequency but no urgency. Intercourse the previous afternoon and five days before. No history of similar trouble or of venereal disease in the past. Examination revealed a temperature of 102° F. and very slight mucous discharge from urethra. (A smear taken before starting treatment with sulphapyridine was subsequently shown to contain a very few pus and epithelial cells only—no gonococci.) Progress was as follows: Oct. 7: Passed water four times the previous night; complaining of nausea and dizziness; temperature normal all day. Oct. 8: Appetite returning; pain during micturition still present; no urethral discharge. Many pus cells seen in urine on microscopy. Oct. 9: Urine contained a few pus cells. Oct. 11: Feeling well; symptomless; only a very occasional pus cell seen in urine.

Comment

One case each of acute pyelitis and acute anterior urethritis are described, both suspected of being due to an aphrodisiac taken in beer consumed at a brothel. Unfortunately there has so far been no opportunity for making further inquiries concerning the nature of the suspected "dope."

Between them these two cases present an interesting study of the symptoms produced by irritation of the urinary tract from renal pelvis to anterior urethra, and it is regretted that, owing to the difficulties of practising medicine on board a destroyer, it was not possible to investigate them in further detail.

G. A. Ballance, M.B., B.Chir.,
Surg. Lieut., R N V R.

Influenzal Meningitis in a Child aged 2 treated with Sulphapyridine: Recovery

The following case is of interest as an example of the successful treatment of influenzal meningitis with sulphapyridine. A similar case has recently been reported by Birch in a child aged 3.

Case History

The patient, a boy aged 2, was admitted to hospital on Dec. 11, 1942, with a week's history of a running nose and general malaise. Two days before admission he had a convulsion and became drowsy, and this was followed in a few hours by the onset of diarrhoea and vomiting, with constant twitching and rolling of the eyes. He had a past history of recurrent otitis media of the right ear, and measles five weeks before admission. He was the youngest of a family of four, the others being healthy.

When first seen he had a temperature of 100.4° and was drowsy and confused, with marked neck stiffness and a positive Kernig's sign. The right ear-drum was pink and opaque; the left one was normal. Lumbar puncture was performed, and the cerebrospinal fluid on the second day of illness was turbid and under increased pressure. It contained 2,740 cells per c mm—85% polymorphs—protein 190 mg. per 100 c cm, and chlorides 755 mg. per 100 c.cm.; sugar was present Sulphapyridine was started, with an initial dose of 1 g. followed by 0.5 g. four-hourly. The following day the child was still vomiting, and an intravenous infusion of 5% glucose in normal saline was given. He was very restless, and the temperature was still raised, but the right drum was no longer injected. The C.S.F. had grown a pure culture of a Gram-negative haemophilic organism, subsequently identified as *H. influenzae* on its requirement of both X and V factors. On the third day the child was very much improved; the temperature had fallen, and the saline infusion was stopped. Sulphapyridine was given in a reduced dose for a further five days, making eight days in all and a total of 17 g. On the tenth day the C.S F. was sterile, and contained only 35 cells per c.mm., of which 80% were lymphocytes.

The temperature continued to fluctuate between 97° and 100° for three weeks, but the child was apparently well and had no physical signs. He was discharged on January 15, 1943, when he had been afebrile for a fortnight.

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Reviews

WAR SURGERY

The Principles and Practice of War Surgery. With Special Reference to the Biological Method of Treatment of Wounds and Fractures. By J. Trueta, M.D. (Pp. 391; illustrated. 42s.) London: Hamish Hamilton Medical Books, in conjunction with William Heinemann. 1943.

Osler was wont to remind us that by the historical method alone can many problems in medicine be approached profitably, and the author of this book has made full use of such an approach to the problems relating to the treatment of war wounds. Through the practice of the great master surgeons of the past he traces for us how "the right philosophical basis produced the right technique."

The subtitle to the book is a happy one because its author's methods of treatment, by assisting natural repair as they do, may well be described as biological in character. How often in the past have misdirected surgical efforts retarded rather than assisted recovery! Dr. Trueta traces the surgery of war wounds from earliest times, from the days of early amputation of compound fractures to the beginning of the period of conservatism initiated by James Syme and William Fergusson, who in 1842 wrote: "It is a grand thing when by prescience even the tip of a finger can be saved." The author pays due tribute to his predecessors, including Winnett Orr, who instituted the methods which he has developed and which are here set forth in detail. While remembering that Winnett Orr, and possibly others also, may have been the originators of these methods, we do well to bear in mind an observation of Sydney Smith's, that "it is not the man who first says a thing, but it is he who says it so long, so loudly and so clearly, that he compels men to hear him; it is to him that the credit belongs." This applies very forcibly to Dr. Trueta, who has so clamorously and emphatically propounded these methods of early wound excision, drainage, and plaster fixation which are now becoming so widely known and practised so effectively, and with such good results, that the amount of suffering and the mortality from complications of wounds inflicted in this war have already been considerably less than they were in those of the last and so-called Great War of 1914-18. In the Spanish War he taught us that first aid for wounds should be avoided wherever possible, that the first intervention should be the main intervention, and wounds should be dressed as little as possible. He here describes what he calls his "five-point programme," consisting of (1) prompt surgical treatment; (2) cleansing of the wound; (3) excision of the wound; (4) provision of drainage; and (5) immobilization in a plaster-of-Paris cast. The methods of putting into operation the steps of this programme are illustrated by photographs of patients undergoing treatment. This five-point programme, with the details of how it can be carried out, constitutes the second and perhaps chief part of the present monograph: the former part is concerned with the pathology of wounds and the treatment of the wounded patient; and here we find very valuable discussions of such questions as infection, gas gangrene, tetanus, and shock.

The book is admirably printed in clear type, with excellent illustrations, and contains a comprehensive bibliography, and if its price appears high its quality is surprising for wartime and would appear to merit it. We venture to prophesy that it will become a classic of which most surgeons will want to possess a first edition. It is, perhaps, the most important monograph the war has so far produced. Embodying those correct biological principles which, as its author tells us, have been upheld by those men "who, believing in the benevolence of a Divine purpose, regarded themselves as its humble instruments," it marks another important transition period in surgical practice.

PAEDIATRIC GYNAECOLOGY

Pediatric Gynecology. By Goodrich C. Schauffler, M.D. (Pp. 384. $5.00 or 27s. 6d.) Chicago: The Year Book Publishers, Inc.; London: H. K. Lewis and Co. 1942.

This is a most interesting book, but it is more: it is a most useful one which should have a wide appeal. The everyday problems of the child with vaginal discharge, enuresis, pubertal bleeding, and pyelitis are but a few which the harassed physician is apt to treat indifferently and ineffectively for want of adequate direction and encouragement. Eighteen years ago Schauffler was faced with his first case of gonococcal vaginitis in a child of 3. After searching the textbooks and the literature for help he realized that this was not easy to find. Through the years that followed he made a careful and detached study of the female in infancy, childhood, and adolescence. Sixteen years of wide experience provided an excellent background and ample material from which to write a book devoted entirely to paediatric gynaecology.

The book is a comprehensive one. It opens with a concise review of the psychological factors so important to the successful handling of these cases. The technique of examination is then discussed in some detail, with due emphasis on points of practical importance, and a careful and well-illustrated account is given of the anatomy of the external genitalia, the vagina, and the cervix. The subjects of masturbation, vaginitis, and foreign bodies in the vagina are well handled in these same chapters. A comprehensive study follows of the menarche and those disorders of adolescence such as menorrhagia, metrorrhagia, and dysmenorrhoea. Pelvic viscera and pelvic peritonitis are the subjects of a separate chapter. A few pages are devoted to the consideration of pre-operative preparation, general principles of operative technique, and post-operative care, and these are followed by two excellent chapters dealing with lesions of the urinary tract and the lower bowel. The book concludes with a helpful discussion of social service and medico-legal problems.

The author is to be congratulated on his pioneer work and on the book he has written. It will be an excellent guide to all who are interested in this most important aspect of medical practice.

BOOKLETS ON FIRST AID

Air Raid First Aid. By W. A. Ashford, with foreword by W. A. Muir, M.D., D.P.H. (Pp. 46. 1s. 6d.) London: Williams and Norgate. 1942.

Emergency Street First Aid for Air-Raid Casualties. By Rufus Harris, M.R.C.S., L.R.C.P., First Aid Commandant, Exeter City Casualties Service. (Pp. 51.) Exeter: A. Wheaton and Co.

Of the making of "first-aid" books and booklets there appears to be no end. Each one has its merits, but each has its demerits. Notices of two which appeared in the first half of 1942 are given here.

Air Raid First Aid, by W. A. Ashford, is convenient for the pocket, written by a non-medical man, and commended by a medical officer of health. Its object is to present details of "reduced" treatment to be carried out at an incident. Taken as a whole it is clear, concise, dogmatic, and full of excellent suggestions and practical points. The question of "priority" in the treatment of casualties at a bombed site is answered well. It is perhaps a pity that "Bleeding, external," is separated from "Bleeding, internal," by a full chapter on wounds. By a few quotations it is not intended to disparage the contents but help towards improvement. Asphyxia in itself is not "want of fresh air"; it is the result of such a deprivation. Apropos of this a remarkable statement appears on page 45, amid some interesting "Odds and Ends." "Asphyxia. If you can't get a patient into the fresh air, take fresh air to the patient. A garden hose will do"! Fractures should be styled "closed" and "open," not "simple" and "compound." One thumb correctly applied in cases of arterial bleeding is sufficient; thumbs, or fingers, in the duplicate are not needed. The statement "Remember, a tourniquet is only required when a main artery is known to be severed," is not true; an artery may bleed furiously when only partially cut across. It is asserted on page 24 that the sympathetic nerves control the diaphragm and respiratory muscles, but neither anatomy nor physiology bears this out. A perusal of the booklet will repay the cost.

Emergency Street First Aid for Air-Raid Casualties, by Dr. Rufus Harris, has 51 pages and many diagrams. Not much perhaps new in this booklet, but the old clearly put. Some interesting details are given as to the correct position for a casualty on a stretcher. Attention is drawn to the fact that continued oozing of blood may lead to serious consequences if not discovered and dealt with. Good general rules for the first-aid treatment of fractures are given, but again the words "simple" and "compound" are wrongly used. In capitals on page 8 occur the words "GIVE NO STIMULANT" followed by no idea as to whether this means "Give no alcohol" or "No stimulants are ever suitable to be given." Alcohol is not a "stimulant," but "hot tea" is. No remark is made as to the value of morphine in the relief of pain in burns and scalds. Taken with the extant textbooks this work forms a useful adjunct.

Notes on Books

The series "Britain in Pictures," in which *British Rebels and Reformers* appears, has won for itself a special position which this volume well maintains by its 8 beautiful colour plates and other drawings (William Collins; 4s. 6d.). As might be expected, the versatile Dr. HARRY ROBERTS is quite at home with his subject. He evidently believes with Jefferson that "a little rebellion now and then is a good thing." His good but necessarily rapid survey of the conditions which produced some of our national political and social rebels and reformers supports his statement that our history shows that it is love of justice rather than of riches, rather even than of liberty, that stirs the average Englishman to action. Dr. Roberts distinguishes between the rebel whose only weapon was revolt and the reformer who was able to use constitutional means of redress. Sympathetic as he is by temperament to the rebel, he does not fail to point out that responsibilities follow as a necessary consequence of power—a point that many of the rebels overlooked. He also shows that most of the rebellions and nearly all the reforms in this country have been backed by individuals who were not personally affected by the grievances they sought to remedy—Florence Nightingale and Lord Shaftesbury are good examples. There is nothing specifically medical in this book, but, as the author says, every Englishman should be interested in the things it deals with, for "politics, ultimately, is concerned, not with States and abstract policy, but with men and women who are born, see visions, fall in love and die"—a doctrine which is not without its implications in these days when "planning" is the fashionable cure-all and the individual runs a risk of being overlooked.

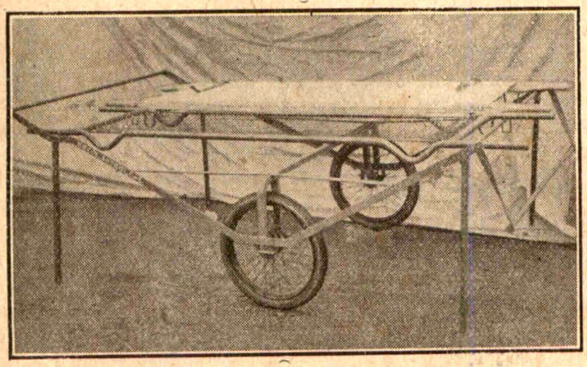
Preparations and Appliances

A WHEELED STRETCHER OR EQUIPMENT CARRIER

Dr. K. VERNON BAILEY, M.R.C.P., writes:

The stretcher carrier described below was primarily evolved to deal with Home Guard casualties and is based largely upon Home Guard needs, but it obviously would be of great value also for service with the Regular infantry and R.A.M.C. forces.

The main disadvantages of the hand-carried stretcher are: (1) its limitations over a long distance; frequent rests for the bearers become necessary and the slow and uneven progress detracts from the patient's prospects; (2) its extravagant demand on personnel; a heavy casualty may require four men to transport the loaded stretcher a matter of 300 yards, at the end of which time the bearers are temporarily exhausted. Moreover, in open contact with the enemy it is not always to be expected that casualty collecting points will be within convenient hand-carrying distance from forward positions; those that are may, during an engagement, either become further removed by the advance of these positions or be put out of action altogether. Further, motorized ambulance transports may not be able always to approach directly to the position of forward collecting points to complete the evacuation. Too great a reliability is placed on their being able to do this in the organization of Home Guard defence and too little consideration given to the following facts: (1) the number of casualty collecting points is large (on a platoon basis); (2) their exact positions may be difficult to find; (3) the number of motor ambulances is limited; (4) motor ambulances themselves require either roads or a relatively smooth surface over which to travel; and (5) the forward area to a depth of a mile or more is under fire.



An area some one to three miles in depth behind the line of contact with the enemy is likely to be embarrassed in the matter of communication, congested so far as road traffic is concerned, and continually subjected to the effects of the action in progress. Under these conditions it is essential that casualties of the first priority should be evacuated immediately to a position of relative safety, where they can receive adequate temporary treatment, or from which they can be transported to a hospital or clearing station. The best method of doing this is to use a special hand-propelled wheeled stretcher carrier. The most efficient and economical type of such carrier is one which is light to handle, easy to transport when unloaded, strong enough to take the weight of two loaded stretchers, and can be loaded and propelled by two bearers.

Suggested Design for Metal Carrier

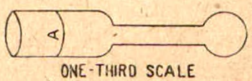
A light carrier has been made to this design by Lieut.-Col. Crooke, commanding 49 Lancs H.G. The technical description is as follows. The framework is so constructed of metal sections that it is flexible in itself; it is mounted on 8 coil springs, each supporting a load of 50 lb., transferring the load to the road wheels fitted with 20 in. by 2 in. by 1¾ in. pneumatic tyres which can be inflated by a cycle pump. There is a fixed handle-bar at one end for control, and a folding handle-bar at the other end for traction. Four supports are provided, one at each corner held in a folded position with a link and readily manipulated. The axle is arranged to give the maximum ground clearance. The wheels can be removed in the same manner as a cycle wheel. The general service and civil defence stretchers can be used. The carrier is painted with anti-gas paint and weighs 100 lb.

The springing minimizes all jolts or jarring during transport, and the carrier can be dismantled for transportation by simply dropping it out of the wheels, which are packed separately. It is quickly and simply loaded by placing the stretcher on the two transverse cross-bars, which fit accurately against their runners, and it is easily controlled by two men. The corner stands are quickly released to steady the carrier for loading or in an emergency, and are rapidly secured again in place. It is important to place the stretchers with the heads of the patients at the pulling-end of the carrier; this has the effect of weighing down the pulling-end and thus enabling the bearer at the pushing-end to lean on the bar and so exert easy pressure. The carrier loaded with two stretchers, each bearing a patient weighing approximately 11½ st., plus their full equipment, including great-coats, blankets, etc., was transported over a distance of two miles (mostly uphill and including a 200-yard hill of 1 in 6 gradient) in under 30 minutes without undue hurry, exertion, or fatigue. Barriers which could not be surmounted by a motor ambulance were negotiated by unloading the carrier, transporting the loaded stretchers and carrier separately by hand, and reloading on the other side.

CENTRIFUGE TUBE FOR COLLECTION OF LEUCOCYTES

Dr. M. A. GOHAR, Ph.D., M.R.C.P., writes from the Faculty of Medicine, Cairo:

For the preparation of a leucocyte suspension, one of the usual procedures is to centrifuge citrated blood in an ordinary centrifuge tube and to collect the greyish layer that floats on the surface of the red blood corpuscles. This, however, is not always easy since the film is so thin that, when taken, one usually finds that the great majority of the cells are red blood corpuscles and that the leucocytes are rather scanty. The cause of this difficulty is that the film collects on a big surface. If this area could be made smaller, the thickness of the film would obviously be increased and the leucocytes would therefore be much easier to collect. This led me to suggest the use of a centrifuge tube having the shape illustrated in the figure. It is needless to say that it should be made from the strong glass from which centrifuge tubes are usually made. It has actually been made locally to my satisfaction in the glass factory of Messrs. Sayed Yasin and Co., Cairo.



ONE-THIRD SCALE

The tube is filled with citrated blood up to the mark A and centrifuged. The upper level of the corpuscles falls in the narrower part of the tube. Since the surface area here is small the film of leucocytes on the top of the red blood corpuscles is relatively thick and is easier to collect than a film in a wide ordinary centrifuge tube with a wide surface area.

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MEDICAL APPLICATIONS OF THE CYCLOTRON

Popular interest in the cyclotron has been stimulated by its description as an "atom-smasher," but a more accurate name for its effects would be "nuclear transformation."[1] With the discovery of radio-activity the existence of natural transmutation of atoms was demonstrated, and the first artificial transmutation (of nitrogen into oxygen) performed by Rutherford in 1919 directed attention to the means of energizing particles to such a degree as would enable them to penetrate the nuclear barrier. While the methods of attaining very high voltages in order to give a particle high energy by a single big push made steady progress, J. H. Lawrence experimented with the idea of using much lower voltages tuned to give the particle a series of pushes. Thus the cyclotron emerged—an apparatus in which the particle is kept moving in a circular path by a magnetic field and intermittently accelerated by an electrical field. The particles move inside two hollow semicircular electrodes placed between the poles of an electromagnet, and are accelerated by an oscillating potential applied to the electrodes every time they cross the central gap between them. The angular velocity of the particle produced by the magnetic field is constant, but the successive accelerations of its linear velocity produced by the electrical field cause it to move in an ever-widening flat spiral. Its ultimate energy is thus limited only by the diameter of the hollow electrodes. Lawrence's early model was 11 in. in diameter, and produced protons with an energy of 1.25 million electron-volts (mev.). Then came a 27-in. cyclotron with an 80-ton magnet, subsequently increased to 37 in., and giving particles with 8 mev. energy. The discovery of the neutron by Chadwick in 1932 and the isolation of heavy hydrogen by Urey in the same year greatly facilitated atomic transformations, for, whereas the proton ${}_1H^1$ has to overcome the repulsion exerted by the positively charged nucleus of the atom, the neutron of the deuteron particle ${}_1H^2$ meets with no such opposition. (The superscription refers to the mass of the atom and the subscription to its charge: thus the deuteron ${}_1H^2$ has a mass of 2 and a single positive charge.)

Atomic transformations result in excited atoms which emit energy in various forms—that is, artificial radioactivity is produced. For example, a proton captured by a lithium nucleus results in an unstable beryllium nucleus, which splits into two α-particles (or helium nuclei) with an energy of 8.5 mev.: ${}_1H^1+{}_3Li^7\rightarrow{}_4Be^8\rightarrow 2\,{}_2He^4$. The neutron of a high-speed deuteron may be captured by a phosphorus nucleus, and the radio-active phosphorus then emits a β-particle (or electron) with 1.7 mev. energy and becomes sulphur: ${}_1H^2+{}_{15}P^{31}\rightarrow{}_1H^1+{}_{15}P^{32}\rightarrow{}_{16}S^{32}+{}_{-1}e^0$. Or the whole deuteron may enter a beryllium nucleus, yielding a very unstable boron nucleus, which at once emits a neutron of very high energy, 21 mev.: ${}_1H^2+{}_4Be^9\rightarrow{}_5B^{11}\rightarrow{}_5B^{10}+{}_0n^1$. Thirteen types of nuclear reaction have been observed, and radio-active isotopes of every known element have been produced. With the 37-in. cyclotron, however, the yields of artificially radioactive elements were small, and in 1939 a 60-in. cyclotron with a 200-ton magnet was completed specifically for medical application. Producing particles with 16 mev. energy, its yield of radio-active elements is some five times that of the 37-in. cyclotron. A giant 184-in. is now nearing completion, with a magnet weighing 4,000 tons; it will produce deuterons with an energy of 100 mev., giving thirty-five times the yield of radio-active substances from the 60-in. "medical" cyclotron. But more than a greatly increased yield is expected from this giant cyclotron: the energy of its particles will approximate to that observed in cosmic ray phenomena, so that new atomic processes are likely to happen. When mass disappears, energy appears in its place: according to Einstein's theory, the energy released is equal to the mass multiplied by the square of the velocity of light—i.e., 9×10^{20}—and this relationship has been verified for the proton–lithium reaction producing two high-speed α-particles. The hundred-million-volt cyclotron will certainly be used for investigating the possibilities of atomic power.

The three major fields of biological study developed about the cyclotron have been surveyed by Hodges,[2] and formed the subject of a symposium at a meeting of the Radiological Society of North America.[3] First, there is the use of a radio-active element to trace the absorption, utilization, and excretion of its stable isotope by the body in both health and disease.[4] Secondly, there is the therapeutic effect of the radiations emitted by radio-active substances internally administered. Thirdly, beams of both fast and slow neutrons are being used in the treatment of cancer in a manner similar to *x* rays and γ rays in external radiation therapy.[5] Metabolic studies by the classical methods of chemistry and physics need relatively large quantities of the elements to be investigated; these disturb the normal balance of such elements in the body, and the methods employed cannot differentiate between what has been administered and what was already in the body. The radio-active tracer substance reveals the metabolism of an element with a sensitivity several million times greater than that shown by chemical methods, by the measurement of the radio-activity of organs and tissues either *in situ* or in samples of tissues after removal from the body. In the latter case, also, an autoradiograph of a thin slice of tissue can be directly compared with the stained histological preparation. For example,[6] this method has shown that iodine is taken up in larger amounts by hyperplastic thyroid cells than by the normal cells, but that it is not taken up at all by cancerous thyroid cells. Thus, while radio-active iodine may be of value in the treatment of thyrotoxicosis, it is unlikely to help in the destruction of malignant disease of the thyroid. The rapidity of the metabolic processes of the body is well illustrated by the fact that within four hours of administration over nine-tenths of the radio-active iodine has been combined into the organic compounds thyroxine and di-iodotyrosine. Incidental to the researches on iodine metabolism, the missing element 85, belonging to the halogen series and not yet found in Nature, has been artificially produced and found to be radio-active. Its halogen nature was confirmed by its selective absorption by the thyroid gland, though to an extent only about one-third of that of iodine.

Only weak activities of radio-active calcium have been available, but radio-active strontium can be readily prepared in large amounts and emits energetic β rays, and has the useful half-life period of 55 days. It is selectively deposited in actively growing bone, including bone tumours, so that it is likely to have therapeutic applications in adults suffering from osteogenic sarcoma; the possibility of destroying early pulmonary metastases at once presents itself. The use of radio-active carbon has upset two accepted theories—of the photosynthesis of carbohydrates by green plants and of the manufacture of glycogen in the liver from lactic acid. Ruben and Kamen[7] have shown that the initial reaction involving each assimilated carbon dioxide molecule is its reduction to a carboxylic acid group, and that this is a non-photochemical reaction. Hastings administered lactic acid containing radio-active carbon atoms, but none of these labelled carbon atoms could be detected in the liver glycogen; when sodium carbonate was used as the vehicle for the radio-active carbon, all the labelled carbon was recovered from subsequently elaborated glycogen. These examples are sufficient to illustrate Hamilton's conclusion that, while the classical procedures of chemistry and physics yield a static picture of biochemical processes, the radio-active tracers reveal the dynamic pattern of the chemical integrations taking place in the living cell.

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[1] Aebersold, P. C., *Radiology*, 1942, **39**, 513.

[2] *Radiology*, 1942, **39**, 440.

[3] Ibid., p. 513.

[4] *British Medical Journal*, 1941, **1**, 368; **2**, 733.

[5] Ibid., 1941, **1**, 447; 1943, **1**, 481

[6] Hamilton, J. G., *Radiology*, 1942, **39**, 541.

Some instances of the practical application of this new physical knowledge have already been given. Naturally the possibility of applying radiation selectively to malignant cells is one that has aroused the most intense interest. Radio-active phosphorus is selectively accumulated in the nuclei of rapidly multiplying cells, and the results of its therapeutic use in 222 patients with leukaemia and allied diseases are reported by Low-Beer, Lawrence, and Stone.[8] Trials of different methods of dosage suggest that the best results follow intravenous injection of small weekly doses sufficient to maintain a radio-active level of from 3 to 8 millicuries. The clinical results in polycythaemia vera and multiple myeloma are much better than from any other known treatment; in leukaemia they are at least as good as from *x*-ray therapy; but in Hodgkin's disease they are disappointing—a combination of deep *x*-ray therapy and radio-active phosphorus is now being tried. The results in 22 cases of lymphosarcoma reported by Kenney and Craver are also rather disappointing, in that the response of the disease to radio-active phosphorus ran parallel to that to *x*-ray therapy, so that where *x* rays had failed to control the disease P^{32} also failed. A valuable report by Stone and Larkin[9] on radiotherapy by fast neutrons establishes the degree of dermal, mucosal, and general reactions to be expected from given doses. Curative results were not anticipated, as the 120 patients so far treated were chosen because of their unsuitability for treatment by surgery, radium, or *x* rays. The neutron beam was produced in the 60-in. cyclotron by the bombardment of a beryllium target with 16 mev. deuterons, giving neutrons with energies up to 21 mev. and γ rays; after passage through 3 cm. Pb the beam comprises 95% neutrons and 5% γ rays. There is no significant scatter, so that the "air-dose" and the "skin-dose" are the same; the depth dose at 10 cm. for a 10×10 cm. field is 40% of the surface dose. At the end of treatment about 17% of the patients showed complete regression and 48% partial regression of the tumour; perhaps the most encouraging observation was that epitheliomatous metastases in the lymph glands of the neck responded better than the primary tumour; while on the debit side was the persistence of ulceration at the site of the primary tumour, even though biopsy from the margin of the ulcer showed no evidence of cancer. It looks as if the intensity of ionization in the tissues is such as to destroy impartially both the cancer cells and the stroma, but different combinations of the dose, time, and intensity factors will require trial before the place of fast neutrons in the radiotherapy of cancer can be assessed.

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[7] *J. Amer. chem. Soc.*, 1940, **62**, 3443.
[8] *Radiology*, 1942, **39**, 573.
[9] Ibid, p 608.

THE CAUSE OF MYASTHENIA GRAVIS

Recent advances in physiological knowledge have seldom been applied to the study of disease so readily as in the case of the chemical factors subserving transmission of nervous impulse at the myoneural junction. As each step in knowledge in this field has been made it has been applied to diseases thought to be caused by disorders at the myoneural junction, of which myasthenia gravis is the outstanding example. In an orderly series of papers from the Johns Hopkins Hospital[1 2 3 4] Harvey and his colleagues have continued to study the mechanism of the transmission of impulse from nerve to muscle in man by the investigation of normal and abnormal subjects. They point out that the evidence that the disorder in myasthenia gravis is at the myoneural junction is overwhelming, and postulate three possible forms which this abnormality may assume. First, there may be an excessive concentration of cholinesterase, which by hydrolysing the released acetylcholine prevents the sustained transmission of nervous impulse and consequently muscular contraction. Secondly, the excitatory threshold of the muscle end-plate to the normal quantity of acetylcholine released by each nerve impulse reaching the neuromuscular junction might be raised. Thirdly, each impulse reaching the neuromuscular junction might fail to release a normal amount of the transmitting agent, causing in effect a physiological denervation. Harvey and his co-workers show that, whereas in normals intra-arterial injection of prostigmine caused a diminution of the contraction of striped muscle, it causes an increase in myasthenic subjects. When a retaining cuff is released the effect spreads from the muscles nourished by the artery to muscles elsewhere in the body. When acetylcholine is injected into an artery of a normal subject who has received prostigmine previously, there are flushing and sweating of the distal extremity, with immediate deep pain and weakness of muscles, followed by fibrillation. This, as they explain earlier, is due to the paralysing effect of too great a concentration of acetylcholine at the junction, made possible in normal people by the presence of prostigmine, which inhibits the destruction of the acetylcholine by the cholinesterase normally in the blood stream. In myasthenics, on the other hand, although flushing, sweating, and pain are present as in normal persons, violent muscular contractions, going on to spasm similar to the carpopedal spasm of tetany, occur in place of the muscular weakness seen in normal subjects. These contractions are much more powerful than would be possible with purely voluntary contraction of the muscles. In the myasthenic, also, the rapid, flickering asynchronous fasciculations which they observed in the normal subjects were not encountered.

The authors proceed to list the many points of resemblance between myasthenia gravis and partial curarization, but they go on to show that, whereas the myasthenic muscle is exquisitely sensitive to acetylcholine, the partly curarized muscle is much less sensitive to it than is normal muscle. The great sensitivity of completely denervated muscle to injected acetylcholine is well known,[5] and the similarity between the physiological behaviour of denervated and of myasthenic muscle when exposed to the substances modifying transmission at the myoneural junction is close. Harvey and his colleagues conclude that the evidence they present supports the view that in myasthenia gravis there is a reduction in the amount of acetylcholine released at the junction. This may be due to one of three things: first, a reduction in the store of the transmitter or its precursor; secondly, unusual susceptibility to abnormally

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[1] *Johns Hopk. Hosp. Bull.*, 1941, **68**, 1.
[2] Ibid, p. 529.
[3] Ibid., p. 547.
[4] Ibid., p. 566.
[5] *Amer. J. med. Sci.*, 1939, **198**, 737.

rapid destruction; and, thirdly, a normal store of transmitting substance which, although available, might be blocked in its action by another substance. They present evidence in support of the third possibility.

As myasthenia gravis is characterized by the occurrence of spontaneous remissions and the defect in transmission is temporarily repaired by other substances, the reversible character of the disorder is emphasized. From the mass of evidence they produce it seems reasonable to assume on physiological grounds that some independent inhibitor substance released into the circulation in varying amounts might be responsible for the functional defect which is found. Gammon, Harvey, and Masland[6] have shown that this hypothetical substance might well be derived from the thymus gland. Abnormality of the thymus is found at necropsy in a very large proportion of myasthenics, and the results of surgical thymectomy in severe myasthenics, carried out in this country by Keynes,[7] have in some cases been brilliant. The whole story is not yet known, and the more acute and severe myasthenics, with generalized weakness, seem to benefit most by operative removal of the thymus. Those with weakness confined to muscles having a bulbar innervation do not respond so well as those with weakness of spinal muscles. Nevertheless it is encouraging to find the results of physiological research being translated into therapeutic achievement even if the full effects of surgical intervention are not yet understood.

POLIOMYELITIS VIRUS IN WATER

Poliomyelitis virus has been demonstrated in the faeces of persons suffering from the disease and has been shown to persist for a long time in sewage. The gastro-intestinal tract is now recognized as a portal of entry for the virus, so that drinking-water contaminated secondarily from sewage must be looked upon as a potential source of infection, though no case has, as yet, been traced directly to such water. Poliomyelitis virus is known to persist for 100 days and more in sterile water stored in the dark, and modern methods of chlorination leave it unaffected. Carlson, Ridenour, and McKhann[8] have lately investigated whether the water-purification methods in common use will remove the virus from artificially infected water. They used a neurotropic virus pathogenic to mice—apparently an adapted poliomyelitis strain. Coagulation and sedimentation procedures with lime and alum caused but a slight reduction of the amount of virus in suspension, and this reduction was roughly proportional to the amount of virus present. During these experiments it was noted that this neurotropic virus withstood a pH range of 3.5 to 8.0. Sand filtration was carried out in the laboratory in a model filter with constant head of water. The virus was not held back by sand filtration alone, but when large quantities of alum floc were allowed to impregnate the surface layers of the sand filter, with consequent diminution of filter flow, only one mouse of 54 inoculated with the filtered water developed paralysis, while control groups of mice were paralysed, showing the virus to be present and active in the supernatant water. It was found that a large accumulation of floc was required to hold back the virus, because, in a later experiment, a measured layer of floc of 1/8 in. thickness did not restrain it. Partial adsorption of the virus on activated charcoal was demonstrated in concentrations of 10, 25, and 50 parts per million in water. Injection of the charcoal into mice showed the virus to be concentrated on the particles. Suspensions stored in tap water in the refrigerator remained viable for more than a hundred days, and aeration had little apparent effect on the virus. Irradiation with ultra-violet light effected a big reduction of virus suspension in water. Of the 36 mice used in the irradiation experiments only 3 became paralysed and died, while all but 1 of the control group of 18 animals which received a 1 in 300 dilution of untreated virus became paralysed. Direct sunlight did not destroy the virus as effectively as did ultra-violet light, which was, in fact, the most effective of all the water-purification methods investigated.

CASTRATION FOR PROSTATIC CARCINOMA

In the spring of 1941 Huggins and his co-workers reported a series of cases of carcinoma of the prostate which had been treated either by castration or by the administration of oestrogen, or by both methods combined. The results were unexpectedly favourable, even when extensive bony metastases existed. Huggins assessed his results chiefly by clinical data but also by the fall of acid phosphatase, which is usually much increased in cases of prostatic carcinoma. Since the publication of his paper this form of treatment has been adopted by many other surgeons. R. Chute and A. T. Willetts have recently reported[1] on thirty-seven cases treated by these means. Only one patient would appear to have received no benefit. Beneficial results included rapid, effective, and lasting relief from the pain of metastases, increase in weight, and improvement in appetite, strength, and general well-being. Nine out of 13 cases with retention were able to pass urine after treatment by orchidectomy and stilboestrol. Determination of the acid phosphatase showed that when its level was above normal it fell rapidly after castration, and still further with the giving of stilboestrol. No dangerous or harmful effects were noted, though, as was to be expected, libido and power of erection disappeared in most cases. The results of stilboestrol therapy were in every way as good as those obtained by castration, but since the effect of stilboestrol lasted only while it was being given, the favourable action obtained from castration was more permanent. For this reason alone it has a considerable advantage. Quite naturally some patients dislike the idea of such an operation, and the technique suggested by L. W. Riba[2] avoids some of the psychological disadvantages inherent in castration. The operation is performed as follows: The anterior scrotal wall is infiltrated with 1% novocain and 10 c.cm. of the anaesthetic injected directly into each spermatic cord. The testicle is then delivered through a 4 or 5 cm. incision and the anterior surface of the tunica vaginalis and albuginea incised. The exposed parenchyma can easily be removed through this incision by blunt dissection. Bleeding is easily controlled by ligature, and when haemostasis has been secured the incised capsule of the testicle is sutured. Both testicles can be treated through the same median scrotal incision. As a rule the patient is unaware of their absence.

RIBOFLAVIN AND CORNEAL VASCULARIZATION

The syndrome of ariboflavinosis, or riboflavin deficiency, was first described in 1938 by Sebrell and Butler,[3] who recorded the angular stomatitis, reddening, fissuring, and desquamation of the lips, and the seborrhoeic lesions of the nose, eyelids, and ears that occur in this syndrome. In 1940 Kruse and his colleagues[4] [5] added to these appearances a frequently fissured magenta-coloured tongue with flattened papillae, and for the first time also described certain ocular lesions characteristic of ariboflavinosis—roughness of the eyelids, photophobia, inability to see in a dim light, lacrimation, impairment of visual acuity, keratitis, and corneal vascularization. They stated that the earliest and most common sign of ariboflavinosis is circumcorneal injection, which if not grossly visible is seen on slit-lamp examination. Since 1940 corneal vascularization has come to be regarded as a certain diagnostic sign of ariboflavinosis, and American nutrition surveys[6] have used it as an index of riboflavin nutrition. Recently, however, the value of this sign has been questioned in both this country and America. In an article in this *Journal* Scarborough[7] recorded an incidence of circumcorneal injection of 34% in a series of 204 unselected out-patients in Edinburgh (68% in patients over 50), and Sandstead[8] has found the condition extremely common in school children and young adults in America, the incidence ranging from 80 to 93% in the various groups studied. In Sandstead's cases riboflavin in doses of 5 mg. daily caused no significant change in the degree of corneal vascularization. Scarborough made a similar observation. At present, therefore, corneal vascularization is a doubtful diagnostic sign of riboflavin deficiency unless supported by other clinical findings such as angular stomatitis, reddening and desquamation of the lips, ocular symptoms, and the seborrhoeic dermatosis of the face.

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[6] *Biol. Symp.*, 1941, **3**, 291.

[7] *Proc. roy. Soc. Med.*, 1943 (in press).

[8] *Amer. J. publ. Hlth*, 1942, **32**, 1256.

[1] *New Engl. J. Med.*, 1942, **227**, 863.

[2] *J. Urol.*, 1942, **48**, 384.

[3] *Publ. Hlth. Rep.*, Wash., 1938, **53**, 2282; 1939, **54**, 2121.

[4] Ibid., 1940, **55**, 157.

[5] *J. Amer. med. Ass.*, 1940, **114**, 2437.

The supposed association between rosacea keratitis and ariboflavinosis has also been challenged. In 1940 Eckhardt and Johnson[9] suggested that rosacea keratitis resulted from riboflavin deficiency because of the improvement after administration of riboflavin and because of the possibility that the telangiectasia and corneal vascularization of rosacea keratitis might be physiological responses of the blood vessels to deficient oxidation resulting from the failure of the flavo-protein enzyme system, of which riboflavin is a component. These authors claimed to have cured cases of rosacea keratitis with injections of 1 to 2 mg. of riboflavin. Recently Fish[10] has been unable to verify this claim. In 40 out of 45 cases of rosacea keratitis she was unable to find the type of vascularization described by the American authors as characteristic of ariboflavinosis. Treatment with riboflavin alone was unsuccessful; many of the patients actually became worse owing to the withdrawal of atropine. The lesions of controls healed under routine treatment. It has now been established that the concentration of riboflavin in the corneal epithelium of the ox is very high, and it may be that in patients already suffering from ariboflavinosis and with corneal lesions the administration of the vitamin may promote healing; this might explain its beneficial action in the cases described by Eckhardt and Johnson.

RETINAL VENOUS CHANGES IN DIABETES

Ophthalmoscopic findings in cardiovascular lesions have the great drawback that they are but poorly elucidated by histological studies, for these are exceptional. It is one of the merits of the Mackenzie Memorial Lecture by Prof. A. J. Ballantyne[11] that the wealth of clinical detail he reports is substantiated by pathological studies. Of necessity there is much that is conjectural in his discussion of changes in the lumen of vessels, comprising, among others, such an entity as transitory spastic contraction. His insistence on checking appearances by established pathological data does, however, give validity to his discussion where no such evidence is available. Thus he is able to remind us that a retinal artery which looks white to the ophthalmoscope is not necessarily an obliterated artery, for qualitative changes in the vessel wall as well as obliteration of the lumen can give this effect. His critical survey of our knowledge of these and allied appearances, such as those seen at the arteriovenous crossings, lends point to his personal observations. He rightly states that, while much attention has been given to changes in the arteries, relatively little has been allowed to changes in the veins; yet, as he shows, the veins, too, can undergo spasm. But what is particularly significant is the series of changes in retinal veins that he ascribes with a high degree of probability as pathognomonic of diabetes. The picture, as he presents it, is characteristic enough. There is irregular beading of a gross type in the larger veins, tending to produce loops which, histologically, he has found to be pre-retinal as well as retinal. The obvious interference in venous flow shows itself in secondary retinal changes. Gross venous obstruction, such as is seen in thrombosis of the central vein, is not a feature. The attention he focuses on the veins in diabetes may help to explain some of the characteristic vascular lesions the clinician recognizes as diabetic without being able to distinguish them clearly from somewhat similar changes in simple retinal arteriosclerosis.

HIPPURIC ACID SYNTHESIS AND LIVER FUNCTION

The hippuric acid test of liver function—based upon the excretion of hippuric acid in the urine after ingestion of sodium benzoate—is noticeably less popular here than in the United States, where it was introduced by Quick.[1] This may be due to its theoretical disadvantages, such as the uncertain influence on the result of rates of absorption and excretion. The former may be obviated by giving the sodium benzoate intravenously,[2] but renal damage must always be considered and may partly account for the impaired excretion found in obstructive jaundice and after surgical operations.[3] Nevertheless there are many cases in which the kidneys can be trusted to play their part satisfactorily, and the relative convenience of the test is a strong point in its favour. A recent report by Rennie[4] from Glasgow is therefore of special interest. Using the oral technique, he found low excretion in 13 out of 17 cases of infective hepatitis, in 5 out of 5 cases of acute toxic hepatitis, in 12 out of 14 cases of hepatic carcinomatosis, in 13 out of 14 cases of cirrhosis, in 8 out of 10 cases of obstructive jaundice, and in 4 out of 24 cases of cholecystitis. This leaves little doubt that the test is a sensitive indicator of hepatic damage, but raises the question of the way in which it is likely to be clinically useful. It is evident that the diagnostic possibilities are limited, similar results being obtained in all types of liver disease, including obstructive jaundice. It may evidently be useful in revealing latent liver damage—e.g., in hyperthyroidism[5]—in studying the impaired function in known hepatic diseases, and in assessing recovery from toxic and infective hepatitis.[4] The test has been used prognostically by Boyce[3] in obstructive jaundice and in various surgical conditions, and the statement has been made by Delor and Reinhart[6] that patients excreting less than 2 grammes are usually a poor operative risk. This important claim merits further investigation in view of the possibility of improving liver function in these cases by suitable pre-operative therapy.

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[6] *Publ. Hlth. Rep.*, Wash., 1942, **57**, 189
[7] *British Medical Journal*, 1942, **2**, 601.
[8] *Publ. Hlth. Rep.*, Wash., 1942, **57**, 1821
[9] *Arch. Ophthal.*, Chicago, 1940, **23**, 899.
[10] *Brit. J. Ophthal.*, 1943, **27**, 107.
[11] *Glasgow med. J.*, 1942, **138**, 1, 52.

[1] *Amer. J. med. Sci.*, 1933, **185**, 630.
[2] *Amer. J. diges. Dis.*, 1939, **6**, 716.
[3] *The Role of the Liver in Surgery*, Springfield, Ill., 1940.
[4] *Brit. J. exp. Path.*, 1942, **23**, 329
[5] Haines *et al.*, *Ann. intern. Med.*, 1941, **14**, 1225.
[6] *Amer. J. clin. Path.*, 1940, **10**, 617.

SOME OBSERVATIONS RELATING TO THE PLANNING OF MEDICAL EDUCATION

BY

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In recent years much has been written, and a great deal of disquiet expressed, concerning the present status and the future planning of medical education. Various committees are to-day considering the general changes in medical education which appear to them to be necessary, and universities and medical schools throughout the country have been invited to report their views on these problems to the Interdepartmental Committee on Medical Schools of the Ministry of Health. It may be observed that one body which is taking upon itself the onus of investigating these matters plays no part at all in the actual teaching of the medical student. The time seems ripe for a frank statement on considerations which do not appear in the foreground of previous writings on these problems, but which should receive careful attention in the present deliberations. They comprise, first, the quality of the prospective entrant to the medical profession, and, secondly, the adverse influence which the existing examination system (at least in some subjects) has upon the "education" of the medical student.

The Curriculum

Some rigidly separate medical education into two sections—namely, scientific education and vocational instruction—and lay emphasis on the necessity for paying particular attention to the latter at the expense of almost complete elimination of the former, on the ground that we are instructing students the great majority of whom are destined to become general medical practitioners. The implication may be drawn that the curriculum should be so fashioned that the bare minimum must be taught in order that the type of student with whom we have to deal can safely and relatively easily cope with it. Now, it must be the opinion of every teacher of some years' experience that the better students take the present curriculum in their stride; they are even avid for more information, over and above that given to their contemporary classmates in the formal lectures and practical classes, and, by a stimulating and progressive teacher, they are readily encouraged to read widely around the narrow confines of the formal classes they attend. On the other hand, it is sadly true that too high a proportion of our medical students are not up to the standard which should be required of a person who is to be entrusted with matters relating to the health of the community. These students just manage to crawl along the curriculum, failing the examinations sprinkled through the course time after time, till eventually, after descent in many cases from degree to diploma courses, they scrape through a final qualifying examination. A relatively long tail of such students is found, particularly in schools catering for large numbers, where nothing approaching individual attention is attained. Most of these students succeed in passing the several examinations after two or more attempts at each, and, even when they eventually pass, they just manage to obtain one or two marks over the minimum pass-mark.

This state of affairs must certainly be considered unsatisfactory. It is surely not the desire of those responsible for remodelling the curriculum to bring down the standard or scope of the various subjects to the level of such students. We must face the fact, known to university teachers in the pre-clinical years, that their colleagues in the other faculties of the university are of the opinion that many students in the Faculty of Medicine are not of the best quality, and, indeed, some of these teachers who deal with medical students in the first year of their course are not unwilling to state that many medical students are not of the standard of the majority of those taking university courses in other faculties. Furthermore, relevant to the present discussion, it must be a common experience for teachers in the Medical Faculty to learn from some of their colleagues in other faculties (many of whom have attained eminence in their particular subject) that they themselves would have liked to enter the medical profession in their earlier years, but were precluded from doing so by financial considerations.

The Prospective Medical Student

It appears to me that a radical alteration which is urgently needed is to eliminate financial obstacles and thereby place ourselves in the position of being able to choose the best talents among prospective students from all walks of life. As a corollary to this, the weakling should be ruthlessly eliminated *in the early years of the course.* By such means the quality of the "raw material" could be considerably improved and a high-standard curriculum evolved, the student being educated to this standard and not the standard degraded to the level of a second-rate student. The manner in which the financial obstacles may be overcome needs consideration; and, while undertaking this, it must be borne in mind that the present trend of economic developments (e.g., as outlined in the Beveridge report) will probably lead to the demand for a considerable increase in the number of doctors to qualify each year, entailing the calling for supplies of suitable students from a wider section of the population. The following suggestion is made with the appreciation that others may be formulated as more economically sound, although, so far as I can see, the general principle should be readily acceptable.

In the discussion by the General Medical Council (Winter Session, 1942) of the draft memorandum from the subcommittee appointed to prepare evidence for the departmental committee of the Board of Education, Sir Farquhar Buzzard expressed his opinion that one of the chief causes of early specialization (i.e., in the schools) was the scholarship and the competition between schools for this purpose. He urged that the scholarship should be awarded for merit and should bear no relation to the future career of the student. The choice of medicine could be made after the award, and in no other way would the right kind of medical student be selected. This observation was made in view of the fact that during the last year or two of his school career a student who was known *at that time* to be desirous of entering the medical profession was crammed in a small number of science subjects in order to sit for a university entrance scholarship examination. Thereby his general education was severely restricted; and it is literally true, for instance, that many medical students are not able to write a lucid, grammatically correct answer to a question, although the factual content of the answer may be reasonably accurate. This state of affairs may be largely eliminated by the following means.

The entrance scholarship in its present form should be discontinued. A broad general education of the student should be continued up to the time when application is made for his acceptance by the university as a medical student. The candidate for entry should be required to sit a university entrance examination, which should be set and assessed by the university, and which should be wide in its scope, involving a good general education and not a high standard of knowledge in one or two subjects only. The standard attained in this examination would be taken into account in considering (*a*) whether the boy was fit for entry, and (*b*) whether he should be awarded a "scholarship." (This question of entrance scholarships should be considered by the reader in conjunction with that of "post-entry scholarships," discussed below.) The boy's application for entry might be accompanied by a "recommendation" from his head master, this being based on the character, general standard, and development of the boy throughout his school career. This recommendation would be received, together with all the boy's detailed school reports (including examination assessments), by a university committee, whose personnel should comprise representatives of all faculties, and whose function it would be to determine whether the boy was of sufficient standard for entry, whether he appeared likely to benefit from a university education, and whether his predilections indicated his suitability for acceptance as a medical student. The boy would be interviewed by the committee, which in the above ways could satisfy itself that the candidate for entry had received a sound general education. (These procedures would apply with advantage to all prospective university students, irrespective of their preference for any particular branch of study in the university.)

The Financial Aspect

Let us suppose that such a candidate, having satisfied the full requirements for acceptance as a medical student, is found to be unable to afford the expenses incidental to a medical education. The university committee would report to an appropriate Government Departmental Committee and the boy would be given State aid, the amount being determined by the financial status and commitments of the boy's parents, but, if necessary, the amount should be enough to cover completely the boy's expenses, including living expenses, fees, books, instruments, etc. Such aid being granted, the boy would undertake to repay the "loan" (free of interest) when he begins to earn his living, by means of a percentage (say, 5%) of his *net* annual earnings. Even if he has to repay all the money expended by the State on his behalf it would not be an unduly heavy burden for him to bear. (We must remember in this connexion that were it not for this State aid he would not have been able to enter the medical profession at all.) But the boy should be given opportunities of reducing the amount repayable, by means of "scholarships" awarded during his university course—not as the result of special examinations set for the purpose but based on the results of the ordinary examinations of the medical curriculum. For example, if the boy attained a sufficiently high standard in the First M.B. examination the repayment of that part of the loan pertaining to the period concerned with the course of work for this examination should be cancelled. Similar procedures should be adopted in the case of the subsequent examinations. These "post-entry scholarships" would be a strong incentive to the boy to pursue his studies diligently. The sons of well-to-do parents, of course, even though they may pay for their university education, should be subjected to the same careful selection (and elimination). The award in the *entrance* scholarship should also take the form of cancellation of repayment of a part of the loan. I am of the opinion that by such means as these a considerable improvement in the quality of the general run of medical students could be achieved.

We may observe in this place that students entering the university with a view to becoming school-teachers may receive a grant (not, if certain stipulations are fulfilled, a repayable loan) from the Board of Education to cover expenses incidental to a four-year course of study. The amount of the grant depends on the financial status of the parents and may, if necessary, cover completely all tuition and living expenses. The student is recommended to receive such a grant after interview by a selection committee consisting of members of the academic staff of the university. The only stipulation made by the Board of Education in drawing up the agreement with the student is that he promises to teach in an approved school at the end of his course. If the student after qualifying fails to comply with this obligation and does not furnish "valid reasons" for doing so, he is expected to refund the amount of the grant. A modified form of such a procedure as outlined above should not be unacceptable if it be conceded that a medically qualified person does not play a part of less importance in the State than the school-teacher.

The Anatomical Course

Then, with regard to the adverse influence which the present examination system exerts upon the education of the student, I would illustrate my suggestions by particular reference to my own subject (anatomy), the teaching of which has been the object of so much discussion recently, although like considerations can be recommended in other subjects. It will be generally agreed that the student should possess a sound knowledge of the two basic subjects, anatomy and physiology, before he is required to spend a considerable proportion of his time in clinical study. This does not imply a sharp division between the study of these two subjects and clinical studies, but it does demand that a good working knowledge and understanding of the normal structure and function of the human body should be acquired before the bulk of the student's time is devoted to the investigation of abnormal (sick) human beings. The study of "applied anatomy" and "clinical physiology" should of course be continued throughout the clinical years, and much of these matters should be dealt with by the teaching clinicians in association with the appropriate clinical cases. With regard to anatomy, I believe that the biggest bugbear with which the student has to contend is the present necessity for him to carry in his mind numerous facts —many of which he may have first encountered in the early days of his anatomical course—right up to the time of the professional Second M.B. examination, when he is expected to reply to questions involving the memory of the details of all parts of the body. This state of affairs may be remedied in the following way, and at the same time the "education" of the student can receive greater attention.

Suppose a student dissects an upper limb in the first eight or nine weeks of his course. During that time he should be tested for a *reasonably* detailed knowledge of the structure and "functional anatomy" of that limb, and he should be given to understand that he need not utilize his time in repeated endeavours to memorize those details with a view to carrying them in his mind over a period leading up to a Second M.B. examination at the end of five (or four) terms. It is common experience among teachers of anatomy that a student may "know" individual parts of the body at the time of dissection but cannot carry them in his memory for a prolonged period. The time thus saved from repeated attempts at revision of formerly dissected details is rendered available for the study of those aspects of the subject (e.g., general principles, embryology in its broadest sense, normal radiology, etc.) which enable the student to understand the significance of the structures he is dissecting. I firmly believe it is desirable that a student should become acquainted at least once with the details of the general structure of the body. Even if with the lapse of time he is forgetful or hazy concerning many of the details, he has at the back of his mind the knowledge that such structures exist and can be looked up should the occasion arise. If he does not make this acquaintance he does not know that such-and-such structures even exist, and is thus not aware of his own ignorance. Alongside this consideration it must be borne in mind that the recent developments in anatomical teaching do not form merely factual additions to the student's curriculum but are intended to render easier his understanding of the subject, and they have replaced much that was formerly given prominent attention by teachers of anatomy—e.g., the exact attachments and individual actions of muscles, exact markings on bones, exact attachments of ligaments, detailed unimportant relations of various structures, etc. Alteration of the anatomical course should not merely involve a cutting out of such-and-such structures from the syllabus. Indeed, it would be interesting (and amusing) to ask, say, 50 clinicians, medical and surgical, separately to draw up a list of the structures of the human body which could be omitted from the anatomical course. I am inclined to think that acceptance of the sum-total of their suggestions would necessitate professional anatomists looking for occupation in other walks of life. Conversely, if 50 clinicians were separately asked to draw up a list of what each considered the student of anatomy should be taught, the resultant textbook based on their suggestions would probably far exceed in bulk the ones now commonly employed.

I believe, then, that much of the present difficulty, so far as anatomy is concerned, can be circumvented by examining students at the end of each term of their course on the work done during that term, and abolishing the second professional examination. In this way we could get rid of *the premium at present placed on mere feats of memory*. So far as practical politics are concerned, this would necessitate three visits of the external examiner each year, a practice which is general even under existing arrangements. It is common knowledge among anatomists who have had extensive examining experience in a number of universities that the internal examiner (the local professor of anatomy) keeps record cards on which are entered the details of each student's terminal examination results over a period of four terms. These records are rightly consulted by all the examiners concerned in conducting the professional Second M.B. examination, and I am convinced that such detailed records render the professional examination redundant as a means of assessing whether the student should be allowed to proceed with the next part of his course. I would strongly advocate a retention of the necessity for the student to become acquainted with the general structure and function of the body, and deprecate a ruthless cutting down of the detail to be noted, though not necessarily memorized for long periods. The proper understanding of principles and the illustration of practical applications cannot be at all satisfactory in the absence of an adequate background.

While the above details refer to the subject of anatomy, similar principles might be adapted to other subjects in the medical curriculum, the aim being to reduce the necessity for the performance of feats of memory while not ruthlessly eliminating much essential detail. With regard to pre-clinical and clinical teaching, the pre-clinical teachers (with few exceptions) are full-time teachers who have been appointed to their posts in virtue of their teaching and research experience. For the most part they are capable, thoughtful, progressive teachers, and erect the foundation on which later clinical studies are built. Compared with pre-clinical work, clinical study has more "glamour" in the student's mind, and, in general, students are more eager to learn about clinical than about pre-clinical matters. In spite of this the great majority of clinical teachers are honorary members of the staffs of teaching hospitals, the bulk of whose time and thoughts must of necessity be given to matters other than the instruction of medical students. It is becoming generally appreciated that the present status of clinical teaching would be materially improved by the appointment of an adequate staff of full-time clinical teachers. As in the case of pre-clinical teachers, the best clinical teachers are most likely to be those with research interests, eager to further knowledge and progressive in their teaching methods. It is undoubtedly true that pre-clinical studies are best approached in a scientific manner, while a considerable amount of clinical teaching must, from the nature of the work, be of the type of vocational instruction, though as time progresses and research thrives, more and more clinical study will be capable of scientific approach.

Conclusion

In effect, then, the present communication is an earnest appeal to those who are setting out to modify the medical curriculum to take into account the postulate made here, that a proper choice of student, the abolition of financial obstacles to entry into the medical profession by means of an extensive system of State aid, coupled with a ruthless weeding out of unsatisfactory students early in the course, the appointment of an adequate number of full-time clinical teachers, and modification of the existing examination system, will allow of the formulation of a high-standard curriculum. It will be strongly deprecated by many if the main alterations comprise a hasty general "simplification" of the various subjects, resulting in the degrading of the standard of work to the level of an unsatisfactory person wishing to qualify as a doctor.

Since these matters are prominent in the minds of many at the present time, the main object of this communication is to invite and stimulate comment and criticism on the *principles* here set forth, which of course represent only a few of the numerous questions which must receive consideration.

BIRMINGHAM ACCIDENT HOSPITAL

The second annual report of the Birmingham Accident Hospital and Rehabilitation Centre (which took over the Queen's Hospital building) shows that during the twelve months just upon 20,000 new patients suffering from injuries as a result of accident were treated. There were 91,000 casualty attendances, 2,174 in-patients were admitted, and 8,123 operations, many of them, of course, of a minor character, were performed. The high incidence of accidents in industry was the reason for the decision to establish this special hospital, notwithstanding the difficulties of wartime. These difficulties still remain. The old casualty and out-patient departments of the Queen's were inadequate, and plans were made for their alteration and adaptation at a cost of £20,000, but only slow progress has been made owing to shortage of labour and material. The reconstituted block will provide a reception department containing a separate shock room, three operating theatres, and *x*-ray units, and the out-patient treatment department will include a fracture out-patient suite and soft-tissue dressing and redressing stations. One matter of great concern to the board has been the difficulty of obtaining surgical staff. On the other hand, Birmingham industry has responded well both in money and good will. The hospital has become the centre for industrial medical officers and nurses and will eventually become the centre for industrial first-aid workers. The value of having a bacteriological research unit of the Medical Research Council under Prof. A. A. Miles is obvious, when it is considered that at least 11% of reportable accidents in factories are labelled septic. It is likely that the incidence is much higher than this in a large industrial centre like Birmingham, which contains a great number of small factories without either a nurse or a doctor.

Correspondence

War Neuroses, Morale, and Social Psychology

SIR,—Dr. Ronald Fairbairn's article on the war neuroses (Feb. 13) is to be welcomed as one of the most important contributions recently published on this subject. It is a typical example of the application of the Freudian method, which by bold deductions based on an imaginative understanding of the data sheds a new and brilliant light on the subject, transforming not only our understanding of the problem but also our methods of treatment. Others have recognized the existence of separation-anxiety,[1] and even possibly the dependence of the neurotic, but I have not heretofore seen this characteristic symptom welded into its place in a general theory.

My own experience as a Service M.O., having increasingly impressed me with the infantile dependence of the neurotic, has led me to conclusions similar to those of Dr. Fairbairn. Thus I have emphasized the low morale of the neurotic, as well as his desire to return home. This is recognized by the Forces in their policy of boarding out these patients. The logical (or is it illogical?) extension of this policy is seen in the suggestion that malingerers are neurotic and that even they should be boarded out.[1] That is why I venture to criticize Dr. Fairbairn's thesis, not in its essential feature but for its conclusions. For what do these conclusions come to in the last analysis? To this: that good morale counteracts the tendency to war neurosis produced by infantile dependence; but this infantile dependence itself is the very cause of the weakness of those bonds which constitute good morale. We are thus wandering in a circle, as Dr. Fairbairn recognizes when he jokingly remarks that evangelists not psychotherapists should be in charge of treatment. But what is this circle into which we have been led? The Freudian circle is the family circle.

Emotional development is a development from a state of complete dependence to independence, from no responsibility to responsibility, from absence of freedom to freedom. Freedom is pleasurable, responsibility is painful. The cost of freedom is responsibility—i.e., lack of freedom in relation to other members of the community. But man is a social animal; his sense of freedom and of independence is part of his feeling of one-ness (of identification) with the community. It is not freedom from, but freedom within, the community. In other words, the growth of freedom and of independence takes place by changing the dependence on the family for dependence on the community. But the community in its turn must be dependable: individual freedom depends on the social division of responsibility. The individual can only act responsibly in his own sphere provided the community acts responsibly, or reliably, in the rest. But how reliable is the community? How does it first strike on the developing individual? Its first impact is through the school, and from the present point of view the elementary school is woefully inadequate. (How many of us would consider an elementary school education sufficient for our own children? Yet that is all that about 90% of the population get.) And after school the individual is thrown into an environment in which mass unemployment is prevalent, malnutrition is rife, and ever-increasing insecurity the lot of all. It is not surprising therefore that emotional development from the family to the community is prevented. The stimulus is lacking. Such a development is replaced by a concept in which the community is regarded as a sort of larger family. But the family is only a constituent part of the community, in the same way that a cell is part of the body, and therefore such an attitude is regressive—i.e., neurotic.

The solution is now clear. To increase morale, to treat and prevent war neurosis, we must replace dependence on the family by the feeling of one-ness with the community, by a system of education which gives understanding of the nature and aims of the community and the part the individual has to play in it. Lest this seem mere idealistic talk, I would emphasize that such education is being used as a practical and successful method of treatment of the neuroses in the Services.[2]

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[1] Good, Rankine (1942). *British Medical Journal*, 2, 359.

[2] Jones, Maxwell (1942). Ibid., p. 276.

For obvious reasons I have compressed my opinions to the minimum space possible. The prevention of war neuroses is of the utmost importance because of its intimate connexion with morale. I hope the matter will receive the widest possible discussion, so that we may be prepared for the problems we shall meet as the war deepens in intensity and widens in range. —I am, etc.,

M. HAMILTON,
Fl Lieut.

Planning for Treatment of Head Injuries

SIR,—May I endorse Dr. Rowland Hill's lucid and well-balanced letter (April 10, p. 457). Those of us who see many cases of head injury in which the patients have returned to civilian employment cannot fail to be struck with the persistence of symptoms, of which headache is only one. These men have, in many instances, no previous history of neurotic disability and there is evidence of previous good personality. The commonly found euphoria in these cases is also a factor which may cloud the issue and affect the diagnosis as made in hospital. On balance the recently published papers appear to be over-optimistic.—I am, etc.,

Roehampton, S W 15 HAROLD PARSONS.

Strategy and Tactics in Research

SIR,—Dr. F. M. R. Walshe is to be congratulated on his article (April 17, p. 467). Our existing research machinery has done a great deal of good work, but there is still far too much waste and misdirection of energy.

Of recent years research has tended to become more and more a matter of work in laboratories and research institutes. Admittedly, there are some types of work which require full-time specialization, but the over-professionalization of research must inevitably admit the type of worker whose work matters less to him than his career, a danger of which Dr. Walshe's warning is timely. The final outcome of certain tendencies which are at present observable might easily be the divorce of research from practical field-work, and in future planning greater attention must be paid to the amateur in research.

The good research worker is a man who retains the logical, persistent, and often naïve curiosity of childhood. He is likely to be found in any sphere of life. Meeting in his daily round of private practice, public medicine, or hospital duties something which arouses his curiosity, he is impelled to ask "why" or "how" and to follow up his question by research. What he needs, and at present lacks, is some means of finding what work, if any, has been done on that particular problem, whether anyone else is at present working on it, what information bearing upon it, either directly or indirectly, is available, and, where necessary, laboratory and statistical assistance in the more technical details of the work. To-day his resources in respect of the first of these depend upon whether he has access to a large library and the time to use it, and the others upon his good or ill fortune in having the right individuals among his acquaintances. At present he may waste months or years on work which has already been done by someone else, or may be compelled to abandon valuable investigations for the lack of some small but valuable item of information which might be available if only he had the means of finding it.

What we need is some central organization to which any worker could apply when he felt impelled to investigate some problem. This organization could advise him as to whether investigation seemed likely to be worth while, put him into touch with other workers on kindred problems, suggest a technique of research, and provide specialized technical assistance if necessary. What it could not do is to provide him with leisure: is it beyond all our wit to devise a means by which a doctor outside the laboratory could be relieved of some part of his routine work to pursue a promising line of investigation? Cannot we also insist that a proportion of our full-time research workers shall be recruited from men and women who have spent some time in private general or special practice, or in public health or industrial work, not merely in a conscious and deliberate attempt to gain a little "experience," but in the honest work of that branch of medicine without ulterior motive? Not a few men find and develop in themselves, while engaged in clinical or administrative medicine, outstanding research ability, yet for obvious reasons cannot in middle life, under our present system, give up what they have and start a research career at the bottom of the ladder.

As Dr. Walshe points out, papers are written and published for a variety of reasons, though the spate of publication is probably less in this country than in some others. Too many still appear because a young man knows that this is the only way in which he can bring his name before the profession, and it is hard to be free from a haunting fear that man may be degraded to the status of an interesting experimental animal which is bred so that aspiring researchers shall have material. In my private Utopia men will be selected for appointment to research posts only after consideration of the papers which they have *not* submitted for publication; only the man who can set high standards for himself and reject the results of hard work because they fall below these standards can be really trusted with that dangerous drug, success.—I am, etc.,

Accrington JOHN D. KERSHAW
Medical Officer of Health

The Calcium Intake in Pregnancy

SIR,—In an account of the meeting of the Scottish Group of the Nutrition Society held at Edinburgh in December, 1942, Dr. H. M. Sinclair is reported to have stated (*Journal*, 1943, **1**, 51) that in pregnancy "supplementary feeding of calcium must not be indulged in lightly since it might prolong pregnancy and harden the foetal skull." I have been unable to trace any work that supports the belief that a high intake of calcium prolongs either pregnancy (the duration of which is not easy to assess) or labour by hardening of the foetal skull. It is in fact desirable that the intake of calcium by the pregnant woman should be high, particularly during the last three months of pregnancy, when two-thirds of the foetal calcium is deposited. There is agreement among reliable authorities (Coons, C. M., *Bull. Okla. agric. exp. Sta.*, 1935, No. 223; Toverud, R. V., and Toverud, G., *Acta paediatr.*, Stockh., 1931, **12**, Suppl. 2; *Bull. Hlth. Org. L. o. N.*, 1938, **7**, 460) that the calcium requirement of the pregnant woman is 1.5 to 2 g. per day, or approximately twice the normal requirement.

Recently at this hospital certain aspects of pregnancy in primiparous women have been studied. The investigation included, among others, observations on two groups of cases, one of which ingested 1 g. and the other approximately 3 g. of calcium daily throughout pregnancy, commencing at the second month. The duration of pregnancy (so far as it is possible to measure this) and labour (first, second, and third stages) was essentially the same in both groups. In the abstract of Dr. H. M. Sinclair's paper the daily dosage of calcium which, it is suggested, might lead to a prolongation of pregnancy and labour (hardening of the foetal skull) was not given. In my preliminary observations cited above the calcium intake in one group was as high as 3 g. daily, a figure not commonly exceeded, and this dosage in no way adversely influenced pregnancy or labour. In pregnancy it would seem wiser to stress the well-established complications resulting from calcium deprivation, rather than the unproven dangers of calcium overdosage.—I am, etc.,

Middlesex Hospital J. DOUGLAS ROBERTSON.

Asthma in Childhood

SIR,—From the articles in the *Journal* of April 3 by Sir Arthur Hurst and Dr. C. H. Rogerson one obtains the impression that both writers have been concerned with established cases of asthma.

The general practitioner has the opportunity of observing children about the age of 3 or 5 suffering from the first, or one of the first, attacks of asthma. At such an early age psychological factors are not of the same importance as in the older child, and the family doctor may obtain the help of the parents, rather than the reverse, in treating the case. The parents can be instructed never to show the slightest sign of alarm should the child have another attack and never to talk of the "wheezy noises" or let the child think there is anything unusual about the breathlessness. Should another attack appear the parents are advised not to send for the doctor, or, if they feel a visit is necessary, not to let the child know the doctor is coming. The child should be spared from sharing in the anxious state of expectancy occasioned by waiting for the doctor.

For some years it has been my habit to examine for acetone in the urine of every child I see suffering from asthma. I was led to do this owing to the extraordinary variety of symptoms shown by children suffering from ketosis. In children under the age of 6 with asthma I have seldom been disappointed, the urine turning a deep purple colour with the sodium nitroprusside test. The most convenient way of carrying out this test is by the method described by Lawrence in his *Diabetic Life*.

Recently during the routine school examination of a boy of 10 I inquired about the attacks of asthma he had had before school age. I saw the boy in his first attack but did not diagnose asthma until he had a second. The urine showed acetone ++. He was given 1/2 teaspoonful of sod. bicarb. three-hourly in glucose and flavoured glucose drinks. The mother stated that the boy had been free from asthma for five years and that she had improved on my simple remedy by giving the child "citralka" whenever he showed the slightest sign of asthma, and the attack was aborted.

A girl from London aged 4 years was on the waiting list of a London hospital and according to the mother was to be admitted in order that skin tests could be carried out. She had a sharp attack of asthma while on holiday in Edinburgh. The urine contained acetone ++. Ephedrine 1/2 gr. and a teaspoonful of "alkagen" granules repeated in two hours, along with glucose drinks, relieved the attack, and after several doses of the alkali the child was free from symptoms. The mother reported from London three months later that the child had been free from asthma except for two threatened attacks which were banished by giving the granules and glucose without ephedrine.

Six similar cases could be quoted; most of them are in youngsters I see from time to time while visiting their homes, and not one has become an asthmatic. In my experience attacks of asthma or acidosis in children under the age of 6 result from dietetic errors or excitement. The common custom of giving young children the "top of the milk," the mother's ration of butter in addition to the child's, along with liberal amounts of cod-liver oil can readily upset the G–FA ratio. In other cases no dietetic error can be found, but the history of a period of excitement, such as a children's party or a boisterous game, may be obtained, and this may have made a heavy demand on the glycogen reserve.

I have not had the same success with children over the age of 8, as usually the attacks of asthma are well established and have become a habit, also the mother–child anxiety link has been firmly joined. There may be ketosis, but curing it does not always banish the asthma. Ultra-violet rays, breathing exercises under the supervision of a competent masseuse, vitamins, and the intelligent co-operation of the parents will do much for the child in danger of becoming an asthmatic.

The late Prof. Gulland used to say the treatment of haematemesis was to give morphia—to the relatives. He might well have included asthma.—I am, etc.,

ALISTAIR G. CRUIKSHANK, F.R.C.P.Ed.,
Temporary Assistant Physician, Royal Infirmary, Edinburgh.

Sulphonamides in Asthma

SIR,—I read with great interest the brilliant survey of the problem of asthma which appeared in your issue of April 3 (p. 403), and I venture to suggest a further hopeful line of treatment which I have been investigating. Sir Arthur Hurst mentioned the importance of bacterial infection of the nasal and bronchial mucous membranes as the primary aetiological factor in some asthmatics. He gives two reasonable suggestions of how such infections may act, to which one may add a third. Is it not possible that the bacteria themselves are the provocative allergen, as indicated by the occasional asthmatic reaction in such patients when given an excessive dose of an autogenous vaccine? No matter which is the more likely interpretation, it appears reasonable to suppose that an intermittent intensive course of one of the sulphonamides would benefit asthmatics who have any chronic, or acute recurring, respiratory infection.

During the last four months I have tried this hypothesis on such cases with apparent success. However, the number of cases, the period of observation, the lack of sufficient controls, and the use of other forms of treatment being sometimes continued by the patients themselves, do not allow me to express any definite opinion at present. I mention it partly to point out a real difference between the aetiology of the average case of asthma as seen in the British Isles and that in North America. Certainly in Canada the incidence of asthmatics with positive skin reactions to various common allergens, and with a history of hypersensitivity to corresponding foods, clothes, or dust, is very high compared with Ireland, where bronchial or nasal infection seems much more common as an exciting cause, and skin tests are often completely negative.

There seems, therefore, good reason in this climate to stress the value of the sulphonamides in asthma, in both prophylaxis and therapy, rather than the use of vaccines. In one patient, a middle-aged man referred for persistent dyspnoea consequent on chronic bronchitis and asthma, the first complete symptomatic relief after three months of constant wheezing was obtained by five days' treatment with sulphathiazole. The vital capacity increased from 1,300 to 2,400 c.cm. in approximately the same period. He had previously tried most of the usual nostrums, including vaccines.—I am, etc.,

Dublin. D. K. O'DONOVAN.

Treatment of Vomiting after Sulphapyridine

SIR,—With reference to Acting Squad. Ldr. R. O. Gillhespy's letter (April 10, p. 459) I am very pleased to confirm the importance of alkalinity of the blood and alkaline excipients in the administration of sulphapyridine. It also materially assists the alkalization process if the liver and bowel are thoroughly prepared with an adequate dose of calomel. This has been my practice in the treatment of almost 300 cases of cerebrospinal meningococcal meningitis, etc., admitted from military and civilian sources during the last seven years.

The almost startling, miraculous improvements in toxic cases of morbilli recently treated in our infectious diseases hospital by this routine have borne out the importance of alkalization in treatment with sulphapyridine. The administration of bicarbonate of soda is pushed until the urine becomes alkaline. The usual symptoms—vomiting, cyanosis, and depression—are reduced to a minimum.—I am, etc.,

G. A. DAWSON,
M.O.H., Darlington.

Blood *p*H and Haemolysis in Blackwater Fever

SIR,—I am indebted to Dr. J. F. Loutit (March 20, p. 360) and Major J. V. Dacie and Col. F. Murgatroyd (April 10, p. 458) for the information contained in their letters on the subject of the recent paper by R. Winstone Evans and me on blood *p*H and haemolysis and its application to the treatment of blackwater fever. I have corresponded privately with Dr. Loutit, but certain of the criticisms raised in the second letter seem to call for an answer, and I hope the following may clarify our position on the clinical side of the question.

The writers object to the assumption that alkalaemia was responsible for the cessation of haemolysis in our cases. We had, however, three facts before us which were independent observations. (1) The marked variations in fragility in any twenty-four-hour period in normal subjects. We could find no factor causing this, but physiological variations in CO_2 content are known to occur, and we suggested these as a possible explanation of the phenomenon. (2) A connexion between *p*H and degree of fragility of red cells was demonstrable *in vitro*. We were not aware that this had been carefully worked out before, as the full literature on the subject was not available to us at the time. (3) A case of blackwater fever had occurred in which tetany, due to ordinary treatment by alkalis, was followed by dramatic clinical improvement and cessation of haemolysis. It seems to me that, knowing this much, it would have been neglectful not to have tried the effect of inducing alkalaemia in suitable cases; and, as stated, our results convinced us subsequently of the therapeutic value of the method. Blackwater fever is sufficiently uncommon and sufficiently dangerous to justify the publication of any reasonable system of treatment if the authors are convinced of its value. Such a system should gain in value if it can be shown to be not purely empirical, and if a theory based on physiological and physical principles and experiments can be adduced to support it. This is what we have attempted to do.

In stating that a combination of jaundice and albuminuria in malignant malaria is an indication for stopping quinine we had particularly in mind cases in which repeated attacks of malaria had occurred within a short period, and in which blackwater fever was, therefore, a likelier complication. The statement was, of course, not intended to mean that treatment should be suspended. We are only too well aware that patients may die of malignant malaria if left untreated, and a special note on the subject of using even quinine courageously is made in discussing a fatal case in the paragraph headed "Factors D and E." Our ordinary practice was to substitute mepacrine for quinine, in cautious doses, in cases where there was any reason to think that blackwater fever might supervene.

Finally, we state only that in our admittedly limited experience we did not find the pre-blackwater state as described in the textbooks. What we did find was a combination of circumstances and symptoms which made us very much on the alert for the appearance of blackwater fever, and these we have described in the article.—I am, etc.,

Felix Smith.

Surgical Emphysema

Sir,—The case described by Dr. Roger Stanley (April 17, p. 477) reminds me of two cases seen by me many years ago when I was a resident at Leicester Royal Infirmary.

A woman who had been knocked about by her husband sustained a fracture of the nasal bones. Whenever she blew her nose in order to get rid of blood, etc., air was blown into the subcutaneous tissues of one side of the face. Gradually the surgical emphysema spread all over the face and neck and thorax. The nose was syringed clear of blood and the patient was advised to refrain from blowing her nose. In a day or two the swelling began to disappear.

A few days later a patient was sent into the infirmary with a widespread surgical emphysema which had come on during labour. Inquiry elicited the fact that the swelling had first appeared on one side of the face. I came to the conclusion that in each case a rent had occurred in the lining probably of the lacrimal duct, and that with every expulsive effort air had been forced from the nostril into the subcutaneous tissues.

Since then, whenever I have come across a case of surgical emphysema I have inquired where the swelling first appeared. In a majority of cases this has not been accurately noticed. But the swelling has begun on "one side of the face" in a number sufficient to convince me that there is no need to presume that a chest lesion is the cause of this condition.—I am, etc.,

Bradford

James Phillips.

Interstitial Emphysema during Labour

Sir,—I have read with great interest the case of interstitial emphysema during labour reported by Dr. Roger Stanley (April 17, p. 477). I attended a rather similar case several years ago.

The patient was a primipara aged 18. She was somewhat anaemic but was otherwise normal. There was nothing exceptional in the medical history. Labour started on a Sunday afternoon and the baby was born at 3 p.m. on the Monday. When the head was distending the vulva the pains became more severe, and light chloroform anaesthesia was induced, and while doing this I noticed that the patient's face was becoming swollen and puffy and giving a sensation of fine crackling crepitus when the hand was passed over it. After expulsion of the placenta there was great swelling of the face and neck as well as of the chest. There was nothing abnormal during the puerperium, and at the end of twelve days all the swelling had disappeared.—I am, etc.,

Dingwall.

J. J. Sinclair.

Diagnostic Test for Kala-azar

Sir,—On coming to this Province as Inspector-General of Civil Hospitals after many years in a specialist appointment elsewhere, I find that the "aldehyde test" for kala-azar originally discovered by me and first described in my note published in the *British Medical Journal*, 1921, **2**, 266, is now everywhere associated not with my name but with another's. The facts are that on finding this remarkable reaction in a small series of cases and realizing its immense usefulness in the diagnosis of an extremely prevalent and disabling disease (easily cured once the diagnosis is made), I wrote describing it not only to you but also to the Calcutta School of Tropical Medicine, where it was abundantly confirmed and allowed to be labelled with another worker's name.

While not disputing the value of subsequent work purely confirmatory in character, I consider I am at least entitled to share the honours. The test is extremely simple and reliable, and is, in fact, performed many thousands of times annually in North-Eastern India in a form not differing in any way from that described by me.

I may perhaps further quote from Major-General Sir Ernest Bradfield's *Indian Medical Review* (p. 206): "In 1921 Spackman introduced for kala-azar a modification of the formol-gel test of Gate and Papacostas, first used for syphilis. The test was further popularized by Napier."—I am, etc.,

Bihar, India.

W. C. Spackman,
Col., I.M.S.

Irritant Spectacle Frames

Sir,—Dr. H. Thistlethwaite (April 17, p. 493) is apparently the first to record in this country the occurrence of sensitization following the wearing of spectacle frames of artificial tortoise-shell. In 1942 I mentioned in a letter to you (Jan. 3, p. 24) that H. S. Berkoff (*Arch. Derm. Syph.*, 1938, **38**, 746) reported a sensitization dermatitis related to the wearing for ten days of spectacle frames of synthetic resin. Berkoff believed that the tricresylphosphate used as plasticizer (non-volatile solvent) in the resin was the irritant agent. It is surely important to ascertain if tricresylphosphate had been used in the present material, and, if so, to test Dr. Thistlethwaite's patients for dermal sensitivity to this substance. Confirmation of Berkoff's results would be an obvious indication for action on the part of the profession in its modern role as guardian of the common man against the products of the synthetic chemist, especially in view of the wide use of artificial resins from babies' toys to suspender clips.—I am, etc.,

Department of Pathology, the University, Glasgow.

A. C. Lendrum.

Sir,—Dr. H. Thistlethwaite (April 17, p. 493) has observed a new form of allergy. Being myself susceptible to this form I noticed that for at least three weeks after buying new spectacles the condition was acute. I at first thought the irritation was due to close-fitting sides or a tight bridge, but it soon became evident that the composition of the frames was to blame, though what precise chemical I am unable to state. There were in the past three years at least ten other cases, but not all the patients bought their spectacles from the same retailer, though I believe that all the frames in this part of the country are supplied by the same manufacturer and are now of the same shape and material.

Treatment in those cases where the spectacles are worn all day consisted in covering the frames—the sides and bridge—with fine darning silk, when the condition improved rapidly. In other cases a 10% solution of ichthammol on lint at night-time proved very effective.—I am, etc.,

J. E. King.

The Services

Temp. Surg. Lieut. J. K. Thomson, R.N.V.R., has been appointed M.B.E. (Military Division) for skill and devotion in tending wounded survivors from a torpedoed merchantman, and Temp. Surg. Lieut. G. J. Laws, R.N.V.R., has been mentioned in dispatches for good services during operations off North Africa.

CASUALTIES IN THE MEDICAL SERVICES

Capt. George Macbeth Calder, R.A.M.C., who was wounded in action in the Middle East in Oct., 1942, died from the effects of his wounds last month. He was the eldest son of Prof. W. M Calder, LL.D., of Edinburgh, and graduated M.B, Ch.B. at Edinburgh University in 1936. After holding hospital appointments in England and Scotland he was specializing in psychiatry under Prof. D. K. Henderson when war broke out.

Flying Officer Harold Patterson Hall, R.A.F.V.R., who was killed in a flying accident on March 12, was born in Oct., 1914, and studied medicine at Newcastle-upon-Tyne, taking the Scottish triple qualification in 1941. After holding a house appointment at a mental hospital he received a commission in the medical branch of the R.A.F. on April 3, 1942, and at the time of his death he was M.O. to a fighter squadron.

Wounded.—Capt. G. O. Brooks, G.M., R.A.M.C., Lieut. H B. Cowan, R.A.M.C., Temp. Col. J. H. Donnelly, R.A.M.C., Major L. H. G. Moore, R.A.M.C.

Obituary

The death occurred on March 15 at Binbrooke, after a long and trying illness, of Dr. WILLIAM J. WILKINSON, a well-known practitioner in North Lincolnshire. He was 65 years of age, and was born and brought up in Lincoln, where his father practised in partnership with the late Dr. Brooke. His mother was a sister of the late Mr. W. H. Battle, the well-known St. Thomas's Hospital surgeon. He did his medical training at St. Thomas's and qualified in 1905. Over thirty years ago Dr. Wilkinson started to practise at Binbrooke, and was M.O.H. to the Louth Rural District Council from 1919 until he retired from the appointment last year. He had been a member of the B.M.A. since 1911, and was chairman of the Lincolnshire Division in 1933–4 and also served on the Executive Committee for some years. Dr. Wilkinson was friend as well as physician to many families, rich and poor, in the scattered country district in which he worked, and no doctor was held in higher regard in the Lincolnshire Wold area. His wife survives him; also a son, Dr. John Wilkinson, who is carrying on the Binbrooke practice.

We regret to record the death last summer at Kyrenia, Cyprus, of Dr. ARTHUR ELDON SCOTT. He studied medicine at the Middlesex Hospital, and after qualifying M.R.C.S., L.R.C.P. in 1896 was resident medical officer at the North-West London Hospital. He served in the last war and afterwards joined the Public Health Service of the Egyptian Government, becoming assistant M.O.H. for Cairo City, and receiving the 4th Class of the Order of Ismail in 1926. Dr. Eldon Scott joined the British Medical Association in 1897, and held office as president of the Cyprus Branch in 1937–8. He was a prominent Freemason.

News has been received of the death on Oct. 15 in Jersey of Mr. ARNOLD SAMUEL FERGUSON, throat, nose, and ear surgeon to the Jersey Dispensary and Infirmary, and aural and ophthalmic surgeon to the Jersey General Hospital. Mr. Ferguson qualified from the Middlesex Hospital in 1893 and obtained the F.R.C.S.Ed. in 1895 after serving as demonstrator of anatomy at the Middlesex Hospital and house-surgeon at the London Throat Hospital and the Oxford Eye Hospital. He was a member of the Anatomical Society and of the Laryngological Section of the Royal Society of Medicine, and joined the British Medical Association in 1893, holding office as chairman of the Jersey Division in 1926–7. He contributed to these columns a number of notes on practical aspects of ophthalmology.

Universities and Colleges

UNIVERSITY OF GLASGOW

A graduation ceremony was held on April 17, when the following medical degrees were conferred:

M.D.—[1]G. H. Bell, [2]W. S. W. Guthrie, [3]G Shearer, A. McPhater.

M.B., CH.B.—J. F. Allan, R. P. R. Allan, A. Armour, Janet Y. Baird, Mary MacN Baird, W. A. Baird, J. Berkeley, J. D. Binning, R. B. Bonar, R. P. Brittain, J. A. M. Broadfoot, H B Brown, R. A. P. Brown, R. J. Calvert, J. Campbell, Margaret M. Chalmers, Isobel J. Cochrane, H. W. Collins, W. Cormack, J. V Coyle, M. C. Crawford, J. T. Cunningham, R. Dallachy, W. H. C. Donald, T. Dougray, J. MacK. Dunn, Louise E Elbert, Elizabeth G. Fenwick, Catherine B. Foster, N. J. Fraser, D J. Gracie, G E Griffiths, W R. Hope, R. A Houston, A. McI. Hyndman, N Hyndman, S E. Jackson, H. F. Jarvie, Anne-Marie Kivlichan, J. Lapraik, E. Leahy, Margaret C. Leitch, A. Lindsay, G. G Lindsay, S. V. Livingstone, W. Lockhart, W. J Logan, M. D. MacAffer, Hope J. B. McAlpine, D. Macdonald, J. H. McDougall, J. McFadden, A. Macfarlane, D McGill, A. R. McGregor, J. J. McGrotty, O. A. MacKenzie, A. H. MacLean, R. D. H. Maxwell, A. W. Mearns, R. M. Mill, J. H Mitchell, D S. Montgomery, J MacI Moore, Anna F. S. Neil, Margaret B C. Orr, Millie M J. Peralta, Muriel H. Reid, C. D. Rigg, J. D P. Robertson, J. R. Rowell, J McG. Shaw, A. Smellie, H. G. Smith, A. Somerville, W. Thorburn, C. Wood, W. Wood, J. P. Young.

[1] With honours. [2] With high commendation. [3] With commendation.

The following prizes among others were awarded:

University Prizes.—Bellahouston Medal: W. F Anderson. Capt. H. S. Ranken, V.C., Memorial Prize: A. R. Currie, G. B S. Roberts (equal). *Special Class Prize.*—Surgery, Macleod Medal: A. G. Melrose.

CONJOINT BOARD IN SCOTLAND

The following candidates, having passed the requisite examinations, have been admitted L.R.C.P.Ed., L.R.C.S.Ed., L.R.F.P.&S.Glas.:

G. W M. Armistead, J Carey, J. Connor, W. B Cowper, J E Dawson, G. T. Donald, T. H. Forrest, B. C. Greenhill, Lore M. Hasslacher-Traub, Barbara V. Hastings, R. E. Heap, Daphne M E Kayton, H. Kraus, F H. Leckie, J. McAllister, J J. McMurray, J. J. MacPherson, R. R. Mahlangeni, D. R. Martin, J E. Miller, H. A Myers, D. Naidoo, Caroline N. Nompozolo, R. M. Oliver, Bridget Purcell, Y D. Sethi, J. M. Stirling, Roza Szteinhaus, N. R. B. Turner.

O. Fehr, a graduate of a recognized foreign university, was also admitted a licentiate.

Medical Notes in Parliament

Comprehensive Health Service Plans

On April 15 Mr. SORENSEN asked Mr. Ernest Brown when his plans for a comprehensive medical and health service were likely to be brought before the House. Mr. BROWN replied that preliminary discussions were taking place with representatives of the medical profession, local authorities, and voluntary hospitals. He contemplated publishing in advance of the introduction of legislation, and, he hoped, in the course of the next two or three months, a general statement of his proposals, which would afford all concerned an opportunity of considering and criticizing them. The plan would not include the mental hospital and mental deficiency services.

Nurses Bill

The second reading of the Nurses Bill was moved in the House of Lords on April 13. This measure has already passed through the House of Commons. Lord SNELL said there was a need for competent assistant nurses who might not reach the qualification set out in the State Register but might be admirable practical nurses when under supervision. Hospitals for chronic patients largely depended on the services of these assistant nurses. Some reports on the nursing profession had proposed that it should be an offence for any person other than a State-registered person or an enrolled assistant nurse to care for the sick habitually for gain, and that had been recommended by the Nursing Reconstruction Committee over which Lord Horder presided, but Mr. Brown felt unable to accept the suggestion.

Lord HORDER said that the nursing profession would welcome the Bill along with the economic adjustments recommended by the Rushcliffe Committee. The two things together would raise the status of the nursing profession in this country. No man or woman who could not be put into the categories of State-registered nurse, assistant nurse, and student nurse should be allowed to attend the sick person. Lord RUSHCLIFFE said that in some local authority institutions 40% of the nursing staff were assistant nurses.

The Bill was read a second time.

Committee on Penicillin

Sir ANDREW DUNCAN reported on April 13 that the first meeting had been held on Oct. 13, 1942, of a committee to report on penicillin. The object of the committee was to secure that all available information regarding clinical and chemical trials and methods of production was collected and exchanged and everything possible done to promote rapid development. The committee included: Prof. A. Fleming, Prof. H. W. Florey, Prof. H. Raistrick, Sir Robert Robinson, Dr. C. R. Harington, Dr. A. N. Drury, Dr. V. D. Allison, Prof. I. M. Heilbron, and Lieut.-Col. Sir Russell Wilkinson, together with representatives of firms engaged in production of penicillin.

Diphtheria and Immunization in Germany

Mr. ERNEST BROWN stated on April 15 that there was no general immunization against diphtheria in Germany, but it appeared to be used locally in epidemics. The much-increased prevalence of the disease in Germany, and the fact that there had been no serious increase in two enemy-occupied countries where immunization was fairly complete, lent support to the British Government's policy in advocating the immunization of children in this country.

Army Education on Venereal Diseases

Answering Mr. Beaumont on April 13 Sir JAMES GRIGG said all officers in medical charge of units had been instructed to give periodical lectures to troops on the subject of venereal disease. Education was a slow process, but he was satisfied with that being made. Notice Board Information No. 28 explained the purpose of Defence Regulation 33B and the action soldiers should take as a result of it. The possibility of issuing films and literature on this subject had not been overlooked, but it was not thought that any at present available would prove effective.

Examination in Services by Women M.O.s

Mr. BELLENGER asked questions about routine examination of men in the Forces by women medical officers. On April 13 Sir JAMES GRIGG replied that soldiers who objected to a complete medical examination by a woman medical officer were not entitled to ask for a male medical officer, but if one were in fact available he would normally carry out the inspection. Women medical officers were usually posted to units or localities where A.T.S. were largely employed. On April 14 Sir **Archibald Sinclair** said R.A.F. personnel could be compelled to undergo routine medical inspection which might be undertaken by a woman medical officer. In practice male medical officers performed these duties save in very exceptional circumstances. On the same day Mr. A. V. **Alexander** said that in the Navy it would be very exceptional for women medical officers to examine personnel other than members of the W.R.N.S. and the nursing services. In an emergency, if a male medical officer were not available, it might be necessary for an officer or rating of the Royal Navy to undergo examination or treatment by a woman medical officer. The Navy had not a large number of women medical officers.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* the following infectious diseases were less in incidence than in the previous week by the figures given after each: measles 1,512, scarlet fever 220, pneumonia 204, whooping-cough 124, diphtheria 69.

The only large variations from the totals of the preceding week for diphtheria and pneumonia occurred in Lancashire, where there were respectively 37 and 44 fewer cases. Yorks West Riding recorded the largest drop for whooping-cough, 41 cases. In London and the south-eastern counties scarlet fever tended to rise, though there was a general fall elsewhere.

For the counties the figures given represent the extent of the decline in measles: Durham 284, Essex 202, Lancashire 197, Staffordshire 185, Warwickshire 177, Gloucestershire 173, Hertfordshire 165, Nottinghamshire 123, Devonshire 112, London 107. Increased incidence was recorded in several counties, the largest being Derbyshire 129, Kent 88, Norfolk 84, Surrey 72.

Notifications of dysentery went up by 7 during the week. An outbreak involving 40 persons was reported from Gloucestershire, Cheltenham M.B. Half of the remaining 76 cases were notified in three counties: Yorks West Riding 13, Lancashire 12, and London 11.

In *Scotland* measles was up by 118 cases and whooping-cough by 54, but acute primary pneumonia was down by 60 cases. The higher incidence of measles was due mainly to the epidemic in Glasgow, where notifications rose from 364 to 449. In Edinburgh the cases went up from 139 to 150. The increase in whooping-cough was due to the experience of the same two cities, which recorded increases of 19 and 32 respectively.

In *Eire* another 3 cases of typhus were notified in Co. Leitrim, Carrick-on-Shannon No. 1 R.D. This brings the total cases in this area to 19 in the past three weeks.

In *Northern Ireland* there were 317 cases of measles, compared with 99 in the preceding week: Belfast C.B. 110, and Lisnaskea R.D. 207.

Winter Epidemics

The returns of the fourth war winter now having been completed, it is of interest to compare the experience of the past winter with that of the three preceding ones. The general experience compares favourably with that of the previous war winters. The notifications for 26 weeks—the first 13 of the year and the last 13 of the preceding one—are:

	1939–40	1940–1	1941–2	1942–3
Scarlet fever	30,284	38,647	31,525	61,492
Diphtheria	21,451	31,608	24,992	22,041
Acute pneumonia ..	30,032	29,683	26,800	27,450
Cerebrospinal fever ..	5,432	6,138	3,879	2,176
Dysentery	1,130	2,902	3,671	3,378
Paratyphoid and typhoid fevers	518	637	774	359
Measles	—	370,780	36,132	343,759
Whooping-cough	—	69,403	41,974	37,283
Deaths from influenza in the 126 great towns	4,935	2,554	1,186	1,487

During the past year the incidence of scarlet fever was twice that of the previous winters, but the other infectious diseases common to childhood—diphtheria, measles, and whooping-cough—were at a lower level. The relative position of diphtheria is probably somewhat better than the actual figures suggest, because there has been an increase during the war of the proportion of diagnostic errors. The incidence of paratyphoid and typhoid fevers has been exceptionally light, but dysentery has remained at a high level.

The Week Ending April 17

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 2,058, whooping-cough 1,944, diphtheria 723, measles 16,732, pneumonia 1,139, cerebrospinal fever 103, poliomyelitis 5, dysentery 107, paratyphoid 3, typhoid 11. The deaths from influenza recorded in the 126 great towns for the week numbered 43.

No. 14

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended April 10.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London) (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	92	4	36	7	11	199	8	47	1	6
Deaths		—	—				1	3		
Diphtheria	729	49	185	89	33	736	37	210	35	17
Deaths	13	—	1	5	1	25	—	5	—	—
Dysentery	116	11	29	—	—	168	12	95	—	—
Deaths		—		—	—		1		—	—
Encephalitis lethargica, acute	1	—	—		—	5	—	1		—
Deaths		—	—				1	—		
Erysipelas		—	47	4	1		—	43	10	5
Deaths			—					—		
Infective enteritis or diarrhoea under 2 years				16					4	
Deaths	58	11	7	17	4	37	6	13	—	1
Measles	18,056	1,059	792	38	317	3,757	287	218	158	29
Deaths	21	2	4	—	1	3	—	2	1	1
Ophthalmia neonatorum	74	3	25	1	1	73	1	24	1	—
Deaths										
Paratyphoid fever ..	3	—	2			6	—	2		
Deaths	—	—	—		—	—	—	—		—
Pneumonia, influenzal*	1,290	90	15	10	15	1,089	54	18	4	4
Deaths (from influenza)	62	4	1	—	—	33	2	3	—	1
Pneumonia, primary ..			244	23				320	23	
Deaths		—		6	16		43		1	12
Polio-encephalitis, acute	2	—				—	—			
Deaths		—					—			
Poliomyelitis, acute ..	4	—	2	2	—	2	1	—	—	—
Deaths		—					—			
Puerperal fever ..		2	26	2	—		1	13	1	—
Deaths		—					—			
Puerperal pyrexia ..	173	7	21		1	187	13	18		—
Deaths										
Relapsing fever ..	—	—			—	—	—			—
Deaths										
Scarlet fever	1,993	209	268	41	58	939	45	157	56	31
Deaths	2	1	—	—	—	1	—	—	—	—
Small-pox	—	—	—		—	—	—	—		—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever† ..	6	—	1	5	5	3	—	5	6	2
Deaths	1	1	—	1	—	—	—	1	—	—
Typhus fever	—	—	—	3	—	—	—	—	1	—
Deaths	—	—		—	—	—	—		—	—
Whooping-cough ..	1,954	168	268	23	18	1,269	154	43	22	11
Deaths	19	5	4	3	—	14	2	—	—	—
Deaths (0–1 year)	419	45	71	49	32	370	41	78	34	25
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	4,772	634	644	241	158	4,796	680	733	248	125
Annual death rate (per 1,000 persons living)			14·5	15 8	‡			10·5	16·6	‡
Live births	6,596	782	992	440	311	5,731	589	924	336	230
Annual rate per 1,000 persons living ..			20 2	28 9	‡			19·1	22·4	‡
Stillbirths	236	23	39			253	24	34		
Rate per 1,000 total births (including stillborn)			38					35		

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* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes paratyphoid A and B for Northern Ireland.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Medical News

Prof. E. D. Adrian, O.M., M.D., F.R.S., will deliver the fifth Sharpey Schafer Memorial Lecture, on "The Sensory Areas of the Brain," on Thursday, May 6, at 5 p.m., in the University New Buildings, Teviot Place, Edinburgh. All interested are invited to attend.

Dr. Karl T. Compton will deliver the Pilgrim Trust Lecture on "The Organization of American Scientists for the War" before the Royal Society, at Burlington House, W., on Thursday, May 6, at 4.30 p.m.

A sessional meeting of the Royal Sanitary Institute will be held at Harrogate on May 15, when papers will be read on "Rheumatism in Relation to Industry" by Dr. S. A. Underwood, and "Treatment Facilities for Rheumatism at Harrogate" by Dr. W. Edgecombe. Dr. R. Sutherland will speak on "Health Education."

The National Council for Maternity and Child Welfare (117, Piccadilly, W.1) has arranged a conference on the conditions of children in the occupied countries of Europe, to be held at the Royal Institution, Albemarle Street, W., on Thursday, May 6, at 2.30 p.m., with Lord Dawson in the chair.

An editorial in the April issue of *Mother and Child* (No. 1, vol. xiv) announces that this journal, founded in 1908 under the title of *National Life*, is now the official organ of the National Baby Welfare Council, with its 47 affiliated societies. The office is at 29, Gordon Square, W.C.1, and the price of each monthly copy is 1s.

Among the new Justices of the Peace for Monmouthshire are Dr. John Henry Verwey and Mr. D. N. Rocyn Jones, M.D., F.R.C.S.Ed.

A medical field service school, to train medical officers serving with United States Army units in the field, has been opened at the American school centre in England.

On April 6 at Grimsby Police Court a woman aged 23 was sentenced to three months' imprisonment, under Defence Regulation 33B, for not complying with the medical officer's notice to be treated for venereal disease. The town clerk said that there was no desire to punish this woman, but the Health Department sought aid in doing something necessary for the well-being of the public.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

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ANY QUESTIONS?

Nicotinic Acid for Neuralgia

Q.—*Has the treatment of trigeminal neuralgia with nicotinic acid proved to be successful? If so, is it of any value in other forms of neuralgia and neuritis?*

A.—On the supposition that the paroxysms of trigeminal neuralgia are ischaemic in origin, the condition has been treated with vasodilator drugs, including nicotinic acid. In seven cases treated with doses of nicotinic acid ranging from 50 mg. twice daily to 75 mg. four times daily, there was improvement in each instance. But this work awaits confirmation. So far as is known, nicotinic acid has not been used in other cases of neuritis and neuralgia. In the past many forms of treatment have been reported to effect temporary improvement in trigeminal neuralgia, but most of them have subsequently fallen by the wayside. There can be no doubt that structural changes occur in the trigeminal nerve to produce such a sustained and intractable syndrome. Injections of alcohol and division of the sensory root still remain the fundamental treatment

Gonococcal Reinfection and Stricture

Q.—*A patient aged 59 had gonorrhoea at 26. He noticed a gleety discharge in August, 1942. He also has a stricture which only allows the passage of a bougie No. 6 (English). He was treated with sulphadiazine 4 g., lasting for fourteen days on four separate occasions, and the stricture was dilated to No. 13 (English). There is now only the slightest trace of a clear discharge and no heavy threads in the urine, which is normal. Slides showed the gonococcus on the first occasion, but repeated examinations have shown no gonococcus, a very few white cells, and small numbers of Gram-positive diplococci and Gram-negative coliform bacilli. The bacteriologist thinks these are a secondary infection. Is this man infectious?*

A.—Assuming that gonococci were found in August, 1942, this appears to be a reinfection, since a relapse after 33 years is very improbable. The fact that gonococci disappeared rapidly under sulphadiazine therapy, which was more than adequate, suggests that the gonorrhoea is cured and that the patient is non-infectious. The clear discharge is probably due to the stricture and secondary infection. The anterior urethra should be examined with a urethroscope for the presence of follicles, and the prostatic and vesicular secretions by smear and culture; a gonococcal complement-fixation test would be useful. If the results of these are negative it may be assumed that the gonorrhoea is cured; nevertheless, it should be borne in mind that the sulphonamides are less effective when closed foci are present than when there is good drainage, and all tests should be repeated on several occasions. It is important that the stricture should be dilated periodically, up to 16 English; otherwise it is certain to contract.

Pain in the Fore-foot

Q.—*What treatment is recommended for a painful foot resulting from flattening of the metatarsal arch?*

A.—There are numerous causes of pain in the fore-foot. Did it come on after a cross-country run, route march, or P.T.; or insidiously for no apparent reason? Are the toes deformed and painful on movement? Is the patient subject to rheumatism, or has he had a recent infection? Has he lately been convalescent after an accident, operation, or other illness? Are there any callosities? Is the pain localized to any metatarsal head?

All these questions are pertinent. "Flattening of the metatarsal arch" is not a diagnosis. Assuming that the toes are not deformed, that the pain came on insidiously and is localized to the third or fourth metatarsal head, a well-applied pad will give relief. Don't suggest that the patient should buy a pad. They are usually not efficient, and in any case the trouble may be only temporary. A chiropodist will apply a protective pad, and probably in a week or two the pain will disappear spontaneously.

There are not many mechanical conditions of the fore-foot the pain of which cannot be greatly relieved by a good chiropodist. If one or more toes are painful on movement and tender on the dorsum as well as underneath the metatarsal head, physiotherapy, heat massage, and exercises, combined with curtailment of activities for a week or two, is the best treatment. If this is impossible the toe can be worked loose after a hot bath night and morning, and a metatarsal bar applied to the boot will give some measure of rest to the toe. If the pain in the foot synchronized with an infection of some kind, then rest and soothing physiotherapy are essential. There should be no compromise; in the long run time is saved. If it came on after an accident at P.T. or cross-country run, the pain is probably due to bruising or strain, and a protective pad well applied by a good chiropodist is all that is necessary. If the pain has resisted all other treatment a manipulation by an orthopaedic surgeon, followed by physiotherapy, will probably help.

INCOME TAX

Entertainment Expenses

"L. S." is informed that the Commissioners for the Division in which he is assessed have repeatedly ruled on appeal that entertaining expenses cannot be allowed to professional men.

*** We understand that this is a not uncommon view, notwithstanding that such expenditure would be allowed to business men when spent to attract custom. The legal position is governed by Rule 3 (*a*) applicable to Cases I and II, Schedule D, which provides that "any expenses not being money wholly and exclusively laid out or expended for the purposes of the trade or profession" shall not be deducted. On the facts as put by our correspondent this attitude imposes a hardship—i.e., in a case where custom dictates the necessity, or at least the advisability, of affording hospitality solely for reasons of professional gain. The prospects, however, of upsetting such a decision by an appeal to the High Court are not tempting, particularly because, unless the Court holds that there are no grounds on which they could have arrived at their decision, the verdict of the Commissioners on a question of fact is final.

Miscellaneous Queries

D. R.'s inquiries are answered below.

1. No allowance is due for "repayment of a loan"; it is a transaction of a capital nature.

2. A wife's earnings are taxed on the amount of her earnings less one-tenth earned income relief (unless her husband has had the maximum of £150) and less a special allowance of £80. The £165 payable at the reduced rate of tax—i.e., 6s. 6d.—applies to the joint and not to the separate incomes.

3. Whether parents "partially dependent" on a taxpayer create a claim to "dependent relative relief" depends on the circumstances. The parent must be "maintained" by the taxpayer and his (or her) own income must not exceed the statutory limit.

4. The cost of replacing textbooks is admissible in calculating liability under Schedule D, but not where Schedule E applies, as it does in the case of income from an appointment. In neither case is the cost of starting or improving a professional library permissible.

Allowance received for Travelling Expenses

"Z. Y." is a part-time anaesthetist in the E.M.S. and receives a salary of £360 per annum plus £100 per annum for travelling expenses. Is he liable on the £100?

⁂ No, unless the circumstances are such that the £100 includes an amount which is in effect additional remuneration.

LETTERS, NOTES, ETC.

The Oxford Ether Vaporizer

Dr. J. B. H. HOLROYD (Sheffield Royal Infirmary) writes: I fully agree with Dr. Elam's letter (Feb. 20, p. 232) on the Oxford vaporizer; I think this machine is most efficient in every way. I have been using it for several months and my findings are the same as Dr. Elam's. I find that it is very easy to handle and very easy to learn. The students who pass through my hands at the Royal Infirmary are all taught to use it, and, without exception, find no difficulty in getting really proficient. I have tried it on all manner of cases, good risks and bad ones, and get the same satisfactory results. I have never selected the cases, so that I could give the machine a severe trial. A most important finding is that, compared with open ether, a saving of about 60% of ether was obtained in my series of cases and without any complications. I fully endorse Dr. Elam's remark: "the apparatus of choice for the general practitioner anaesthetist."

Histamine for Psoriasis

Dr. E. HAYLING-COLEMAN (Wolverhampton) writes: Some time ago I had an experience somewhat similar to that described by Dr. J. S. Knox (April 3, p. 426). I was treating a case of gastric ulcer with injections of larostidin—i.e., histamine—when to my surprise an old-standing psoriasis rash disappeared. I was so impressed that I looked round for another case of psoriasis to try it on. Again the result was most marked and satisfactory. Unfortunately both are now showing signs of a return of the rash and will need a further course of injections, but the remission has lasted several years.

Age and Perforated Gastric Ulcer

Mr. D. J. P. O'MEARA (Bury St. Edmunds) writes: Dr. Kyle of Brecon reports a case of perforated gastric ulcer in a soldier of 19 years (March 20, p. 370) and remarks that it is unusual at such an age. I have no statistics available, but I thought it might interest him and others to hear of a case of perforated gastric ulcer in a boy of 16 years, who was admitted into the West Suffolk Hospital under my care on June 23, 1941. He was an apprentice engineer, with a history of indigestion for 5 days before admission. Some hours before he was admitted he was seized with acute abdominal pain and vomiting. At operation a small perforated "acute" ulcer was found on the lesser curvature and was repaired. Convalescence was uneventful. Of some interest, too, is a patient of mine, now aged 62, who has had a perforated gastric ulcer on three occasions—in 1927, 1930, and 1935. I did not operate on him in 1927, when he had a gastrojejunostomy performed at the same time. On account of numerous adhesions the last gastric perforation had formed a local abscess before surgical help was requested. Since his last operation, despite a severe attack of pneumonia last year, he has been in fairly good health, with occasional attacks of "indigestion." These attacks are usually accompanied by a call for a visit in case he has "burst again."

Mr. J. R. M. WHIGHAM (St. Andrew's Hospital, E.3) writes: Dr. Kyle will be interested in the article by Lee and Wells, "Perforation *in utero* of a Gastric Ulcer" (*Ann. Surg.*, July, 1923, p. 36). Gastric and duodenal ulcers seem to occur at all ages, and rare instances of perforations in infants and children are to be found in the literature from time to time. My personal experience of cases in patients under 20 consists of two boys aged 17 and 16 respectively, who collapsed at work, with a doubtful period of three weeks' indigestion previously in the case of one of them. Both ulcers were gastric, situated near the pylorus, and at operation simple suturing (with peritoneal drainage in one instance) was successfully performed. The first boy required a gastro-enterostomy two years later (1939) for the recurrence of gastric symptoms, but he has since remained well.

Dr. E. C. EDWARDS writes: Dr. D. Kyle's case prompts me to record an almost similar case which recently came under my care. A healthy-looking young soldier of 20 was admitted to Penzance Hospital suffering from an attack of vomiting with severe abdominal pain, which had developed suddenly three hours before admission and without any previous symptoms. From the history and physical signs I had no difficulty in diagnosing a perforated gastric ulcer and at once performed laparotomy. A perforated small acute gastric ulcer with no surrounding induration was easily found on the anterior surface of the stomach one inch from the pylorus, with a fair amount of stomach contents free in the peritoneal cavity. The perforation was sutured and the patient made an uninterrupted and rapid recovery. The interest of the case seems to lie in the youth and otherwise good health of the patient without any previous symptoms of gastric discomfort.

Infection in the Crowded Surgery

Dr. J. F. PAYAN (Barkingside) writes: It must have occurred to every busy practitioner during these last few weeks how little good we are really imparting to our patients crowded in a stuffy "blacked-out" waiting-room. To see babies in arms inhaling air polluted by bacteria expectorated by the older patients fills me with apprehension. Some of these little creatures may be suffering from some teething disorder, but little do their mothers realize that, before leaving, their babies are already potential sufferers from some more evil complaint. What are we to do? Pressure of work and shortage of petrol preclude doctors from visiting many of these patients at their homes. The ignorant mother wants just advice, which she must obtain after passing through the "lethal" chamber. I wonder that some ingenious person has not devised a mask (not too hideous) for patients to wear when visiting their doctors. How much sickness and unnecessary work would then be prevented?

Training in Preventive Medicine

Dr. S. T. BEGGS (Morecambe) writes: It is contended that a different outlook on medical practice is required in the reorganization of the profession. This can only be brought about in the training of the medical student. Great stress has been placed on preventive medicine both in the Beveridge report and by the Ministry of Health. The student can be directed to this side of medicine only by making the qualification in preventive medicine equal to that in medicine and surgery, so that in a university final the degrees would be bachelor of medicine, bachelor of surgery, bachelor of public health. This should not add greatly to the curriculum except that a six-months attendance would be required at all departments in the public health service of a county borough.

Treatment of Scabies

Dr. R. T. BRAIN writes in reply to Dr. Spackman's letter in the *Journal* of April 17 (p. 496): I was impressed by Dr. Graham's article on scabies treated with one application of benzyl benzoate, which adds support to Mellanby's view that disinfection of the fomites is unnecessary, and it appears to be uneconomic for the local authorities to continue the mass disinfection of patients' clothing. On grounds of hygiene alone I would still advise the thorough washing of sheets and underclothing, as mentioned in my article in the April number of the *Practitioner*, and, moreover, it does eliminate one of the factors, admittedly the least important, accounting for reinfection. I also maintain that although the efficacy of a single treatment given by trained personnel has been demonstrated it would be unwise to depend upon an equivalent standard of efficiency in the home.

Textbooks for Medical Students in Malta

Mr. DAVID PYKE, on behalf of the British Medical Students' Association (B.M.A. House, Tavistock Square, W.C.1), writes: May I appeal to any of your readers who possess unwanted medical textbooks? We have received a letter from the Students' Representative Council of the University of Malta saying that they are desperately short of essential books, mentioning: *Gray's Anatomy, Bigger's Bacteriology, Cushny's Pharmacology, Clark's Applied Pharmacology, Price's Medicine* or *Osler's Medicine, Green's Pathology*, and *Kerr's Obstetrics*. Most of the students at present have no books; the lucky ones have them dating from Lister's time. I believe that before the war students from Malta completed their training abroad, and that the opening of a clinical teaching department, combined with great shortage of shipping space, has produced the present difficult situation. We have been assured of every possible help by the Colonial Office, and therefore anyone who is kind enough to send medical textbooks to us may feel certain that every endeavour will be made to see that they reach our brave friends in Malta.

BRITISH MEDICAL JOURNAL

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DESOXYCORTICOSTERONE IN ADDISON'S DISEASE

A COMPARISON OF DIFFERENT METHODS OF ADMINISTRATION

BY

D. M. DUNLOP, M.D., F.R.C.P.Ed.

(From the Clinical Laboratory, the Royal Infirmary, Edinburgh)

It is well established that desoxycorticosterone acetate (D.O.C.A.) is highly effective in the treatment of Addison's disease when given intramuscularly or implanted in pellets under the skin. The drug is ineffective when swallowed. The repeated injection of an oily solution, however, is inconvenient, especially for thin patients with poor muscles, who form the majority of those suffering from Addison's disease; in addition such an injection usually involves a visit to the doctor, and for the uninsured this may add considerably to the already high cost of the drug. The implantation of a big single dose of D.O.C.A. practically eliminates these drawbacks, since such an implantation may suffice for many months. Once implantation has been made, however, there is no means of controlling dosage. Thus dangerous toxic effects such as massive oedema and hypertension are theoretically possible from the excessive absorption of the active principle, and these have been noted by Loeb (1940).

Anderson, Haymaker, and Henderson (1940) reported good results from the sublingual administration of D.O.C.A., comparable to those obtained by injection. Two to six mg. of the drug dissolved in propylene glycol were given daily in divided doses, the drops being retained under the tongue for as long as possible. The D.O.C.A. so administered appeared to be a satisfactory form of replacement therapy for six patients over a period of six to eight weeks. Similar good results were obtained by Turnoff and Rowntree (1941) in two cases. Wilson (1942), on the other hand, found the sublingual use of D.O.C.A. dissolved in propylene glycol of little or no therapeutic value. Despite the daily sublingual administration of as large a dose as 10 mg. the four patients studied showed an alarming tendency to relapse into Addisonian crisis, though they had all previously been maintained satisfactorily by smaller intramuscular doses.

During the last year and a half an investigation has been undertaken into the effectiveness of D.O.C.A. when absorbed from the buccal cavity, and a comparison has been made between its potency when administered in this way and when given by implantation or intramuscular injection. Seven patients suffering from characteristic and unequivocal Addison's disease have been studied.

Criteria of Potency

Some initial difficulty was experienced in determining the clinical criteria to be adopted in assessing the potency of the drug. The mere subjective sensations of the patient were obviously unsatisfactory and unreliable; the blood pressure in Addison's disease often remains low in spite of considerable clinical improvement, and is not an accurate expression of the progress of a case; the blood chemistry is also an inadequate index of the effectiveness of treatment (Dryerre, 1939) since it is often quite normal during the more chronic phases of Addison's disease (Snell, 1934) and it is only at the onset of crisis that significant changes take place in the urea, sodium, and potassium content of the blood (Allott, 1936). D.O.C.A. has, however, such a potent effect in causing retention of sodium that oedema is easily produced even in Addison's disease when it is administered along with salt. The development of oedema may therefore be taken as an indication that the drug is potent, since salt alone in doses up to 15 g. a day will not produce oedema. Even in the absence of actual oedema a steady gain in weight will suggest that the drug is active, especially if the weight falls again when its administration is discontinued.

Sublingual and Sublabial Methods

Fig. 1 shows the effect of the daily sublingual administration of 10 mg. of D.O.C.A. on the weight of two patients suffering from Addison's disease. The drug was dissolved in propylene glycol, and administered by a special dropper under the tongue, being left there without swallowing for 15 minutes. Seven applications of four drops were given each day, equalling a total dosage of 10 mg Throughout the observation 7.5 g. of salt were given daily The ease with which oedema was produced in the first case was due to the fact that the patient had previously been well hydrated by the use of salt and intramuscular D.O C.A.

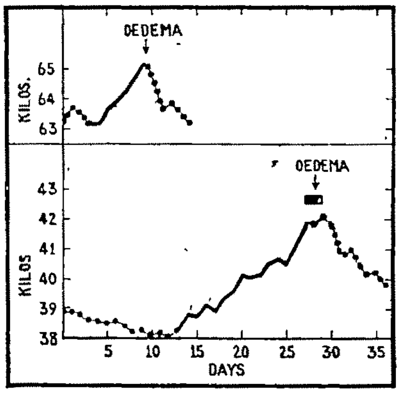
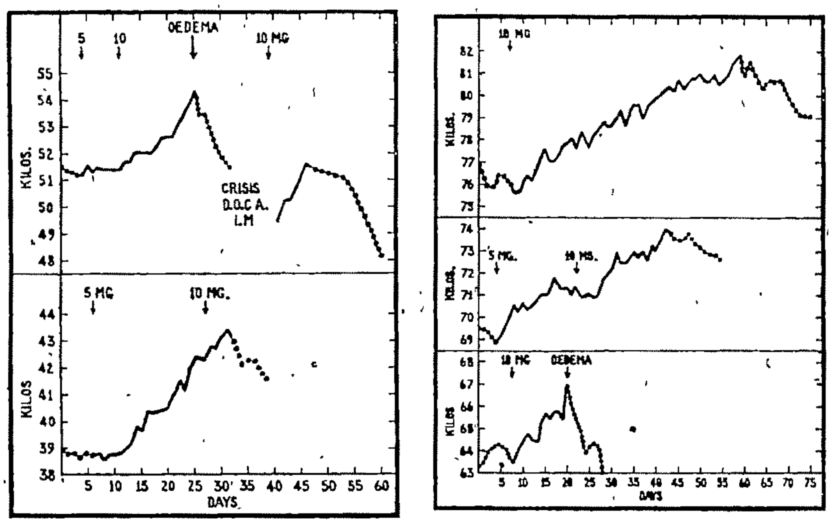


FIG. 1.—Effect of sublingual administration daily of 10 mg of D.O.C.A. dissolved in propylene glycol. The dotted line represents the administration of salt alone; the continuous line represents the administration of salt and D.O.C.A.

As oedema was produced in both cases these two experiments seemed to prove that D.O.C.A. was successfully absorbed when given sublingually. In propylene glycol the taste of the drug was not objectionable, being like that of the crushed pips of apples, but the method was excessively tedious and laborious. It is true that the smaller doses required for simple maintenance treatment would not have involved so much trouble, but a less cumbersome administrative technique was obviously desirable.

In consequence Organon Ltd. supplied small tablets of D.O.C.A., each containing 2.5 mg. of the drug, which could be held without difficulty between the upper lip and gum for a long time, even after they had begun to crumble. It was hoped that in this situation there would be so little salivary washing of the tablet that any escaping steroid would be absorbed from the oropharynx and pharynx, and that scarcely any would reach the gastric mucosa.

Figs. 2 and 3 represent the effects produced on the weight of five cases of Addison's disease by the drug administered in this way. It will be seen that oedema occurred in only two of the patients. Both of these had received very adequate treatment by intramuscular D O C A. and salt before the experiment began. The other three patients were untreated cases of Addison's disease, starting in a dehydrated state, they had to leave hospital before oedema was produced. In each of these latter cases, however, a significant gain in weight occurred when sublabial D.O.C.A. was given, and weight was lost as soon as it was stopped, in spite of the fact that the daily dosage of 7.5 g. of salt was continuous. Clinical improvement paralleled the gain in weight, and in one case crisis developed when the drug was withdrawn.



FIGS. 2 and 3.—Effect of D.O.C.A. in doses of 5 or 10 mg. daily, administered sublabially in tablets.

These experiments seemed to leave no doubt that D.O.C.A. given in tablets sublabially is effective in the treatment of Addison's disease. Using 2.5 mg. tablets in this way, 10 mg. can easily be administered daily without any of the inconvenience of the sublingual method, and without the disadvantage of making the patient dependent on a doctor or nurse for frequent intramuscular injections of an oily solution.

Deep Subcutaneous Implantation

The late Dr. Henry Dryerre, working in this department, was among the first to observe the effect of D.O.C.A. in Addison's disease when implanted in pellets in the deep subcutaneous tissues. During the past four years we have treated three patients successfully in this way, seven separate implantations having been made. Two of them are in good health. One has died owing to the administration of a general anaesthetic, to which patients with Addison's disease are notoriously intolerant. The implantation of a single dose of 200 mg. of D.O.C.A. kept these patients in good health for periods varying from six to eight months. Subsequent implants then became necessary. The technique is perfectly simple, and no untoward effects, such as those recorded by Loeb, have been produced during the course of seven implantations. It is quite possible that a larger initial implantation—say of 400 mg.—would be safe and would last twice as long as 200 mg., but so far we have not had an opportunity of confirming this possibility.

Comparative Dosage

Owing to the considerable cost of D.O.C.A. it seemed important to ascertain how it could be administered most economically. In one case a comparison has been possible between the minimum dosage required to maintain the patient's weight and to keep him in good clinical condition when the drug was administered by implantation, by intramuscular injection, and by the sublabial method. Similar comparisons have been made in two other cases between two of the techniques —either the implantation and intramuscular or the intramuscular and sublabial methods. The results are shown in the following table:

	Method	Duration in Months	Total Dose in Mg.	Average Requirement per Week in Mg.
Case 1	Implantation	7	200	6·9
		6	200	7·7
	Intramuscular ..	6	240	9·2
	Sublabial	1½	170	28·3
Case 2	Implantation ..	6½	200	7 1
	Intramuscular .	3	120	10 0
Case 3	Intramuscular ..	4	120	7 5
	Sublabial	1	155	38·8

It will be seen that D.O.C.A. is rather more economical when implanted than when injected intramuscularly. It is also more convenient for maintenance purposes, though the intramuscular method should be used in the treatment of Addisonian crisis and in the initial control of an untreated case. Both methods are much more economical than the sublabial technique, which requires from three to five times as much of the drug to produce the same therapeutic effect. It is true that the pharmaceutical packing of the drug in phials or ampoules and the bacteriological sterility tests involved may increase the cost of the parenteral preparations by a few shillings. Such pharmaceutical packing and bacteriological work, however, are relatively so inexpensive in comparison with the cost of the original materials and the chemical processing as to make little difference to the total cost of the final product.

Summary and Conclusions

D.O.C.A. has proved effective in two cases of Addison's disease when administered sublingually dissolved in propylene glycol. The method is very cumbersome and wasteful.

D.O.C.A. has proved effective in five cases of Addison's disease when administered sublabially in tablets. The method is convenient but very wasteful.

Three cases of Addison's disease have been treated by implantations of D.O.C.A. Seven implantations in all have been made, each of 200 mg., without untoward effects. Each implantation has sufficed to keep the patient in good clinical condition for periods varying from six to eight months. It is suggested that implantation is the method of choice on the grounds both of economy and of convenience.

The intramuscular injection of D.O.C.A., though very effective, is rather less economical than its implantation and much more inconvenient. It should be reserved for the initial control of untreated cases and for the treatment of Addisonian crisis.

I am indebted to the Moray Research Fund of Edinburgh University for a grant in aid of the purchase of the D.O.C.A. pellets for implantation, and to Organon Ltd. for supplying the tablets of D.O.C.A. for sublabial use.

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Dogs depleted of protein are very susceptible to injurious agents, especially to chloroform. L. L. Miller and G. H. Whipple (*J. exp. Med.*, 1942, **76**, 421) find that methionine administered to dogs shortly before chloroform anaesthesia gives them complete protection against this drug. Similar protection against liver injury is also afforded if methionine—an essential sulphur-containing amino-acid—is given three to four hours after chloroform anaesthesia. They point out that in the past, and often in the present, cases of liver injury are treated with a high carbohydrate diet. Agreeing that there is good reason for this, they state that on the basis of modern work the correct treatment is to give a diet which is high in protein as well.

THE INVESTIGATION OF HAEMOLYTIC TRANSFUSION REACTIONS*

BY

P. L. MOLLISON, M.B., M.R.C.P.

(Concluded from p. 532)

Interpretation of Tests

The large number of tests described above will not all have to be applied in the majority of cases. The procedure should be to test for the most likely cause first and only to apply other tests when the first ones are negative or inconclusive. For instance, preliminary regrouping of the blood of the donor and recipient may reveal a mistake in A–B–O grouping, and in such cases no other tests will be necessary (Cases 1 to 4). Alternatively, if no theoretical incompatibility according to the A–B–O system is revealed between the donor's cells and the recipient's serum, but the recipient is a woman who has given birth to an infant affected with erythroblastosis foetalis, the possibility that the reaction has been caused by previous immunization of the recipient to the Rh agglutinogen should be first considered and the appropriate means taken to test this possibility (Cases 5 and 6).

When a blood sample is taken from the recipient immediately after an incompatible transfusion it should be realized that it may contain an appreciable number of donor cells and that this may possibly lead to a mistaken diagnosis of the recipient's group. Thus, for instance, in Case 4, 24 hours after the transfusion of group B blood to a person of group O the recipient's circulation contained appreciable numbers of B cells, both agglutinated and unagglutinated. In the case of the A–B–O groups mistakes are not likely to be made, however, because the appearance of partial agglutination is so different from the usual complete agglutination of the A and B reactions. In the case of incompatibility due to Rh differences mistakes are more likely, however. When an Rh-negative person already sensitized to the Rh agglutinogen is transfused with Rh-positive cells the post-transfusion sample may contain appreciable numbers of Rh-positive cells although their destruction is proceeding rapidly, and this may lead to the impression that the recipient is Rh-positive (see Diamond, 1942, for instance). The use of powerful sera should enable this appearance of partial agglutination to be recognized with certainty from that of complete agglutination.

When the donor's cells are retested against the recipient's serum it must be remembered that the titre of the offending agglutinin in the latter may be very low after transfusion, so that the donor's cells may appear to be compatible with the recipient's serum. For this reason the pre-transfusion sample of serum from the recipient should be used whenever possible, or else a sample taken at least five days after transfusion.

It must also be borne in mind that in recently delivered women immune agglutinins may be found in the serum owing to stimulation by foetal agglutinogens occurring during pregnancy. There is evidence that when the foetal red cells contain either the A or B agglutinogens and the mother's red cells lack the same agglutinogens, the mother's anti-A or anti-B agglutinins are increased in titre after delivery not only in a proportion of cases (Jonsson, 1936) but in the great majority, reaching a maximum titre 10 to 20 days after delivery (Boorman, Dodd, and Mollison, unpublished observations). In recently delivered women care must therefore be exercised in interpreting the results of serial titrations of agglutinins.

It may be added that agglutinins in the recipient's serum which are not active at 37° C. are in our experience not capable of causing the destruction of transfused red cells.

If stored blood has been used inquiries should be made as to how long it has been stored; inquiries should also be made as to whether the blood was allowed to stand at room temperature for an excessive length of time. The answers to one or other of these questions may suggest the most probable cause for signs of haemolysis following transfusion.

Only when the above causes have been excluded should the possibility that the signs of haemolysis are due to destruction of the recipient's own red cells by high-titre incompatible agglutinins in the recipient's plasma be considered. In such a case, the application of the method of differential agglutination is practically essential in establishing that the signs are not due to destruction of the donor cells, although the agglutinins in the donor's plasma must also be titrated.

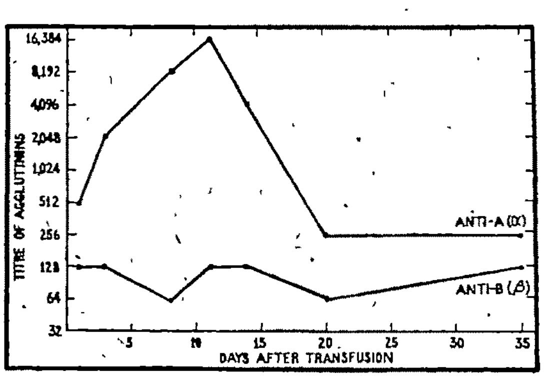
Case Records

The following cases illustrate some of the points referred to in the text and some of the methods of investigation. Cases 1 to 8 illustrate a few of the features of incompatible transfusions. In Cases 1 to 4 blood of incompatible A–B–O group was transfused; in Cases 5 to 8 the blood was of suitable A–B–O group but was Rh-positive and proved incompatible because the recipient had become sensitized to the Rh agglutinogen. In Cases 1 and 2 the early onset of the classical symptoms of severe lumbar pain caused the transfusion to be abandoned after only small amounts of blood had been given. In Case 3, however, an injection of morphine prevented the recurrence of this symptom after its early onset. In Cases 5 and 6 the onset of characteristic symptoms was delayed, and in Cases 4, 7, and 8 no characteristic symptoms developed at any time; in all these cases, therefore, considerable amounts of incompatible blood were transfused. Case 9 illustrates the fact that the occurrence of a rigor does not necessarily indicate incompatibility even when, as in this case, the recipient is Rh-negative and the donor Rh-positive.

In Case 10 the transfusion of grossly haemolysed blood produced the signs of a haemolytic reaction. In Case 11 the transfusion of heavily infected blood gave rise to signs which might have been mistaken for those of a true haemolytic reaction. In Case 12 the possibility of a haemolytic reaction due to incompatibility of the donor erythrocytes was excluded by a cell-survival test.

Case 1: Donor, Group AB; Recipient, Group O.—The patient was a woman aged 60; diagnosis, carcinoma of the colon. Her blood group was determined by the hospital as AB, and a transfusion of group AB blood was begun. No previous direct matching was carried out, owing to a misunderstanding. After a very small amount (about 10 c.cm.) of blood had been transfused she complained of very severe pain in the back. It was assumed that the patient, who had previously received a transfusion of group O blood, had become immunized to the Rh agglutinogen and that the reaction was due to the fact that the donor blood was Rh-positive. The Blood Transfusion Service was therefore asked to supply group AB Rh-negative blood. At this point the patient's blood was submitted for investigation and was found to belong to group O Rh-positive.

Case 2: Donor, Group A; Recipient, Group O.—Woman aged 35; diagnosis, duodenal ulcer with melaena. Blood group determined by hospital as A. Transfusion of group A blood started. Almost immediately after the beginning of the transfusion the patient felt her face "flaming," then she had a very severe throbbing pain in her lumbar region and felt faint. The pain in the back was intense. The transfusion was stopped after 45 c.cm. had been given. Afterwards she shivered for about an hour, and then became very



Graph showing serial titrations of serum iso-agglutinins of a patient of group O who received a transfusion of 45 c.cm. of group A blood (Case 2). The titre is expressed as the reciprocal of the greatest dilution in which agglutination of standard test cells occurred (judged microscopically). In cases in which larger amounts of incompatible blood are given the offending agglutinin is usually found to have a very low titre during the day or two after transfusion.

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* A report to the Medical Research Council from the S.W. London Blood Supply Depot.

hot and complained of a headache. By the next morning she was perfectly well, but investigations were requested. The recipient's group was found to be O; during the next two weeks the anti-A agglutinin steadily increased in titre, reaching a figure of 16,384, whereas the titre of the anti-B agglutinin remained at 64 to 128 throughout (see Graph). These titrations, as well as the other serum titrations mentioned in this paper, were carried out by Miss K. E. Boorman and Miss B. E. Dodd, to whom my thanks are due for permission to include the results.

Case 3 : Donor, Group A; Recipient, Group O.—A woman aged 30; grouped as A by hospital, transfused with 1,000 c.cm. of group A blood. After receiving 5 c.cm. the patient complained of throbbing in the head and back, and the transfusion was stopped. The symptoms were considered to be neurotic, however, and omnopon gr. 1/3 was injected. The transfusion was restarted, 500 c.cm. being given, without the production of further symptoms, in one and three-quarter hours. At the end of this time the patient developed a rigor, but another 500 c.cm. of blood was transfused during the next 3 hours. At the end of that time a second injection of omnopon was given. The patient slept well, and on waking in the morning had no symptoms. No abnormality of the urine was noted and she did not become jaundiced. The blood urea was estimated on the sixth day after transfusion and found to be normal (30 mg. per 100 c.cm.).

The patient was first seen 9 days after transfusion, not because any suspicion of incompatibility had been aroused, but merely because a request had been received for a further transfusion. Investigations showed that her blood group was O and not A as had been previously believed. Her cells showed no trace of agglutination with a potent anti-A serum—demonstrating (as might have been expected) the complete elimination of the blood given at the first transfusion. Titration of the recipient's iso-agglutinins showed that, whereas the anti-B agglutinin had a titre of 1,000, the anti-A titre was 262,000. Recovery was uneventful.

Case 4 : Donor, Group B; Recipient, Group O.—A woman aged 63, suffering from carcinoma of the lung. Group determined by hospital as B. A transfusion of 600 c.cm. of group B blood was given in 7 hours. Only 250 c.cm. of blood was administered during the first 5 hours, but at the end of this period the patient passed 120 c.cm. of red urine. The transfusion was continued until 600 c.cm. of blood had been given, but investigations were requested in case the passage of red urine had had any untoward significance. Apart from a feeling of hotness towards the end of the transfusion the patient did not develop any symptoms, and considered that she had benefited by the transfusion.

Investigations carried out next day showed that the patient's blood group was O and not B as had been supposed. Examination of a saline suspension of her blood revealed the presence of small scattered agglutinates, the largest consisting of from 8 to 12 cells. These agglutinates could be increased in size by the addition of anti-B serum, showing that besides the agglutinated group B cells there were a number of unagglutinated group B cells remaining in the circulation. As anticipated, the titre of the anti-B agglutinin was found to be very low.

The serum contained 1.3 mg. of bilirubin per 100 c.cm. but no methaemalbumin. (Specimen kindly examined by Mr. R. J. Bromfield.) This latter finding seems important because it is not generally recognized that this pigment may be absent from a sample of the recipient's plasma after the transfusion of a considerable quantity of incompatible blood even when the sample is obtained within 20 hours after transfusion.

A sample of urine obtained 24 hours after transfusion showed no free haemoglobin, but there were a few haemoglobin casts in the centrifuged deposit. The reaction of the urine was acid. The blood urea on the fifth day after transfusion was 35 mg. per 100 c.cm. (after a meal of fish). Death occurred on the sixth day, following signs and symptoms suggestive of pulmonary embolism. Unfortunately permission for necropsy could not be obtained.

Note on Cases 1 to 4.—The grouping mistakes that were responsible for the giving of these four incompatible transfusions were directly due to the use of infected test serum in at least two of the cases; but the fundamental errors in all four cases were the failure to use controls of any kind, presumably owing to over-confidence in the technique used, and the failure to carry out direct matching before transfusion.

Cases 5 to 8 : Donor, Rh-positive; Recipient Rh-negative, Sensitized to the Rh Agglutinogen :

Case 5.—The patient was a woman aged 25 who five days previously had given birth to twins affected with hydrops foetalis. Her group was O Rh-negative, and her serum contained anti-Rh agglutinins. She was transfused with a concentrated cell suspension prepared from the blood of two donors, both of whom were thought at the time to be Rh-negative. In one hour 250 c.cm. of cell suspension was given without the occurrence of any reaction. Shortly afterwards, however, while the transfusion was still running, the patient started to complain of violent lumbar pain, difficulty in breathing, and generalized discomfort. A violent rigor followed. The transfusion was stopped after 300 c.cm. of the suspension had been given. A venous sample was obtained three hours after beginning the transfusion. The serum contained no free haemoglobin but was intensely icteric. The serum bilirubin was found to be 4 mg. per 100 c.cm., compared with the pre-transfusion figure of 0.2 mg. Moreover, the post-transfusion sample of serum gave a "direct" van den Bergh reaction.

Investigations with potent test sera showed that one of the donors was in fact Rh-positive and that all the cells of this donor had been eliminated within three hours of starting transfusion. From the clinical point of view this reaction might well have been considered non-haemolytic, since there was no haemoglobinuria or jaundice.

(Some of the details of this case have been reported previously by Boorman, Dodd, and Mollison.)

Case 6.—(The details of this case are being reported separately elsewhere.) The patient was a woman aged 47. She had had four previous pregnancies, the last 14 years ago. She was admitted to hospital with a diagnosis of menorrhagia. A transfusion of 500 c.cm of group O blood was given. No characteristic symptoms occurred during the transfusion, although a rigor followed it. Next day she was jaundiced, complained of pain in the loins, and passed only 10 oz. of urine. A sample of urine obtained 36 hours after transfusion contained albumin, haemoglobin, bile pigments, and a trace of sugar. Investigations carried out 18 days after the transfusion showed that the patient's group was O Rh-negative and that the donor group was O Rh-positive. Her serum contained moderately strong anti-Rh agglutinins.

The most interesting feature of this case seems to be the persistence of sensitivity to the Rh agglutinogen for at least 14 years, and, moreover, a sensitization of sufficient degree to give rise to a severe haemolytic reaction.

Case 7.—The patient was a woman aged 30 who was given a transfusion of 1,000 c.cm. of group O blood after a severe post-partum haemorrhage. Investigations were requested a week later because the haemoglobin was only 39%. The transfusion itself had been symptomless, and was not followed by jaundice or by any other noteworthy signs. Investigations showed that the patient was group A Rh-negative and that her blood contained a negligible number of group O cells, despite the fact that it was only 7 days since the transfusion. Her serum was found to contain weak anti-Rh agglutinins. The infant's blood was examined for evidence of a haemolytic anaemia, but it appeared to be perfectly normal and the haemoglobin was 120%.

It seems possible that in this case the mother's serum did not actually contain anti-Rh agglutinins at the time of the transfusion but that they were rapidly evoked by the transfusion and that the woman had been sensitized by her pregnancy (the infant was found to be Rh-positive). If this theory is correct this case should not strictly be included, since the definition of haemolytic reactions has been confined here to cases in which destruction starts immediately after transfusion. However, it illustrates well how easily this type of reaction may be overlooked and the features of these reactions merge imperceptibly into those in which destruction starts more rapidly after transfusion.

Case 8.—The patient was a woman who gave birth to her second infant on Aug. 23, 1942. The infant became jaundiced within 24 hours of birth, but a blood count on Aug. 25 showed that its red cell count was 5,320,000 and that its haemoglobin was 105%, so that the diagnosis of haemolytic disease was considered to be excluded. On Aug. 27 a transfusion of 500 c.cm. of a concentrated suspension of red cells prepared from 1,000 c.cm. of group A blood was administered to the mother with a view to correcting a mild secondary anaemia. After transfusion the patient developed a rigor but no other signs or symptoms, and no investigations were carried out at the time.

The infant remained jaundiced, and was seen on Sept. 1. At that time its haemoglobin had fallen to 64% and a diagnosis of haemolytic disease was made. Serological tests showed that the mother was group A Rh-negative and that her serum contained anti-Rh agglutinins. It was noted that no trace of agglutination occurred when the mother's blood was tested with two very potent anti-Rh sera. Since both donors were found to be Rh-positive it was clear that all the donor cells had been eliminated.

Case 9 : Donor, Group O Rh-positive; Recipient, Group O Rh-negative, not apparently Sensitized to the Rh Agglutinogen.—The patient was a woman with three normal children; she was now pregnant for the fourth time and only two weeks from term. Her haemoglobin was found to be 52%, and she was given a transfusion of approximately 750 c.cm. of a concentrated suspension of group O red cells. After the transfusion the patient had a mild rigor, and investigations were requested. These showed that she was group O Rh-negative, but that her blood contained a considerable number of Rh-positive cells, while her serum contained no anti-Rh agglutinins. All four donors who had contributed to the red cell suspension were Rh-positive. A normal infant was delivered two weeks later. One month after the transfusion the patient's blood stream still contained a considerable proportion of Rh-positive cells. It seemed clear, therefore, that the rigor following transfusion was not associated with an abnormal destruction of the donor cells.

Case 10 : Haemolytic Reaction simulated by the Transfusion of Haemolysed Blood.—This patient was an elderly woman with carcinoma of the stomach. It was decided to give a blood transfusion because of her anaemia, and a bottle of a concentrated suspension of red cells was ordered from the Blood Transfusion Service. When the bottle arrived it was placed in the ward refrigerator. A few hours later the doctor arrived to carry out the transfusion and called for this bottle. The probationer went into the room in which the refrigerator was situated, saw a bottle of blood standing on a shelf, and assumed it was the right one. The transfusion of this bottle was completed in two and three-quarter hours, and although no alarming signs or symptoms developed it was noted that the patient was rather flushed and that her temperature had risen to 101° and her pulse rate to 130 to 140. Investigations were requested.

The patient was visited approximately three-quarters of an hour after the end of the transfusion. She was rather flushed and sweaty and had a rapid pulse. The bottle of blood had unfortunately been washed out and only a portion of the label remained. From the data on this portion, however, it was possible to establish that the bottle was seven weeks old. It was then discovered that it had been sent to the hospital after it had already been stored for 19 days in the depot refrigerator, and that it had stood in the ward pantry at room temperature for over four weeks.

A venous sample was obtained from the patient and showed considerable haemoglobinaemia (approximately 100 mg. per 100 c.cm.). Her blood group was A, and differential agglutination showed no trace of surviving group O cells. No urine was passed from the beginning of transfusion until about an hour after the end; then a small amount of highly coloured acid urine was passed. This specimen, however, contained no albumin, no haemoglobin, and no casts. The patient was given large doses of alkali, and the next specimen of urine passed was strongly alkaline. A further venous sample was obtained two hours after the first one. The plasma still contained free haemoglobin, although the degree was less and there was much bilirubin. The patient never became obviously jaundiced, and no further sequelae were noted.

Case 11 : Fatal Reaction due to Transfusion of Infected Blood.—The patient was a woman aged 46 with a history of menorrhagia due to uterine fibroids. As a preparation for operation she was given a transfusion for the relief of her anaemia. Her blood group was O, and the transfusion of two bottles of concentrated cell suspension prepared from group O blood was begun. The transfusion was started at a rapid drip. After one to two minutes the patient said that her face was feeling hot; a few seconds later she complained of generalized discomfort. Her face was found to be very flushed, so the transfusion was stopped after only about 40 c.cm. had been given. The patient next complained of dyspnoea and developed a cough. She said that her head felt as if it were bursting. At this point a venous sample was taken because it was thought that incompatible blood might have been given. Soon afterwards she became worse. She developed abdominal pain and diarrhoea, and then started to shiver. Later she became very collapsed and developed a high pulse and temperature. Her condition deteriorated, and she died 12 hours after the transfusion.

Examination of the donor blood showed that it was grossly haemolysed and heavily infected with bacteria. It is important to note that this haemolysis was revealed only after a mixed sample had been centrifuged. Before transfusion, when the bottles of stored blood were inspected, the supernatant plasma appeared perfectly clear. It is well known that when haemolysis occurs in stored blood the diffusion upwards of haemoglobin into the plasma may only take place slowly. Examination of the venous sample obtained immediately after stopping the transfusion revealed the presence of a small quantity of free haemoglobin in the plasma, which could be accounted for by the amount of free haemoglobin injected.

Case 12 : Incompatibility Excluded by Cell-survival Test.—The patient was a male who had been severely burnt two days previously. He was transfused with 1,000 c.cm. of reputed group O blood. No direct matching was carried out. No donor blood remained for test, and the donors could not be traced. After transfusion the patient had a temperature of 109° F.; he died 10 hours later. A sample of blood was obtained from the body after death and found to be group A. The survival test indicated that there were approximately one million group O cells per c.mm. Thus incompatibility of the donor's cells could be excluded.

Summary and Conclusions

The diagnosis of a haemolytic reaction is based on evidence of increased blood destruction following transfusion and on the demonstration of a cause for this destruction. The commonest causes of severe haemolytic transfusion reactions at the present time are: (1) mistakes in blood grouping; (2) the use of Rh-positive blood for transfusion to recipients sensitized to the Rh agglutinogen; and (3) failure to maintain adequate standards in blood storage.

The investigation of haemolytic transfusion reactions is greatly facilitated if a sample of donor blood is kept available for investigation for at least 24 hours after the transfusion, and is further facilitated if a pre-transfusion sample from the recipient is also kept available for testing. When the patient is seen within 12 or 24 hours of transfusion the increased destruction can often be demonstrated by simply obtaining a venous sample from him and showing that it contains oxyhaemoglobin, methaemalbumin, or an increased concentration of bilirubin. When the patient is seen later the application of the method of differential agglutination is often the only way of demonstrating that the donor's red cells have been rapidly destroyed. Valuable additional evidence can often be obtained by demonstrating the presence of immune agglutinins in the recipient's serum.

It should be possible to diagnose the cause of practically all haemolytic transfusion reactions provided that investigations are initiated within a short time after transfusion, and provided that a sample of the transfusion fluid is available for testing. In practice, however, these conditions are often not fulfilled, and the cause of many haemolytic reactions is therefore never determined. It is considered that the full investigation of these reactions would be one of the most effective ways of raising the standard of blood transfusion.

I should like to thank Dr. J. F. Loutit for helpful criticisms and for kindly allowing me to publish the details of Case 10, which was chiefly investigated by him. I should also like to thank the various medical officers in charge of the other cases investigated for giving me access to their cases and for permission to publish the data reported here.

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Under arrangements made by the Ministry of Labour with the governors of Queen Mary's (Roehampton) Hospital the facilities of the latter organization are to be available for the supply of artificial limbs to adults needing them for useful employment. At the same time the Board of Education has given general sanction to education authorities, and the Ministry of Health to welfare authorities, to provide any necessary surgical treatment and artificial limbs for school children. The facilities of Roehampton and of other Ministry of Pensions hospitals are to be at the disposal of local authorities, whose expenditure will rank for grant. This information and the addresses of regional medical officers and of hospitals of the Ministry of Pensions are contained in a circular issued jointly by the Board of Education (No. 1624) and the Ministry of Health (No. 2796).

LEDERLE'S PERTUSSIS ANTIGEN IN TREATMENT OF WHOOPING-COUGH

REPORT OF AN INVESTIGATION

BY

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In 1940 Joslin and Christensen, having used Lederle's detoxified pertussis antigen in the treatment of a series of cases of whooping-cough, put forward the claim that, if given in sufficient dosage and at suitable intervals, it would shorten the duration of the disease and minimize the incidence of complications.

Methods of Present Experiment

In the investigation here reported there was a total of 20 cases, with an equal number of controls. The cases given antigen treatment were alternate cases admitted during the winter of 1941-2; the remainder constituted the controls. Each patient who received antigen had three injections, given at two-day intervals, consisting of 2 c.cm. of antigen intramuscularly.

The following observations were made in respect of all cases and controls: (1) Duration of stay in hospital. (2) Duration of period in which patient whooped during paroxysms of coughing. (3) Duration of period in which patient was subject to paroxysms of coughing. (4) Blood films made at intervals of 1 to 2 weeks to determine the percentage of lymphocytes. (5) Severity of disease, and complications, if any, noted.

Assessment of Cure.—Obviously it is not easy to determine exactly when a case of pertussis has ceased being so, and in this investigation patients were discharged when a good general condition associated with no coughing, whooping, or vomiting had been established. Nor can one describe the degree of severity of a particular case more accurately than by saying that it is mild, moderate, or severe. For these reasons the preceding observations were made in each case.

Results

The duration of stay in hospital is an approximate indication of the duration of the disease, as in few cases can the actual time of onset be ascertained. Consequently, as most cases were in the paroxysmal stage on admission, it was then that the therapeutic value of the antigen was investigated. The determining of the duration of the period in which the patient whooped during paroxysms of coughing was an attempt to assess the severity of the case, and it is probably true to state that, in general, the sooner whooping ceases the less severe is the attack of pertussis. The duration of the period when the patient had paroxysms of coughing only, constituted a further waning stage of the disease.

In comparing the average length of stay of antigen cases with controls we must consider them in these different respects. It will be seen from Table I that, except for the average duration of stay in hospital, the times of the antigen and control cases correspond quite closely, with the benefit slightly in favour of the latter. This indicates that the antigen did not decrease the time in hospital, nor did it lessen the severity of the disease.

TABLE I.—*Average Duration*

	Cases	
	Antigen	Controls
Stay in hospital	63 days	56 days
Experiencing paroxysms of coughing	58 „	54 „
Whooping during paroxysms of coughing	38 „	37 „

Age Incidence.—Pertussis is confined mainly to children under 5 years of age, and is most serious for those under 1 year. An analysis of the ages of cases in the present investigation provides the figures for Table II.

TABLE II

Age in Years	Number of Cases	
	Antigen	Controls
0–1	0	3
1–2	2	4
2–3	6	7
3–4	4	2
4–5	5	3
5+	3	1

Average age: Antigen cases, 3½ years; control cases, 2½ years.

The numbers in the different age groups correspond fairly well for antigen and control cases, and it is to be noted that the control cases were on the average one year younger. So the age factor does not compensate for the longer duration or the greater severity of the antigen cases.

Severity of Cases.—Cases may be divided roughly into three grades: mild, moderate, and severe. Any case which experiences a spasmodic cough without whooping or vomiting may be classed as mild. The moderate case would have a few whoops superimposed on the spasms of coughing, and the severe case would be liable to attacks of vomiting as well as whooping and coughing. Though patently a very approximate method of assessment, it is of value in showing the distribution and severity of cases, as in Table III. The controls have the greater number of severe cases, which again is of discredit to the antigen.

TABLE III

	Number of Cases	
	Antigen	Controls
Mild	4	2
Moderate	6	4
Severe	10	14

Incidence of Complications.—In this investigation 5 of the antigen and 4 of the control cases developed one or more of the usual complications. Table IV analyses these complications, and of the more serious ones—bronchopneumonia and convulsions—antigen and control cases each had a total of 4. The numbers are too small for it to be said that the use of antigen prevented or minimized the complications.

TABLE IV.—*Type of Complication*

	Number of Cases	
	Antigen	Controls
Bronchopneumonia	4	2
Convulsions	0	2
Diarrhoea	1	3

Lymphocyte Percentage in Blood Films

Differential white blood cell counts were performed at intervals of one or two weeks on all patients, to determine the manner in which the antigen affected the lymphocyte percentage; the results were examined in the following two ways.

In the first method a graph was drawn for each case by plotting lymphocyte percentage against time in days. Should the lymphocyte percentage decrease as the disease wanes, the resulting graph would be a decline. There are two main forms which the graph could otherwise adopt—namely, an incline in the opposite direction and a level trend. Table V analyses the trend of the graphs.

TABLE V.—*Trend of Graph*

	Number of Cases	
	Antigen	Controls
Decline	11	12
Level	1	1
Incline	1	2

The figures are almost identical in both antigen and control cases, showing that the administration of the antigen did not affect the percentage of lymphocytes in the blood. It is to be expected that the lymphocyte percentage would, in a case treated by ordinary methods, approximate to its normal level as the disease diminishes, but Donald (1938) found that relative lymphocytosis persisted even to the ninth week of disease in 50% of cases. This observation would account for those cases which were not in agreement with the "decline" form of graph.

In the second method of examination of the lymphocyte percentage, the average lymphocytosis during the course of the disease was calculated for both antigen and control cases. The figures were 64% for the former and 68% for the latter. Here again no appreciable difference existed between the two groups.

Sauer (1933) and Daughtry-Denmark (1936), as a result of lymphocyte percentage counts taken during prophylaxis of children with pertussis vaccine, found that the figures were raised as in cases of pertussis. The antigen in the present investigation does not appear to have affected the course of the lymphocytosis either quantitatively or qualitatively, and it is reasonable to expect that the former, at least, should have occurred.

Discussion

From the foregoing results it is apparent that the antigen employed as a therapeutic agent in this investigation did not shorten the duration of the disease, render it less severe, or reduce the incidence of complications. Space does not permit a detailed comparison of results with those obtained by Joslin and Christensen, but it may be noted that the dose of antigen we gave was that advocated by them, and the average ages of patients in both experiments are comparable. As those workers did not include the criteria by which they assessed their cures a reliable comparison of the average duration of the two series is not possible. Among their list of complications they included bronchitis, which is not generally accepted as such but is considered an accompaniment of pertussis. By omitting these cases their complication rate can be revised, as follows:

Original percentage :	*Revised percentage :*
Antigen, 0.6% ;	Antigen, 0.4% ;
Control, 18.0%.	Control, 8.0%.

Thus the complication rate of their control cases appears less serious.

In the present investigation 17 out of 20 cases which received antigen were in the paroxysmal stage when admitted. It has been suggested by some workers that vaccines used in the treatment of pertussis must be given in the catarrhal stage to be effective. This remains to be proved for the antigen, and certainly merits attention.

The three cases in the catarrhal stage when injected were in hospital for 76, 60, and 33 days respectively, which figures do not suggest that any amelioration of the disease resulted from use of the antigen.

Summary

Twenty cases of pertussis treated with an antigen are compared with a similar number of controls.

Duration of the disease, complication rate, and lymphocyte percentage were not appreciably affected.

The results of this investigation are briefly compared with those of a similar experiment and discussed.

I wish to acknowledge the permission of the Medical Officer of Health of the London County Council to publish these results, and to thank Chas. F. Thackray Ltd., Leeds, for a generous supply of Lederle's detoxified pertussis antigen.

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Sarsaparilla has been used as a remedy for over 300 years, and since the earliest colonial settlement in America it has found favour there as a tonic drink. During the past 50 years there has been an extensive literature on the saponins of sarsaparilla, and according to F. M. Thurmon (*New Engl. J. Med.*, 1942, **227**, 128) only one definite saponin—sarsasaponin—has been isolated from any of the varieties of sarsaparilla. Thurmon has used sarsasaponin in the treatment of psoriasis, and found that it had a beneficial effect on 62% of the 75 patients he treated.

GASTRO-DUODENAL SURGERY IN THE AGED

BY

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With the ever-increasing progress made—perhaps even more along the lines of pre-operative preparation, anaesthesia, and post-operative care than in actual technique—certain major procedures can now be undertaken at an age which in the past would have been considered prohibitively high. Needless to say, with age and its increased incidence of respiratory infections, cardiovascular degeneration, prostatic obstruction, and so forth, one does not perform major operations without strong indications, but when those indications are present it may be unfair to the patient to make the number of his years the sole factor which denies him the benefits of surgery.

Chronic and frequently relapsing gastric or duodenal ulcers, both of which heal less readily in the aged, and carcinoma of the stomach, or their complications, all form occasional indications for surgery in the later years of life.

Gastro-duodenal Perforation

Acute perforation of peptic ulcer or carcinoma is an absolute indication for surgery. Of 83 such operations performed by me since 1936, 18 were on patients over the age of 60, and 6 over 75. In a series of 5,740 gastro-duodenal perforations taken from the literature by Sandell (1936) only 57 patients were over the age of 60, and the oldest was aged 77. In the same communication Sandell recorded the recovery of a patient of his own, aged 82, after suture of a juxtapyloric perforation.

In my series of 18 patients of 60 and over, two were cases of perforated carcinoma of the stomach. One of these, aged 70, died after simple closure of the perforation; the other, aged 61, made an excellent recovery after an emergency gastrectomy—an operation which seemed advisable because the carcinoma was also causing obstruction. Of the remaining 16 patients with simple perforation three were aged 79 and two 77. One 79-year-old lady with a duodenal perforation of 4½ hours' duration recovered after closure of the perforation under local anaesthesia (this being the second oldest case of perforated ulcer on record to recover). One of the 77-year-old patients also made a good recovery. Of the whole 16 patients with simple perforation 10 died. On closer investigation it becomes apparent that failure to send the patient to the surgeon early, rather than age, was the factor which caused the high mortality. Of the 8 seen and operated on under twelve hours from the time of perforation six made a complete recovery and two died, four weeks and six weeks after operation, from bronchopneumonia and cerebral thrombosis respectively. With such delay the figures could hardly have been much better in youthful patients. It is obviously well worth while to operate on these aged patients if they are presented in reasonably early hours after perforation. No doubt the possibility of peptic perforation does not suggest itself so readily to the practitioner when he is confronted with an aged patient, often with intercurrent ailments and a long history of pain.

Another case—the oldest case of duodenal perforation, and possibly of duodenal ulcer, on record—came to my notice for the first time in the post-mortem room.

A feeble lady aged 91 was admitted to a "chronic ward" on June 8, 1936, complaining of general weakness and occasional lower abdominal pain, with loss of weight. Her abdomen was rather guarded, but presented no other abnormal physical sign. There were pressure sores on the heels and moist crepitations at the bases of both lungs. She became steadily weaker, and had occasional abdominal discomfort until June 17, 1936, when she complained of pain in her chest just before midnight. She collapsed later, and died at 8.15 a.m. the next day.

Post-mortem examination, performed by Dr. Allen B. Bratten, disclosed a general sero-fibrinous peritonitis with two pints of free fluid. On the anterior wall of the duodenum 1.5 cm. beyond the pylorus was an ulcer 1 cm. in diameter, perforated in its centre. Another larger ulcer was present on the posterior wall of the duodenum.

Ante-mortem thrombosis of the left common iliac vein was present, with a recent embolus at the bifurcation of the pulmonary artery and an older adherent thrombus in the left branch. There was generalized arterial atheroma.

Histological examination showed the typical appearance of a chronic duodenal ulcer.

Gastric Carcinoma

Carcinoma of the stomach affords the commonest indication for gastric surgery in the aged. During the past three and a half years I have explored 61 cases of carcinoma of the stomach apart from the two perforated ones described. Of these a radical partial or total gastrectomy was performed in 30, of whom 21 were over the age of 60 and 9 were 70 or over. Of the 9 patients under 60 all but one (a case of palliative total gastrectomy) recovered. Of the 12 between 60 and 70, 10 recovered; and of the 9 over 70, 6 recovered. The 3 over 70 that died were a lady aged 71 who had undergone total gastrectomy (she had carcinoma of 2 cm. of the lower oesophagus and cardia), a patient aged 75 with syphilitic aortitis who had undergone partial gastrectomy, and a man of 70 who developed a cerebral thrombosis.

Among patients whose growths were found irremovable, and on whom only a palliative gastric transection or short-circuit or nothing at all was done, the mortality was higher than in those who had had a gastrectomy—a feature which makes even a palliative gastrectomy justifiable from the patient's point of view.

An 80-year-old partial-gastrectomy patient merits a short note, as he must be one of the oldest patients to survive this operation.

This 80-year-old man was admitted to St. James Hospital on Aug. 5, 1941, complaining of abdominal pain in the evenings, accompanied by vomiting, with anorexia and loss of weight for two months. He was pale and wasted, and had visible gastric peristalsis. Barium-meal radiographs and gastroscopy confirmed the pyloric stenosis, though its actual pathology could not be determined. His condition was improved a little by rest and gastric lavage, though he still had a 48-hours gastric residue of barium. On Sept. 11, under local anaesthesia, a mid-epigastric incision was made. A carcinomatous ulcer of the pyloric canal with infiltration of the right and left gastric and subpyloric glands was discovered, and was treated by radical retrocolic partial gastrectomy—well wide of the tumour and including all the obviously infected glands. Subsequent histological examination showed a trabecular polygonal-celled scirrhous carcinoma of the stomach ("leather-bottle" type). The patient made a good recovery apart from an attack of prostatic obstruction which was treated by suprapubic cystotomy. In Dec., 1942, he still remained active and well, with no sign of recurrent growth.

According to the recent survey of the operations of total gastrectomy by Joll and Adler (1942), the oldest patient to survive this procedure was a man aged 72, recorded by Waugh and Giffin (1941). A description of my successful total gastrectomy for a patient aged 74 may be of interest.

A moderately well nourished man of 74 was admitted to St. James Hospital on Sept. 6, 1942, with a history of two years' periodic mid-epigastric pain two or three hours after meals. His appetite was good. Barium-meal examination on Sept. 8 suggested a duodenal ulcer, and the patient was sent home for three weeks' bed-rest and ulcer diet. On his return he felt much improved and radiography revealed a normal duodenum, but in view of an inconsistent fractional-test-meal curve, which showed a very low free and a high total acidity, I gastroscoped him. An ulcer was revealed, extending from as high as could be seen on the lesser curvature, with a slightly raised and "gelatinous"-looking margin, and a base which appeared to be alternately fibrotic and superficially ulcerated, reminding one of a rodent ulcer. The diagnosis was carcinoma of the superficial spreading type (Stout, 1942).

On Oct. 20, under local anaesthesia, a long mid-epigastric incision was made. A rather flat carcinomatous ulcer was felt on the lesser curvature of the stomach extending as high as the cardia. There were a few hard glands on the upper part of the greater and lesser curvatures. A radical total gastrectomy was performed, removing lesser omentum, right and left gastric vessels and glands, and gastro-epiploic arch. The resection included 2.5 cm. of duodenum and 3 cm of oesophagus. Termino-lateral oesophago-jejunostomy was performed, using two rows of continuous catgut suture, with a few extra stitches from adjacent diaphragmatic peritoneum to jejunum to give support. The long jejunal loop was short-circuited to prevent distension of the duodenum, and a feeding jejunostomy was made. The patient's condition was good, and it remained so throughout the whole post-operative period. Jejunostomy feeds were given from the day of operation, but mouth-feeding was not begun until the fifth day, when the jejunostomy tube was removed. On his discharge on Nov. 21 he could take porridge, an egg, two slices of bread-and-butter, and a cup of tea for breakfast with no discomfort.

Histological examination of the specimen showed a solid acinar polygonal-celled and tubular cuboidal-celled mucous carcinoma of the stomach.

Chronic Peptic Ulceration

In comparison with the frequency with which advanced lesions are found to require surgery in the young and middle-aged, uncomplicated gastric or duodenal ulcers do not often need it at great ages. No doubt this is in part due to the fact that the possession of a chronic peptic ulcer is not conducive to longevity. Of 266 operations personally performed for benign non-perforated ulcer during the last three and a half years, 40 were on patients between the ages of 60 and 76. Generally speaking, with the natural tendency to thinning of the gastric mucosa and diminution of gastric acidity with advancing years, which is accelerated by the retention gastritis associated with duodenal stenosis or pylorospasm and the correspondingly diminished risk of anastomotic ulceration, it is usually safe to perform short-circuiting operations in patients in this age group. Of these 40 operations, 15 were for duodenal ulcer, of which only two were gastrectomies. One other patient, aged 68, had a gastro-jejunal ulcer: this is always best treated by gastrectomy, which was done. The remaining 24 had gastric ulcers, most of them complicated by complete penetration, stenosis, or multiple ulceration; 17 were treated by gastrectomy and 7 by gastro-jejunostomy. Although gastrectomy, after adequate preparation, is the ideal operative solution for gastric ulcer at any age, some of the aged and feeble patients, whose ulcers are associated with marked delay in emptying, may improve greatly in comfort and nutrition after a gastro-jejunostomy.

Of the 20 (aged from 60 to 74) undergoing gastrectomy 17 recovered. Of the 20 (aged from 60 to 76) who had short-circuiting operations 16 recovered. The 7 deaths were due to cerebral thrombosis (1 case), pneumonia (2 cases), anaemic necrosis of colon from caecum to rectum—due to a combination of post-operative colonic distension and atheroma of the mesenteric vessels—(1 case), obstruction from adhesion to the cut end of the ligamentum teres (1 case), and repeated vomiting after anterior gastro-jejunostomy (2 cases).

The mortality from gastro-jejunostomy is high, but it must be remembered that all these lesions were the worst of their type, incompatible with any further span of comfortable existence; nearly all were completely penetrating ulcers associated in most cases with varying degrees of gastric retention in very aged patients, and all had had a very prolonged trial of medical treatment. The anterior gastro-jejunostomies, which were done because of severe destruction and adhesion of the posterior wall of the stomach, gave great anxiety from the tendency to recurrent vomiting, and, though I have occasionally found the operation give an excellent result, on the whole would strongly advise against it. The aged patient will not often stand a convalescence associated with too much vomiting or too prolonged continuous gastric aspiration, which the vomiting necessitates.

Preparation for Operation

The success or failure of a gastro-duodenal operation is largely decided before the patient reaches the operating theatre. It has been demonstrated that there is a direct relation between the prognosis of peptic ulcer operations and the antecedent loss of weight (Studley, 1936).

Patients with an ulcer of such severity as to require surgery often have a background of months or years of undernutrition resulting from fear of pain after food, vomiting, self-inflicted diets, or actual obstruction. On admission they are fatigued and depressed by their latest relapse. They require a preliminary course of feeding on a high-quality diet and rest in bed, partly to increase their resistance to infection and their powers of wound healing (Whipple, 1940), partly to bring the ulcer into as quiescent a stage as possible; also to diminish the gastritis associated with incomplete emptying of the stomach. A high-protein diet diminishes the time-lag before healing of the wound begins (Waugh, 1941). Adequate amounts of ascorbic acid are essential for the formation of collagen fibres and for wound repair (Hunt, 1941). Intravenous saline may be required if dehydration cannot be corrected by the oral route. Bed-rest is essential to produce quiescence of the ulcer and so enable the patient to absorb the food he is given. When there is delay in emptying, daily gastric lavage will often considerably reduce the emptying time, with consequent nutritional improvement.

Anaemia as a result of occult or obvious bleeding from the lesion, or of nutritional deficiencies, is often present, and can usually be corrected by the oral administration of ferrous salts. If this fails, or in the more urgent carcinoma cases, blood transfusion may be required.

The mouth should be cleaned by washes, tooth-cleaning, and scaling—extensive dental extractions should be undertaken only in the more quiescent cases in which there will be time to regain a comfortable and clean mouth well before operation. Breathing and regular limb exercises should be carried out before and after operation. The patient should refrain from smoking for 48 hours before operation.

Prophylactic Sulphapyridine

In May, 1941, I decided to try the use of sulphapyridine by mouth as a prophylactic against pulmonary and peritoneal infection in all gastrectomy cases. The effect was striking. In the 18 months prior to that time there were four fatal primary infections in under a hundred gastrectomies—one case of peritonitis in a completely penetrating ulcer case which was shown at necropsy to have watertight suture lines, two lobar pneumonias, and one confluent bronchopneumonia. In 18 months since then I performed 120 partial gastrectomies for simple ulcer with only one death. These were not selected cases: 6 of the patients had gastro-jejunal ulcers; 20 had multiple ulceration; 42 had complete penetration with the ulcer base in pancreas, liver, or colon; many were stenosed; and their ages ranged up to 74. There were some chest infections in the series, mostly moderate degrees of bronchitis in old bronchitic subjects, and one basal collapse.

Among 14 gastrectomies for carcinoma in the same period there were three deaths—syphilitic aortitis (aged 75), post-operative collapse (aged 68), and leak from a feeding jejunostomy in a total gastrectomy—but none from primary infection. The only severe wound infection occurred in a patient who required colonic resection as well, but he recovered from it. There were a number of minor wound infections.

Anaesthesia

The anaesthetic is of paramount importance. The elderly patient is usually co-operative and not very apprehensive, and forms the ideal type for local anaesthesia. He certainly appears and feels less exhausted after a local than after a deep ether anaesthesia. High spinal anaesthesia is often contraindicated by the presence or suspicion of cardiovascular degeneration. Of all general anaesthetics cyclopropane seems to cause the aged patient the least distress. My preference, however, is for local anaesthesia, and I use either a combination of rectus-sheath block and anterior splanchnic anaesthesia (Braun) or intercostal block with posterior (Kappis) splanchnic anaesthesia. When injecting the splanchnic plexus by the anterior route in the aged care should be taken not to press on an atheromatous aorta or displace it too roughly.

Post-operative Period

For 24 hours after operation the aim is to rest the temporarily paralysed intestine, and so we give by mouth only the little water or fruit juice necessary to enable the patient to take the sulphapyridine comfortably. Fluid is administered by slow rectal drip—tap-water or saline-and-glucose solution. High-quality protein is given in the form of skim-milk, egg, etc., as soon as possible. Boiled sweets to suck or sugar with drinks supply the carbohydrate requirements. Blood transfusion is not given as a routine during or after the operation, though it may be required in rare cases.

Breathing and leg exercises are restarted as soon as the patients recover from their post-operative sleep. When necessary they are instructed to clear their air passages by coughing.

Summary

A case of duodenal ulcer perforation at the age of 91, and cases of recovery from duodenal perforation at 79, from total gastrectomy at 74, and from partial gastrectomy at 80, are recorded.

A series of 120 partial gastrectomies for gastric, duodenal, and gastro-jejunal ulcers with one death is recorded, a result which is attributed in part to the use of prophylactic sulphapyridine.

The causes of death in aged patients after major gastro-duodenal procedures are recorded.

My thanks are due to Dr. W. Allen Daley, Medical Officer of Health to the County of London, and Dr. Norman S Craig, medical superintendent of St. James Hospital, for permission to publish this paper. Dr. E. W. Glennie has given me great help in anaesthetic problems. I must also acknowledge the great nursing skill displayed by Sister B. Dodsworth and Sister M. Ridgeway while these fragile patients were under their care.

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INCIDENCE OF PULMONARY TUBERCULOSIS OF ADULT TYPE IN THE R.A.F.

RESULTS OF MASS RADIOGRAPHY OF 75,000 CASES

BY

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The object of this article is to give a detailed analysis of the age incidence and types of case discovered by mass radiography and to discuss the problems which will arise in dealing with these and other cases so discovered in the future. The work of the tuberculosis and health services generally will be considerably increased when mass chest radiology becomes a national undertaking, but it is only by utilizing to the full this recent and valuable addition to our methods of investigation that we can hope to get a real and lasting improvement in the incidence of pulmonary tuberculosis in this country.

As might be expected in a first examination there are wide variations in the extent and degree of activity in the cases discovered, and when running a mass chest *x*-ray unit one is impressed by finding how far advanced some of the active sputum-positive cases have become without any complaint having been made to the medical officer by the airman or airwoman. It may be that to a certain extent a young man who is keen to serve his country conceals his symptoms; but this in itself makes it all the more necessary that men and women in the Services, and the public generally, should have a periodic routine chest *x*-ray examination. It is wishful thinking to expect a majority of early cases at once, before the more advanced cases have been discovered in the preliminary surveys.

Active Cases

Let us first consider the active cases of pulmonary tuberculosis discovered in 75,000 cases, 65,000 of which are airmen

Airmen (65,000) : Unilateral Pulmonary Tuberculosis

	Age Group:	18–19	20–24	25–29	30–34	35–39	40–45	Total
Sputum positive	With symptoms	6	6	2	1	6	1	22
	Without symptoms ..	2	1	2	0	1	0	6
Sputum negative	With symptoms	13	18	1	4	3	1	40
	Without symptoms ..	14	16	1	3	0	0	34

Airmen (65,000) : Bilateral Pulmonary Tuberculosis

	Age Group:	18–19	20–24	25–29	30–34	35–39	40–45	Total
Sputum positive	With symptoms	14	7	2	1	4	2	30
	Without symptoms ..	1	1	1	0	1	0	4
Sputum negative	With symptoms	7	14	3	7	5	1	37
	Without symptoms ..	12	7	1	1	2	0	23

W.A.A.F. (10,000) : Unilateral Pulmonary Tuberculosis

Age Group:		18–19	20–24	25–29	30–34	35–39	40–45	Total
Sputum positive	With symptoms	0	0	0	0	0	0	0
	Without symptoms ..	0	1	0	0	0	0	1
Sputum negative	With symptoms	2	1	0	1	0	0	4
	Without symptoms ..	6	6	0	0	0	0	12

W.A.A.F. (10,000) : Bilateral Pulmonary Tuberculosis

Age Group:		18–19	20–24	25–29	30–34	35–39	40–45	Total
Sputum positive	With symptoms	0	0	0	0	1	0	1
	Without symptoms	1	1	0	0	0	0	2
Sputum negative	With symptoms	3	2	0	0	0	0	5
	Without symptoms	8	4	1	0	0	0	13

and 10,000 of which are W.A.A.F. Our criterion of activity is a strict one, and the patient suspected has a large radiograph, a full clinical examination, blood sedimentation, exercise, and sputum tests, and observation in station sick quarters before such a diagnosis is arrived at. In doubtful cases the film is referred to headquarters for further opinion. The patient is closely questioned as to the presence or absence of symptoms. The accompanying tables analyse the active cases discovered.

From these tables it can be seen that there are altogether 29 unilateral and 37 bilateral sputum-positive cases. Owing to time and present laboratory facilities we have to restrict ourselves to three simple examinations of a sputum smear by the Ziehl-Neelsen method, and on further tests and by concentration methods this would probably be very considerably higher.

In order further to analyse the types of disease discovered by mass radiography, appended below are tables of the radiographs which definitely suggest vomica formation as opposed to infiltration only.

		Airmen	W.A.A.F.	Total
Unilateral	Infiltration only ..	76	11	87
	Infiltration and cavitation ..	26	6	32
Bilateral	Infiltration only ..	67	14	81
	Infiltration and cavitation ..	27	7	34

It is rather alarming to note that 66, or approximately 28%, of these so-called "fit" individuals discovered to have active pulmonary tuberculosis have already reached the stage of cavity formation. Out of these cases 32, or nearly 50%, have returned a positive sputum.

Let us now, for the sake of argument, say that among the active cases all the sputum-positive and all the sputum-negative cases discovered with symptoms will require a sanatorium bed. To start with, this brings us to a total of 152 cases in 75,000, or approximately 2 beds per 1,000 individuals radiographed. It is my opinion that in a mixed civilian population the incidence will be considerably higher, as all people who have entered the Service have been examined and passed by a medical board ; and also, as the civilian sets will probably be distributed in selected industrial areas where the incidence of pulmonary tuberculosis is highest, it will probably work out to more like 3 beds per 1,000.

It is hoped, and anticipated, that a considerable proportion of these cases, having been discovered in an early stage, will be suitable for artificial pneumothorax, which after preliminary induction in a sanatorium can be continued at the local tuberculosis dispensary. By a scheme which will probably be brought in by the Government, at first the patient can be partially re-employed in industry, with compensation for the time that he is unable to work, thereby causing a minimum economic upset to himself or herself and the family as a whole.

Sputum-negative Cases without Symptoms

Let us now consider the unilateral sputum-negative cases without symptoms whose radiographs, clinical signs, and B.S.R. suggest active infiltration without cavitation. Should all these cases be immediately admitted to sanatorium with a view to collapse therapy? The answer is undoubtedly "No." In these cases the patient usually appears to be very fit, and the radiological appearances are probably due to an exudative response to a very small number of bacilli. A somewhat similar appearance can also result transiently from a low-grade apical pneumonia. If, therefore, the patient is under dispensary observation and is radiographed at two-monthly intervals for the first year, no harm should come to him. If at any stage there appears to be extension, then sanatorium treatment should be advised. It is suggested that in the younger age groups so discovered the individual should be re-radiographed six-monthly for two years, then annually for three years. If the patient is then written off the dispensary books he will be given due warning, should any symptoms arise, to report first to his local practitioner.

The bilateral symptomless sputum-negative cases are a debatable problem. It is my opinion that they should, if the bed situation permits, have a preliminary period of sanatorium observation and treatment, particularly with a view to instructing the patient in after-care ; but this will have to be left to the discretion of the local tuberculosis officer.

With regard to the persistently sputum-positive cases it is most necessary that the general practitioner should, from the point of view of public health, continually stress to the patient the necessity for correct disposal of sputum, use of his own eating and drinking utensils and towels, and the like, as it is upon the practitioner who sees the patient weekly or fortnightly that this big responsibility rests. A three- or six-monthly visit to the dispensary does not sufficiently impress the patient, who is inclined to become careless as the years go by. This type of patient should never be re-employed in an indoor industry, however well he may feel in himself, except in a light sedentary clerical job where he has an office to himself. The fact that a patient has become temporarily sputum-negative is no guarantee that he will not again become sputum-positive under conditions of stress. One envisages that in the future there may be some form of industrial segregation of this type of case in the big industrial areas so that they can be usefully employed in indoor industry. It is only by such bold measures that we can hope to tackle efficiently the problems before us.

Inactive Cases

The unilateral and bilateral cases of inactive disease have not been analysed in such detail, but in order to give some idea of the incidence the table below is included. This refers to parenchymatous disease, calcified or fibrotic; including healed Assmann type of foci, but does not include Ghon's foci or calcified hilar glands.

Incidence of Inactive Pulmonary Tuberculosis

	65,000 Airmen	10,000 W.A.A.F	Total
Unilateral ..	248	40	288
Bilateral ..	82	17	99

The majority of these patients are kept as useful members of the Service, in a lowered category, unless the extent of affected lung is such that in spite of the apparent healing it is considered that the airman or airwoman is liable to break down under conditions of stress. A problem that here arises is whether the patient should be told that he has any pulmonary abnormality. It is my opinion that if the disease is unilateral and calcified he should not be told ; but if bilateral, or if there is evidence of infiltration other than calcification, he should be warned to report if any symptoms arise.

A number of these cases may require dispensary observation for a time, and it is a matter for the tuberculosis services to decide what extent of disease will require further observation. Up to the present well under 1% of our cases classed as inactive have broken down since their preliminary radiograph, but as these units have been working for only one year it is rather early to make a dogmatic statement.

Conclusion

I would add that the views expressed are by a medical officer who spent several years as a tuberculosis officer prior to enlistment, and is now fortunate enough to be in charge of a miniature chest radiography unit in the Royal Air Force. My thanks are due to Wing Commander R. R. Trail for his help, and to my colleagues running the other units, without whose co-operation I should have been unable to produce these statistics.

Medical Memoranda

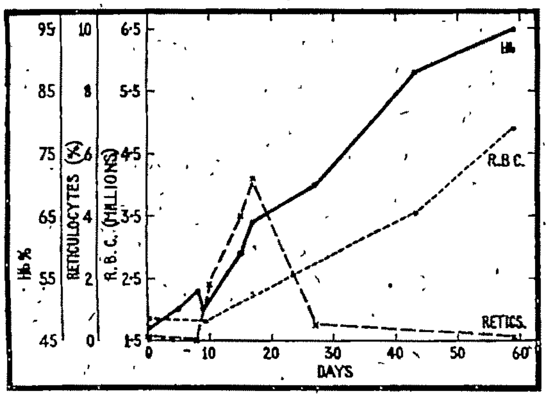
Pernicious Anaemia treated with Pyloro-duodenal Extract and Liver in Tablet Form

Parenteral liver therapy is occasionally complicated by severe reactions. These may take the form of local pain or general effects such as headache, flushing, urticaria, dyspnoea, and even collapse. They are usually overcome by injecting minute doses of liver extract—1/250 c.cm., 1/25 c.cm., and 1/2 c.cm.—at intervals, together with adrenaline. A nervous patient, upset by the reaction, may refuse further injections, and in such a case resort must be had to an oral preparation. An order made by the Minister of Health prohibits the oral use of liver extract as such, but in this preparation the liver is unextracted. It was tested on the following untreated case of pernicious anaemia.

CASE HISTORY

The patient, a woman of 76, was admitted to hospital during an air raid in a state of nervous prostration, her house having been bombed. On recovery she complained of left-sided headaches, which, she stated, had been present for the past six months, occurring in attacks lasting several days at a time. During the last few weeks she had also been subject to fainting attacks. On examination she was found to be a thin pale woman. Her memory was much affected and she had no recollection of her recent misfortune. The right pupil was fixed and irregular, reacting neither to light nor to accommodation. The media of both eyes were opaque. The conjunctivae and mucous membranes of the mouth were pale. Blood pressure was 120/80. The spleen was not palpable, but the splenic dullness was increased. The knee- and ankle-jerks were absent and the calves were more tender than normal. The other systems showed no abnormal physical signs. Blood count: red cells, 1,720,000; Hb, 47%; C.I., 1.38; leucocytes, 2,000—polymorphs 45%, eosinophils 1%, basophils 2%, lymphocytes 48%, monocytes 4%. The red cells were large and showed marked anisocytosis and some poikilocytosis. Reticulocytes amounted to 0.1%. A histamine test meal revealed complete achlorhydria. The patient was given 4 tablets of binaemon three times a day. This was equivalent to a daily dose of 6 g. of fresh liver and 3 g. of fresh pylorus.

Progress.—The effect on the blood picture is shown in the accompanying chart. The reticulocyte crisis did not start till the eighth day, and was small, reaching only 5% maximum, but the rise in the red cell count and in haemoglobin was fairly rapid. By the end of the fourth week the red cell count had risen by 2,000,000, and by the seventh week had reached 4,000,000. This is similar to the recovery rate met with when raw liver is used but slower than that produced by parenteral liver extract, which raises the count to 4,000,000 in about a month. Normal figures were finally reached in the eighth week.



CONCLUSIONS

This preparation of liver and pyloro-duodenal extract in tablet form was found to be effective in treating pernicious anaemia. The difference in cost between this and parenteral treatment is not great. With the latter, assuming that initial doses of extract corresponding to 300 g. of liver are spread over the first 4 days and followed by weekly doses equivalent to 100 g. till the blood count is normal, as recommended by Murphy (1939), the cost of the treatment would be approximately 17s. at hospital prices, as compared with 23s. for the oral method.

My thanks are due to Dr. Allen Daley, Chief Medical Officer to the London County Council, for permission to publish this paper, and to Organon Laboratories Ltd. for supplies of binaemon tablets.

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Glandular Fever

The article by Drs. J. Shafar and J. C. R. Weir (*Journal*, Feb. 20, p. 218) on a case of glandular fever with a meningeal reaction raises a number of points of interest at the present moment, when there appears to be an increase in the incidence of infectious mononucleosis. Those authors refer to the general characteristics of their series of some 200 cases. In particular they stress the benign nature of the condition, its marked infectivity, and the unreliability of the Paul-Bunnell reaction. They also state that in differential white cell counts of the blood the polymorphonuclear leucocytes totalled some 50%, and that the remainder was made up of small and large lymphocytes with an average of 10% of monocytes.

During the past few months we have admitted to the County I.D. Hospital here two patients whose cases are fully reported below. These cases closely resemble each other, and were regarded as examples of a clinical entity conforming to the classical description of glandular fever. It will be seen, however, that they differ widely from the cases of Drs. Shafar and Weir in certain important respects. These are: (*a*) The course of the illness was by no means benign. Both patients were sharply ill with intermittent pyrexia, of 14 days' duration, which reached 103.8° F. in one instance and 102.0° F. in the other. (*b*) Infectivity was apparently not pronounced. Both were single cases which occurred separately under Service conditions, and no other cases were reported. Haematological investigation of attendants was not carried out, but none showed any clinical signs of infection. (*c*) The Paul-Bunnell test in both cases was positive in high dilutions. (*d*) The differential white cell counts of the blood showed much higher degrees of mononucleosis, the combined percentages of lymphocytes and monocytes reaching as high as 82. (*e*) There was marked faucial involvement.

It is felt that these considerations help to strengthen the opinion expressed by Drs. Shafar and Weir that there may be "separate and distinct varieties of glandular fever."

CLINICAL HISTORY OF TWO RECENT CASES

Case 1.—A man aged 21 was admitted on July 29, 1942, with a history of headache, shivering, malaise, and abdominal pain of 4 days' duration. On examination he was found to have a temperature of 102.6° F. and a pulse rate of 106. There were no other positive clinical findings, but, in view of his severe headache, lumbar puncture was performed. Clear fluid was obtained, not under pressure, and laboratory investigation showed no departure from normal. A blood count taken on admission gave a total of 5,000 white cells per c.mm. —polymorphonuclear leucocytes 54%, lymphocytes 41%, and monocytes 5%. Blood culture proved negative, and a Widal reaction revealed only slight H-agglutination, which was disregarded as resulting from inoculation. Pyrexia was intermittent, and on Aug. 3 the patient complained of sore throat. He was then found to have a greyish membrane on both tonsils. This separated easily without bleeding, and a throat swab was negative for *Corynebacterium diphtheriae*. Next day non-tender enlarged glands were observed in neck, axillae, and groins, and there was a morbilliform rash on the abdomen. By this time the leucocytes consisted of polymorphs 32.5%, and lymphocytes and monocytes together 67.5%, with a total white cell count of 11,300 per c.mm. The Paul-Bunnell test was positive with a titre of 1 : 896. By Aug. 5 the patient was acutely ill, with a high temperature, rapid pulse, and an extension of the tonsillar membrane and the rash. On this day the white cells numbered 26,000 per c.mm.—polymorphonuclear leucocytes 29%, lymphocytes 22%, and monocytes 49%. He remained very ill for three days and then rapidly improved, with recession of all symptoms. He was discharged well on Sept. 15.

Case 2.—A man aged 22 developed severe headache on Oct. 10, 1942, with nausea and anorexia, and noticed a transient rash, apparently of erythematous type, on both forearms. He reported sick on Oct. 19 and was admitted to sick quarters the same day. He was found to have an irregular pyrexia, reaching on occasion 102° F., and by Oct. 24 he had painless glandular swellings in neck, axillae, and groins. The patient was now admitted to hospital here, and was found to have, in addition, marked faucial congestion, with patches of loose exudate on both tonsils. His blood picture on admission was: polymorphonuclear leucocytes 18%, lymphocytes 70%, and monocytes 12%, with a total white cell count of 16,200 per c.mm. The Paul-Bunnell test was positive with a titre of 1 : 640 Next day he complained of severe headache, and lumbar puncture was performed. The cerebrospinal fluid was normal in all respects On Oct. 29 the tonsillar membrane had extended, and the white cells numbered 15,200—polymorphs 19%, lymphocytes 75%, and monocytes 6%. The pyrexia subsided on Nov. 1, and the patient subsequently improved rapidly. He was discharged well on Nov. 21.

I am indebted to Dr. J. L. Horne, M.O.H., for permission to report these cases, and to Dr. C. C. McCallum, R.M.O., for help in the preparation of the clinical notes.

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Reviews

EPILEPSY

Epilepsy and Cerebral Localization. A Study of the Mechanism, Treatment, and Prevention of Epileptic Seizures. By Wilder Penfield, M D, D.Sc., and Theodore C Erickson, M Sc, M D Chapter XIV by Herbert H. Jasper; Chapter XX by M. R Harrower-Erickson. (Pp. 623; illustrated. 44s.) London: Baillière, Tindall and Cox.

In *Epilepsy and Cerebral Localization* Drs. Wilder Penfield and Theodore Erickson set out, as they confess in the preface, to write a book on focal epilepsy. Being struck, however, with the similarity of the mechanisms in cryptogenic and symptomatic epilepsy they were eventually led into a general discussion of the whole problem. The result is a book of somewhat uneven texture. Much of it is of the greatest value, in particular the chapters on functional localization in the cerebral cortex and seizure patterns and their cerebral localization, in which are described numerous observations upon the excitation of fits during operations upon the brain and the correlations noted between such induced attacks and the spontaneous seizures from which the patients had suffered. The production of seizures by surgical lesions of various kinds is fully discussed, and there is a chapter upon the *x*-ray investigation of the epileptic patient. Dr. Herbert Jasper contributes a chapter upon electro-encephalography, expressing the current tendency to find the correlation between the electro-encephalogram and the clinical manifestations of the dysrhythmia a good deal less simple than was at first supposed. The medical aspects of epilepsy are less fully treated than the surgical, and, indeed, probably the day has passed when it was possible for two or even three workers to deal adequately with epilepsy in all its aspects. It would have been better, therefore, if the authors had resisted the temptation to be encyclopaedic. Nevertheless they have earned our gratitude for an outstanding survey of the surgical aspects of epilepsy and a rich mine of data illuminating its clinical features and pathological physiology.

LIFE'S UNFOLDING

Life's Unfolding. By Sir Charles Sherrington, O.M. The Thinker's Library, No. 94 (Science Section). (Pp 124. 2s. 6d) London: Watts and Co.

It was a happy thought on Sir Charles Sherrington's part to reprint in compact form the earlier portion of his Gifford Lectures, dealing with life's unfolding from the synthesis of the protein molecule, through the microscopic cell on to an "organized life system centred upon itself." Here the steps are interpreted by a master of science, enriched with the mind of a philosopher and poet. He reminds us that wonder commonly vanishes with childhood; the wonderful is taken for granted, so as to enable us to get on with life. Later, when life's pace is slackened, wonder may return. Wonder, then, is the mood in which he invites us to approach his subject, and it is indeed a wonderful retelling of the story, both vivid and accurate. One is reminded of a picture, which, having become dulled, is restored to its pristine freshness of colour by a skilful hand. Take, for example, the description of the great adventure by which our marine ancestors adapted themselves to a terrestrial existence, while their descendants still carry about the salt of the archaic sea in their internal economy. Avoiding anthropomorphism in his discussion of "higher" and "lower" forms of life, he still claims that "range of dominance of the environment is a feature to which the term higher can be accorded. Since mind is one of the great keys to this dominance the term is almost graded by degree of mind. At the present time man is as regards conquest of his surroundings the most successful of all living forms. On that ground we can acclaim him the highest."

Sir James Goodhart in his Harveian Oration in 1912, speaking of the passing of the predominance of morbid anatomy, humorously referred to the evolution of the biochemist as a "curious hybrid," and then went on to discuss with sympathetic insight the probable chemical approach to cell physiology and pathology in terms of surface tensions and coenzymes. It has proved almost startlingly prophetic. What he adumbrated, Sir Charles Sherrington here reveals more fully, and asks if deeper knowledge has detracted from the symbolism and pathos of human values. He rightly thinks it would be strange if this were so. To read this book is to understand why the author is secure in the affectionate admiration of all his confrères.

GYNAECOLOGICAL SURGERY

Textbook of Gynaecological Surgery By Sir Comyns Berkeley, M.D., F R C P, F R C.S., and Victor Bonney, M S, M.D., F R.C S. Fourth edition. (Pp. 912; illustrated. 50s.) London, New York, Toronto, and Melbourne: Cassell and Co, 1942.

This is a great book, and its fourth edition will be welcomed. Berkeley and Bonney have individually, and as a brilliant team, made many contributions to surgery, and by outstanding merit have through the years achieved an international reputation of the highest order. Scattered throughout the British Commonwealth of Nations there is a band of younger men whose privilege it has been to serve an apprenticeship at the Chelsea Hospital for Women, London, where they have become imbued with the Berkeley–Bonney tradition. They are the disciples of the Bonney technique and the Bonney conservatism, and to them, as to many others, Bonney is the greatest living exponent of gynaecological surgery. They remember him as an exquisite surgeon, a stimulating thinker and leader, and a rare and generous teacher. To all such men this book is more than a textbook—it is a collection of pleasant memories, brilliantly and lavishly illustrated by graphic sketches drawn by Bonney the artist. The majority of readers will not have shared the privilege of learning technique directly from these distinguished authors, but there can be few who have not been influenced by their teaching and practice. The new edition brings the story of progress in operative gynaecological surgery to date. The sections dealing with vaginal atresia, ovarian operations, and intestinal obstruction have been extensively rewritten, and it is encouraging to note that with greater experience the trend of practice is to become more conservative in the surgery of the pelvis.

A copy of this book should be possessed and studied by all gynaecologists, and by all surgeons who still by obligation or choice occasionally perform these operations. To those who search its pages it will prove itself a guide, philosopher, and friend.

ADVANCED FIRST AID

First Aid: Surgical and Medical By Warren H. Cole, M D., F.A.C S., and Charles B. Puestow, M.S, M D., F.A.C.S. (Pp. 351; illustrated 16s.) New York and London. D. Appleton-Century Company.

It is interesting to read an American book by 19 authors published in 1942 in a country which itself had not up to then seen casualties from air raids in this war. Taken as a whole the volume is well printed, contains numerous illustrations, most of which show well what they are intended to describe, and the subjects dealt with cover a wide area. It is said to be an "advanced guide," and it certainly would appear to give information which can hardly be called "first aid"; as, for example, in dealing with first aid of open complicated fractures of the skull it is stated that "first-aid care involves débridement . . . gross particles of metal, bone, hair, dirt, cloth, head covering, etc., should be removed as well as possible, and the area irrigated with warm, sterile saline solution"! True, it is said that this first aid should be done only by the physician. But is it first aid? Is it not rather surgical treatment to be carried out by a surgeon in hospital?

Chapter I gives an excellent summary of precautions and limitations in first-aid work. In Chapter II general principles are clearly taught. It is questionable whether the short chapter on anatomy and physiology should have any place in a work of this kind. Bandaging is really well illustrated. Blood transfusion is described at far too great a length for a textbook on first aid. The account of the methods of transportation is one of the best extant. Figure 72 gives a graphic description of dangers encountered during an aerial bombardment. The first-aid treatment of abdominal injuries is excellent, and towards the end of the work there is a very good chapter on medical emergencies. The whole book will be read with interest by British workers, although the price is rather high.

Notes on Books

We have received a copy of a useful pamphlet entitled *Insurance for All and Everything* (Longmans, Green and Co.; 1s. 6d.), in which Sir RONALD DAVISON discusses the practical application of Sir William Beveridge's plan for social security—how it might affect the ordinary citizen and how it might be administered. The first part is a summary of the plan, while the second suggests how it would work by taking as an example the life of an imaginary John Smith and Jennie Brown. The author, who says that " Beveridge clearly intends his plan to be an instrument of population policy in these islands," selects the provision of an " all-in medical service " as the most urgent matter arising out of the adoption of a policy of " insurance for all." Of the panel system he says that this " or any wide extension of it could not long carry on . . . it is a meagre and sorry business." This is surely too summary a dismissal of a service which has provided not unsuccessfully for the medical care of a large part of the population for thirty years.

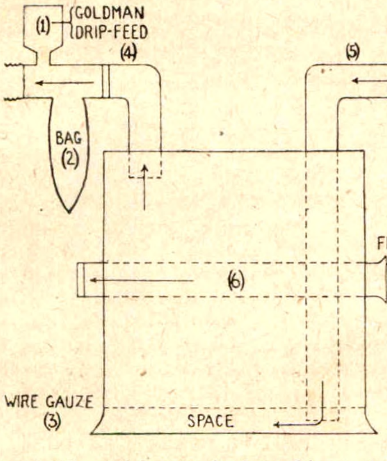
A gentle charm pervades the pages of Dr. E. ROLAND WILLIAMS'S *Jetsam* (W. Collins, Sons and Co.; 1s.), which is a potpourri of memories, scenery, quaint characters, and local superstitions in a setting provided by Welsh hills and the Welsh sea. It is none the worse for a touch of nostalgic sentiment, and a pleasant hour can be spent in reading it.

Preparations and Appliances

CO_2 ABSORBER IMPROVISED AT SEA FROM RESPIRATOR PARTS

Surgeon Commander H. PARRY PRICE (Banbury, Oxon) writes:

Economy in nitrous oxide, oxygen, and ether is of paramount importance in wartime, and more so at sea perhaps than anywhere else. Not so long ago I was compelled to devise a CO_2 absorber from portions of a Service respirator, having to add a McGill rebreathing bag (1) and a Goldman drip-feed for vinesthene (2), which can be equally well used for ether or trichlorethylene (trilene). We overcame the unidirectional valves by borrowing the dental surgeon's 3-way valve from the usual old-fashioned nitrous oxide apparatus, adding a gas inlet on the inspiration side as later described. (This 3-way valve had its expiratory end opened up and tubing attached to it, to lead the expirations back to the absorber.) We overcame the rather costly " cut-out " tap, which would normally cut the absorber out of the circuit, by merely fitting a straight-through pipe on the side of the absorber (6). The tubing (respirator tubing) is detached when one wants to cut out the absorber from joints (4) and (5), and is attached to this straight-through pipe (6). Total rebreathing without absorption is thus obtained. On the other hand the tubing can only be detached at (7), and a cork placed in the metal tube; expiration will then pass out through the end of the tube into the air. This is useful for induction, if one cannot make use of an intravenous barbiturate. A small metal tube is let into the inspiratory end of the N_2O valve to bring in the gases from a Boyle or other apparatus. In our case this was a watersight feed made by our engine-room staff from a Horlick's malted milk pot. It was the only glass jar we could obtain with a metal screw cap. The apparatus gives most efficient results, and I feel certain that it could easily be made at a cost of £3 to £4. Trilene works excellently when used to replace vinesthene in the Goldman drip-feed.



A GAG FOR DYSFUNCTION OF THE TEMPORO-MANDIBULAR JOINT FOLLOWING MANDIBULAR INJURY

Mr. JOHN W. HALLAM, M.R.C.S., L.D.S., writes:

Dysfunction of the temporo-mandibular joint commonly follows upon mandibular injury, although in most cases it is of a very transitory nature. The dysfunction usually manifests itself as a limitation of range of movement, being more marked in a vertical than in a lateral direction. More rarely there is a tendency for the mandible to deviate laterally on opening the mouth.

The causes may be functional, traumatic, or due to wound fibrosis or to actual injury involving the joint. A proportion are induced by the treatment of the injured jaw, the mandible being immobilized in a position contrary to that which it takes when at rest—i.e., with the upper and lower teeth slightly apart; this position of rest is attained with " closed " cap splints. Treatment with open cap splints, interdental, eyelet, arch wiring, or any method which immobilizes the mandible with the teeth in perfect occlusion, is more likely to result in a limitation of mandibular movement.

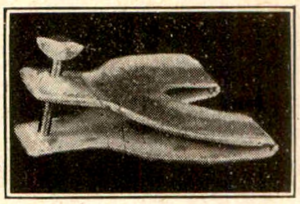


FIG. 1

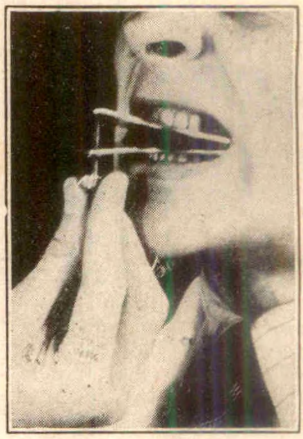


FIG. 2

The functional type is by far the commonest, and is easily recognized by stimulating the glosso-pharyngeal nerve to induce retching. Then, if the patient is shown in a mirror that his capabilities of opening are greater than he imagined, and the mechanism involved is explained to him, a cure will rapidly ensue.

Forcible opening is sometimes necessary in the mechanical types of limitation, the maxillae being separated by means of gags acting between the upper and lower teeth. The gag to be recommended is one which spreads the thrust over the greatest possible number of teeth. This is particularly important when the thrust has to be exerted over an area which has recently been injured (as often occurs). At the Liverpool Jaw Injury Centre such a gag has been devised and constructed which is simple to use and effective in its action (Figs. 1 and 2). In edentulous patients the gag may be covered with black gutta-percha.

A corkscrew, a Mason, or a Ferguson gag produces too great a strain on the two or four teeth against which it operates. The thrust should be maintained for long and regular periods throughout the day. Twenty minutes in every three hours has proved very effective, particularly so when carried out under the supervision and with the encouragement of a dental surgeon. Condylar excision is seldom necessary, and should only be considered when all other lines of treatment have failed.

COMPLETE EXTRACT OF LIVER

There is more than a suspicion that in the purification of the more refined liver extracts for the treatment of pernicious anaemia, factors of value in the treatment of cognate conditions may be omitted. Certainly much of the eluate and filtrate fractions is discarded, though they are known to be of value in experimental anaemias. For this reason the Glaxo Laboratories have prepared a liver extract by a new method in which fractionation procedures are reduced to a minimum, and they recommend it for pernicious anaemia of pregnancy, and the megalocytic anaemias of the nutritional and intestinal type. It is not meant to supplant their " examen " in the treatment of Addison's disease, except perhaps when there are severe spinal lesions. We welcome the product but we cannot but disapprove of the name " plexan," which is even more meaningless and unnecessary than " examen." Surely " complete extract of liver " or (if a Latin name is preferred) " liquor hepatis merus (Glaxo) " would have been more helpful. In spite of protests some British manufacturers remain impervious to the principles of pharmaceutical nomenclature.

PLANNING IN THE TREATMENT OF CANCER

BY

FRANK ELLIS, M.B., M.Sc., F.F.R., D.M.R.
Medical Director, Sheffield Radium Centre

Progress in medicine has mainly been achieved in the past, and will be furthered in the future, by the experimental approach to questions requiring solution. By this is not meant recourse to laboratories and experiments on animals only, important though the part may be which these factors play in elucidating our problems. Mackenzie (1918) stressed the importance of the experimental approach in clinical medicine, and it would seem that the cancer problem might gain considerably by clear-sighted and logical planning of clinical experiments. The implications of the Cancer Act make the planning of such experiments of great importance, and the present state of medical opinion renders them necessary.

The Problem of Radiotherapy or Surgery

Among certain sections of the profession engaged in the treatment of cancer there is a tendency to consider that an issue is at stake; that radiotherapy and surgery are alternatives advocated by their protagonists—an attitude which is tempered only by expediency on the one hand and necessity on the other. Only when an issue is a doubtful one does it provoke a conflict. When doubt is extinguished the conflict ceases. In the treatment of cancer this axiom applies, and the conflict will remain a reflection on the profession and a deterrent to progress unless a conscious effort is made to solve it.

To take one form of cancer considered by most people to-day to be a field for radiotherapy, the answers to certain questions are by no means clear. While the treatment of cancer of the cervix by radiotherapy is generally accepted as better than its treatment by surgery it is by no means proved that in certain selected cases surgical results are not more sure. Though radium treatment is known to result in a certain percentage of cases surviving for 5 years, and although supplementary *x*-ray treatment has been used for several years, it is not proved that the results of the combined treatment show any significant advance. Moreover, while some successes are to be expected from either radium or surgery alone, an inverse proportion of failures is also to be expected. The question thus presents itself: In what proportion of failures by radiotherapy would surgery have been successful, and vice versa?

Furthermore, the question of combined radiotherapy and surgery in this condition is of some importance from the point of view not only of continuing the individual patient's life but also in making that life as free from ill-health as possible. A uterus without cancer may still be better removed. No figures are at present available on this point, although Crossen and Newell (1935) showed that combined surgery and irradiation might be better than irradiation alone.

These problems in connexion with cancer of the cervix may be multiplied in connexion with cancer in any other situation. The aim is at present the best health attainable for every individual patient. It may never be possible to secure this, and with adequate progress in preventive methods and chemotherapy the problem may become archaic before it is solved. This being the common aim, however, for both surgeons and radiotherapists, they should combine to achieve it. The specialization which has become a feature of present-day surgery will provide an impetus to progress because difficulties requiring solution will be realized, methods become more uniform, and interest be more sustained.

The Statistical Approach

The peculiar feature of cancer treatment is that there are so many possible complicating factors that the result in any individual case can be accurately prophesied only in statistical terms. Similarly, the answer to any problem in connexion with cancer treatment must be sought on statistical lines. Suppose the problem is stated in its simplest terms. What Mr. Smith he can treat the patient only once the problem is insoluble. The next best thing would be to treat with radium another patient exactly like Mrs. Brown, having previously operated on Mrs. Brown, and then to observe the results. But it is impossible to keep them under exactly similar conditions for subsequent observation. The only way to solve the problem, therefore, is to treat so many patients with radium and so many with surgery that the differences to be expected between radium and surgical treatment of a single individual will be shown in terms of probability. Statistical methods are such that if large enough groups are chosen and only one factor is varied, an unequivocal statement of the relative effect of the varied factor can be made together with its probable error.

Necessary Measures

To answer the many questions that radiotherapists and surgeons can ask in connexion with cancer treatment, therefore, the following steps are necessary—having in view that the aim is to decide on the treatment in individual cases when the problems have been solved: (1) They must co-operate to decide on *a priori* grounds and in the light of available evidence what are the problems requiring solution. (2) They must devise suitable experiments for each problem. (3) Each experiment must be carried out without variation in the conditions until a statistically certain result is achieved or the problem ceases to require solution because of developments on other lines, such as chemotherapy.

In an experiment it must be ensured that: (*a*) no selection of cases occurs; (*b*) no change in methods of treatment is permitted; (*c*) no other factors are introduced; (*d*) enough cases are treated to discover if there is a statistically significant difference in end-results; (*e*) cases are followed up and observed long enough to justify conclusions being drawn; (*f*) adequate records for the purpose of the experiment are kept.

For instance, it may be decided to determine whether *x* rays alone, contact *x* rays after removal of the thyroid cartilage, or surgical removal by laryngofissure is the best method of treatment for intrinsic carcinoma of the larynx. The best way to avoid selection of cases is to ensure that for the purpose of the experiment only those which are suitable for treatment by any of the methods are included in the groups. Cases considered unsuitable, say, for laryngofissure would be excluded; but they could be included in another experiment —e.g., for determining the better of two radiotherapy techniques.

If the methods decided upon are then followed without variation and the results assessed statistically from time to time, an answer will certainly be obtained. The impending organization of radiotherapy into large centres together with regionalization of surgery will facilitate co-operation and ensure uniformity of method. This co-operation will destroy the antagonism between radiotherapists and surgeons and result in an alliance against cancer.

In this way plans can be made for dealing with all types of cancer so as eventually to know what must be done in any individual case to obtain the best result.

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The spring number (Volume VII, No. 1) of *Art Notes* (28a, Cornmarket Street, Oxford) is devoted as to 10 of its 16 pages to hospital planning. Mr. N. Notley, A.R.I.B.A., and Mr. R. Brown, in an article on this subject, suggest the principles that should be followed in choosing the site of a hospital, and in the general lay-out, the construction of wards and operating theatres, and the provision of heating and ventilation. Hospitals in Paris, Milan, New York, and Los Angeles are quoted as good examples, and Germany is considered to be in advance even of America in the planning of wards. The authors describe their design, submitted in a competition before the war, for the rebuilding of St. George's Hospital, but not at Hyde Park Corner.

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THE TOWN CHILD: A CRITICAL SURVEY

The lessons of the great social experiment of evacuation will take a long time to learn. They will be reflected, we hope, in future housing policy and especially in a new outlook on education. Evacuation threw a grim light on some aspects of town life never dreamed of by those whose acquaintance was only with the exterior aspect of the slums. No sooner had the children been bundled off to their country hosts at the beginning of the war than an outcry arose that many of them were dirty and verminous, deplorable in their habits, ill clad and ill shod, defiant and destructive. Allowance must be made for some exaggeration. Even had the children been little angels, they would not have been welcome guests to some of those on whom they were compulsorily billeted. But the complaints were by no means without substance, nor did they relate only to a very small proportion of the children. A group of professional women, acting upon a resolution from the National Federation of Women's Institutes, set themselves to find out the truth about these accusations, and *Our Towns: A Close Up*[1] is the horrifying result. The report is addressed to readers who have stout stomachs and an appetite for facts, however disagreeable the facts may be. It takes refuge in no polite euphemisms. It does not refer to scabies as "shelter rash" or to lousiness as "uncleanliness." Evacuation proved to be a window through which town life in its more squalid aspects was revealed. What it showed was poverty, but a poverty which was not so much lack of means as lack of personal discipline and social standard. One town clerk in a reception area states that as the children defiled on arrival "the heads of some of them could be seen crawling with vermin." In another area some of the children arrived in garments so verminous that these had to be immediately burned. In another, 23% of the evacuated children were found to have head lice, and, what is worse, the cleansers found many of them reinfested after every visit from relatives and friends. Dr. Kenneth Mellanby had previously given some idea of the extent of the infestation with head lice.[2] He had shown that in a sample of children from ten industrial cities over 50% of the girls between the ages of seven and eleven were infested. In the country infestation is regarded as a disgrace: in the towns it is treated as a lighter matter.

Other evidence which startled the people concerned out of their customary modesty related to insanitary habits among the children, testifying to a low standard of behaviour in the places from which they had come. Enuresis was found to be common at all ages up to fifteen years. Among the younger children this might be an infantile reversion due to a new sense of insecurity, but there were a substantial number of other cases of a more difficult type, without any detectable medical origin. A school medical officer in Surrey says that the problem of enuresis was much eased by the return to London of the worst cases of the slothful or untrained type; another in Essex attributes the condition to lack of early training. Faecal incontinence was also a great difficulty. "Some of the younger [children]," say the compilers of this volume, "were said to be wholly unaccustomed to use a closet and to have used the hearth or corners of the room for defaecation." This is a reflection not only upon the training of the children but upon the housing conditions. It is stated in *When We Build Again*, a publication of the Bournville Village Trust, that in 1935 Birmingham had 38,773 back-to-back houses, 51,794 houses without a separate water-closet, and 13,650 without a separate water supply. In Shoreditch there are said to be numerous three-story houses occupied as tenements by three families, sharing two closets, one at the top of the house and the other perhaps forty feet away in the yard outside.

All this and much more comes within the uncomfortable beams of this searchlight. The remedy lies partly in the provision of better and more sanitary housing, but that will not meet the case of children whose parents are neglectful and lazy and incompetent. The defects in behaviour reflect not only upon the parents but to some extent upon the teachers and upon the educational system, which instructs the children in remote geography but forgets entirely their own bedrooms and backyards. Schools could teach biology in such a way as to relate it to personal hygiene and behaviour. They could teach many other intimate and personal things which more fortunate children learn in their own homes. But, unhappily, the schools and their medical services do not get hold of the children until it is too late. It is not the Jesuit alone but the sanitary educationist who wants the child up to the age of seven, or even only up to the age of five. As things are, the five-year-old enters school suffering from complaints and faulty habits which the school doctors and nurses will spend the next nine years of his life in trying to eradicate. The best efforts of the school medical service are frustrated also by the reservoir of infestation and contagion in the pre-school child. The compilers of this report have been impressed by nothing so much as the need to multiply nursery schools in the poor quarters of towns. In such schools good eating and sleeping habits and cleanliness in body and behaviour could be inculcated, and the child learn discipline and self-respect. The wide extension of nursery schools will be costly, but less costly than dirt and disease and delinquency. It is the nursery school, if anything, which can break the insanitary entail and prevent the sins of the fathers—more often the sheer fecklessness of the mothers—from being visited upon the children. Prof. R. J. A. Berry, in a letter to the *Times* last month, pointed out that many of the unpleasant features revealed by the evacuation of children are precisely those characteristic of feeble-mindedness, and said: "If the parents themselves are feeble-minded then the sooner the child is removed, even if only for part of the time, to a nursery school, the better for the child and for those who sooner or later have to pay for its segregation. At the moment the educational system catches the defective a little too late."

ACID PHOSPHATASE AND PROSTATIC CANCER

The results obtained by Huggins and his colleagues[1] in the treatment of prostatic carcinoma have aroused much interest in the physiology of this gland, and more particularly in its ability to secrete a special type of phosphatase. The group of ferments to which it belongs, the phosphatases, have the power of liberating inorganic phosphate from hexose phosphate and other organic phosphorus compounds. They exist in many tissues, and their production is a manifestation of cellular activity. Many types

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[1] *Our Towns: A Close Up*. By the Hygiene Committee of the Women's Group on Public Welfare (National Council of Social Service). Oxford University Press (Paper 5s; cloth 8s 6d.)

[2] *Med. Off.*, Feb. 1, 1941.

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[1] *Arch. Surg.*, 1941, **43**, 209.

have been described, but two are of outstanding clinical interest: the alkaline, which comes chiefly from bone cells, and the acid, which is formed in the prostatic glandular epithelium.[2] Curiously enough, only in man and monkey does the production of acid phosphatase occur in significant amounts, and then only after the onset of puberty.[3] Administration of male hormone to immature male rhesus monkeys leads to a very great increase in the concentration of acid phosphatase in prostate tissue. The suggestion has been put forward that the function of prostatic phosphatase is to split up hexose phosphate and other phosphoric esters in the course of glycogenolysis, upon which human spermatozoa largely depend for the energy requirements of prolonged motility after ejaculation. Although it is unlikely that the enzyme has any function in the glandular epithelium of the prostate, it is probably an important factor in the formation of prostatic calculi. Normally the ferment is excreted in the prostatic fluid, with the result that very little is found in the blood stream. The small amount of acid phosphatase that can be detected in the plasma of a healthy subject is derived from liver, spleen, bone, and kidney.

The information was of academic interest until the discovery of Gutman and his co-workers[4] that tumour cells derived from prostatic epithelium secrete large amounts of acid phosphatase brought the matter into the clinical field. With invasion of blood and lymph vessels by tumour cells a channel is opened to the ferment, so that it can appear in high concentration in the plasma. The Gutmans immediately applied this observation to the differential diagnosis of metastases derived from prostatic carcinoma.[5] They showed that by the method in use not more than 3 units of acid phosphatase per 100 c.cm. appear in the serum of a normal subject. Occasionally a slight increase is detected in the plasma of patients with tumours and other diseases of bone, liver, and other organs not associated with the prostate. Sullivan, Gutman, and Gutman[3] found in a series of 130 patients with bone metastases arising from cancer of the prostate that 110 had acid phosphatase values exceeding 3 units and 95 over 5 units per 100 c.cm. of serum. It would appear, therefore, that a value below 3 excludes bone involvement from prostatic cancer, and that one over 5 almost certainly indicates this. In 3 cases of Paget's disease the acid phosphatase value exceeded 5, but this did not lead to any trouble in diagnosis, because in this condition the alkaline phosphatase is raised, which is not the case with prostatic metastases. In only two instances did any confusion arise: one was in a case of carcinoma of the urinary bladder invading the prostate, and the other in a case of bronchogenic carcinoma with metastases in bone. It should be stressed that an indubitably high acid phosphatase is not usually found unless the skeletal system is involved. The data at present available do not permit one to state precisely how far extracapsular involvement of prostatic carcinoma must extend before a significant increase in plasma acid phosphatase can be detected. Huggins and Hodges,[6] however, showed that injection of testosterone is rapidly followed by an increase of acid phosphatase if there are any metastases in the bones. Accordingly this "provocative" injection of androgen may serve as an excellent diagnostic test of bone involvement when *x*-ray evidence is absent. The same workers went a stage further, and showed that removal of the male hormone by castration[1] or injection of oestrogen[7] led to remarkable clinical improvement, associated with a fall in the acid phosphatase value, which began within 24 hours.

Therapeutic deductions are obvious, but what is of interest here is the opportunity afforded for an objective test to indicate the response to operation. In an excellent review of the whole subject Sullivan and his colleagues[3] have summarized the clinical applications of acid phosphatase estimation. It provides independent evidence of the presence of metastases from carcinoma of the prostate, and it may be helpful in detecting the site of the primary tumour when the prostate is not unduly enlarged. It is of value also in determining when enucleation of the prostate is likely to be of no avail, because any increase in acid phosphatase means that the tumour cells have already reached the skeleton. After removal of a prostate which is afterwards found on histological examination to present signs of malignancy, repeated estimations of plasma acid phosphatase will detect any spread to the skeleton. Finally, if castration or other form of androgen control is carried out, the level of acid phosphatase in the blood serves as a useful means for early assessment of the treatment. The story is not yet finished, because there are hopes of further advances, direct and indirect. Even at this stage, however, there is a strong temptation for the academic investigator to point the moral that even from the most abstruse test-tube investigations matters of great clinical import and therapeutic interest may emerge.

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[2] Kutscher, W., and Wolbergs, *Z. physiol. Chem.*, 1935, **236**, 237.

[3] Sullivan, T. J., Gutman, E. B., and Gutman, A. B., *J. Urol.*, 1942, **48**, 426.

[4] *Amer. J. Cancer*, 1936, **28**, 485.

[5] Gutman, A. B., Tyson, T. L., and Gutman, E. B., *J. clin. Invest.*, 1938, **17**, 473.

[6] *Cancer Res.*, 1941, **1**, 293.

[7] Huggins, C., Scott, W. W., and Hodges, C. V., *J. Urol.*, 1941, **46**, 997.

THE PROTEIN RESERVOIR

It has now become so usual to estimate the serum proteins in the study of nutrition, shock, and metabolic disease that Peters[1] has done well to emphasize the implications of physiological work on this subject. Modern studies began when Starling showed that the exchange of fluid between the blood stream and the tissues depended on the balance between the capillary blood pressure and the colloid osmotic pressure of the proteins. The probability of a dual causation should always be remembered in the treatment of oedema. In heart failure oedema may prove intractable if, as the result of malnutrition, serum proteins are even slightly reduced. The ascites and oedema of cirrhosis are as much dependent on a fall in serum albumin as a rise in portal pressure. Because of its smaller molecular size and other properties, the serum albumin is the all-important factor in the maintenance of the colloidal osmotic pressure. Moreover, the globulin is but little reduced by albuminuria or malnutrition, and it may, indeed, be greatly increased in cirrhosis and other diseases in which albumin is diminished. Albumin and globulin are in fact independent variables in the serum, and no determination of the proteins that does not include separate measurement of these fractions is satisfactory. When the clinician finds the serum proteins reduced he is tempted to think they may be rapidly increased by the transfusion of plasma. This is a false analogy with the transfusion of red cells, which exist in a closed system within the blood vessels. Proteins, as Beattie and Collard have shown, flow freely in and out of the vascular system,[2] and the serum proteins are in equilibrium with the tissue proteins. The level of the proteins in the serum can be likened to the level of the fluid in a manometer which communicates with a much larger system. When a dog was starved of protein for 80 days the serum albumin was reduced by 70%, the haemoglobin by 50%, and the body weight by about 20%. But if the percentages are converted into total values, it is seen that of the total protein lost about 80% came from the tissues, only about 3% from the serum proteins, and the remainder from haemoglobin. A moderate deficiency of serum albumin, then, may denote a severe depletion of tissue protein, and for every gramme by which we wish to raise the level of serum albumin 30 grammes must be put into the tissues. If this were more generally appreciated there would be less surprise that in malnutrition serum albumin cannot be restored with great celerity or that the transfusion of plasma is relatively ineffective in the treatment of oedema. A similar line of argument will fortify us against disappointment with the results of parenteral administration of protein autolysates, such as is being developed in the United States.[3] To give only the minimum daily requirement of nitrogen in the form of intravenous injections of amino-acids requires an unpleasantly large volume of fluid. Many lives have been saved by the transfusion of plasma in shock and acute perturbations of the blood volume, but these are conditions in which the body reservoir of protein is intact. Once this reservoir is emptied it is not practicable to refill it by pouring liquid into the manometer—i.e., by parenteral administration of proteins or amino-acids. Reliance must be placed on the natural channel of supply—the assimilation of proteins via the alimentary tract.

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[1] *J. Mt. Sinai Hosp.*, 1942, **9**, 127.

[2] *British Medical Journal*, 1942, **1**, 459; **2**, 301, 507.

PEPTIC ULCER OF THE OESOPHAGUS

Chronic peptic ulcer of the oesophagus has for long been recognized, though it has generally been regarded as almost a medical curiosity. In recent years, however, Jackson and others have suggested that the condition is much less rare than was previously thought, and in a paper recently published R. C. Dick and Sir Arthur Hurst[4] agree with this view. They describe a further series of cases and bring out a number of important points on aetiology, symptomatology, and treatment. Chronic oesophageal peptic ulcers differ in no way in their morbid anatomy from ulcers of the stomach or duodenum; they may vary in size but are usually single. The majority appear to heal completely, causing scarring with or without cicatricial stenosis; malignant degeneration rarely or never occurs. On oesophagoscopy they appear as flat ulcers, with yellowish exudate and hyperaemic zone around, and without the raised fungating edges of a carcinoma. Jackson was able to demonstrate scars of healed ulcers in 67 cases by oesophagoscopy, as well as 21 active ulcers. As with peptic ulcers elsewhere, the acid gastric juice appears to be an essential factor in causation. Dick and Hurst note that in the majority of cases this regurgitates through the cardiac orifice of the stomach owing to incompetence of this opening associated with a congenitally short oesophagus. They quote the findings of Johnstone, in all of whose seven cases there was definite shortening of the oesophagus, but they themselves consider that this shortening is congenital and not cicatricial, being in most cases found with a diaphragmatic hernia of a portion of the stomach. In a very few cases an ectopic patch of gastric mucous membrane occurs in the oesophagus and secretes acid and pepsin just as in the stomach itself.

The symptoms of chronic ulcer of the oesophagus differ from those of carcinoma or of "cardiospasm" in a number of ways. Pain is often severe and appears during eating or drinking—at first only with hard or irritating food, but later with almost every meal. It may also be felt later after eating if the patient bends forward or lies down; it may be relieved by sitting up, or by stretching the arms above the head, though this only happens in cases associated with a diaphragmatic hernia. The pain is situated deeply in the middle line behind the lower end of the sternum, and may come and go just as in ulcer of the stomach, with periods of freedom lasting even for years. The natural tendency is towards recovery, but in about half the cases there is gradual dysphagia due to spasm; occasionally organic stricture develops. With stricture, retention of gas in the stomach may take place as well as obstruction to the passage of food from above, and the rare condition described as "aérogastrie bloquée" may then result, with intense gastric dilatation. The diagnosis may be confirmed by *x*-ray examination or oesophagoscopy may be employed, though, owing to associated spasm, the ulcer cannot always be seen. If there is clinical suspicion of oesophageal ulcer—as suggested by the symptoms, findings of occult blood in the stools, and perhaps haematemesis—special methods of *x*-ray examination should be adopted. The simple fluid barium emulsion does not often reveal the ulcer, and a semi-solid meal is required: the patient should swallow it lying down, the foot of the bed being raised. The characteristic picture of spastic narrowing with a central ulcer niche can often be recognized, as well as a portion of the stomach lying within the thorax above the diaphragmatic opening.

In treatment, fluid feeds are necessary at first, but need not be given as frequently as in gastric or duodenal ulcer; the patient is better sitting up; the bed should be raised at night so that the head is high, in the hope that regurgitation of gastric contents into the oesophagus will thus be prevented. Atropine and olive oil are also recommended. If such medical measures fail, gastrostomy is advisable, and was required in 2 of the 16 cases described by Dick and Hurst. Some after-care on similar lines to the active treatment is important to prevent recurrence.

With careful diagnosis and thorough treatment the prognosis is good, and although oesophageal ulcer is not common, it is important that it should not be forgotten when obscure cases of early gastric pain or dysphagia are encountered.

REFRIGERATION ANAESTHESIA

Baron Larrey, Napoleon's army surgeon, is said to have amputated limbs painlessly at the Battle of Eylau in a temperature of –19° C. The deliberate use of cold, however, to obtain anaesthesia, while well known, and subjected to spasmodic attempts at popularization,[1] has never been taken up seriously, largely through the fear of damaging the tissues and the practical difficulties of refrigerating more than small areas of the body surface. The experience of Crossman, Allen, Hurley, Ruggiero, and Warden[2, 3] suggests that it is a useful method of anaesthesia for amputation in "poor-risk" patients in whom the circulation in the limb is already failing. For efficient refrigeration of a limb—and their report deals with the lower limbs only—a tourniquet is essential. They emphasize that the main harmful effect of a tourniquet is by direct pressure, particularly on nerves, and to minimize this they advise narrow gum-rubber tubing. Experiments on animals have shown[4] that a limb will survive up to 12 to 15 hours' deprival of blood supply at ordinary temperatures, and very much longer when cooled to just above freezing-point. Ligation of a limb causes shock, which after 6 to 8 hours may be sufficient ultimately to kill the patient. Human resistance to this form of shock is high, and little ill effect of the sort need be expected from a ligation lasting 2 to 3 hours. Cold lowers the resistance of the tissues to infection, but the activity of bacteria present is decreased. Objection to cold might be made on the ground that the trickle of blood in the arteriosclerotic limb threatened with gangrene would be still further reduced and real danger arise of sloughing flaps. This is more than offset by the lowering in metabolic activity of the tissues, with consequent reduction in oxygen need and carbon dioxide production. One great advantage of the use of refrigeration is that no preparation other than a mild sedative in the occasional apprehensive patient is required. The authors use either ice or electrical refrigeration to cool the limb, and have found that the time of cooling to produce anaesthesia varies from 1 hour for a foot to 2½ hours for a thigh amputation. Frostbite does not occur, and the skin temperature does not usually fall below 40° F. As Rupp[5] points out, refrigeration may prove useful in other directions. It would probably lengthen the time during which embolectomy could be undertaken, and it might be invaluable for cases inoperable by any other method.

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[3] *J. Amer. med. Ass.*, 1942, **120**, 1176.
[4] *Quart. J. Med.*, 1942, **11**, 105.

[1] Arnott, *Lancet*, 1848, **1**, 287.
[2] *Anesth. & Analges.*, 1942, **21**, 241.
[3] *Arch Surg.*, Chicago, 1942, **44**, 139.
[4] Allen, *Surg. Gynec. Obstet.*, 1939, **68**, 1047

VENEREAL DISEASE IN SWEDEN

The large rise in the incidence of venereal diseases in Britain since the beginning of the war has attracted widespread comment. In discussions on the thorny problem of prevention and control comparison has been made with the experience of Scandinavian countries, where legislation has been in operation for some years. A law to combat venereal disease was introduced in 1918 in Sweden, and this lends special interest to an examination by Dahlberg[6] of the trend of the incidence of venereal diseases in that country from 1913 to 1938. Legislation and the methods adopted for the control of venereal disease were, it appears, very successful in the case of syphilis, but made little impression on the trend of gonorrhoea. After a slow rise in the incidence of venereal diseases during the first years of the last war a rapid increase occurred in 1918 and 1919. By 1919 the number of cases of soft sore and of syphilis at ages over 1 year had been almost trebled, and the incidence of gonorrhoea was double that of 1913-14. At ages under 1 year the number of cases of syphilis rose suddenly in 1919 (followed by another small rise in 1920) to three times the previous figure. Between 1919 and 1923 the incidence of syphilis fell rapidly from 6,354 cases in the former year to 1,127 in the latter—i.e., to about half of the pre-war level. The fall continued more slowly, and in 1925 only 723 cases were recorded. This trend was interrupted by a rise to over 1,100 cases in the boom years of 1927-31. After this the prevalence of the disease again fell rapidly, and the average number of cases annually in 1936-8 was only 352, compared with 2,478 in 1913-15. Soft sore followed a similar course but with a relatively greater decrease: the annual cases numbered only 81 during 1936-8, compared with 1,387 during 1913-15. Congenital syphilis declined at a much slower rate, and it was not until 1928 that the trend returned to the pre-1914-18 level. In the last three years an average of 9 cases was recorded, as against 30 during the first three years of the period (1913-38). The curve for gonorrhoea differed from that of syphilis in the later years, though to begin with it was similar. Between 1919 and 1923 notifications of gonorrhoea diminished from 20,594 to 10,321—to pre-war level. They then rose until 1930, when 14,388 cases were recorded, and afterwards decreased but remained above the pre-war level. The annual average number of notifications of gonorrhoea in 1936-8 was 12,125, compared with 10,621 in 1913-15. The percentage of male to female patients was approximately 70 for syphilis and 90 for soft sore, and only small fluctuations occurred in this percentage during the twenty-six years. The male percentage for gonorrhoea, however, has shown a progressive fall from 80 in the beginning of the period to 70 at the end.

Dahlberg considers that the difference between the trends of gonorrhoea and of both syphilis and soft sore may be due partly to the difference in the diseases. Gonorrhoea, being more contagious, is consequently far commoner than the other two diseases. The symptoms are milder and the patient may optimistically but erroneously believe he is no longer a source of danger to others. There is also a possibility that gonorrhoea may be transmitted during the initial period before the patient is sufficiently aware of it to seek treatment. After discussing various alternative explanations, Dahlberg concludes that the law of 1918 has played an important part in the large reduction of syphilis and soft sore. Diseased males behave with less irresponsibility to prostitutes for fear of penalties, and the instructions which every infected person receives may also have been a factor in the decline of these two diseases.

DIET IN PULMONARY TUBERCULOSIS

The part played by malnutrition in the aetiology of tuberculosis is now generally recognized; yet it is remarkable how scanty is the scientific evidence for this widespread belief. Malnutrition is invariably associated with poverty, and poverty is associated with other factors besides malnutrition. Among these, just how important is the lack of proper food in determining lowered resistance to tuberculous infection? Perhaps the statistical investigation carried out by Knud Faber[1] into the incidence of tuberculosis in Denmark during the war of 1914-18 provides the most trustworthy evidence of the effect of food deficiency on the incidence of tuberculosis. According to Faber it was shortage of first-class protein that caused the rise in tuberculosis in Denmark during the early part of that war, the shortage being due to increased exports. When, later in the war, the blockade prevented these exports, the death rate from tuberculosis in Denmark fell rapidly, though in other countries the rise continued. Dr. George Day, of the Mundesley Sanatorium, has published some interesting observations[2] in relation to the present war and the rationing compelled by it. Over varying periods of time during the past five years several groups of patients suffering from pulmonary tuberculosis have been given different diets. These were: (*a*) restricted pre-war diet, (*b*) unrestricted pre-war diet with extra sugar and injections of insulin, (*c*) wartime-rationing diet, (*d*) wartime-rationing diet with extra sugar. (The extra sugar necessary for the experiment was obtained through the Medical Research Council.) The progress rate of the average patient in each of these groups was calculated from the rate at which his body weight increased, and the rate at which his sedimentin index decreased, as worked out by Day.[3] [4] He found that the patients on (*c*) made much poorer progress than any of the other groups. It appeared, too, that the rate of progress was proportional to the calorie value of the diet. There was not enough evidence to decide whether carbohydrate was the most effective ingredient as a calorie provider. It has always been believed that a diet low in fat predisposes to development of tuberculous disease. Faber blamed protein deficiency. By implication Day suspects the third proximate constituent, and more directly what is common to all three—energy value.

The Honorary Fellowship of the Royal College of Surgeons of England has been awarded to Mme. Chiang Kai-shek in recognition of her great services in the relief of suffering and the advancement of medicine in China.

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[5] *Anesth. & Analges.*, 1943, **22**, 46.
[6] *Amer. J. Hyg.*, 1941, **33**, Sec. A, 51.

[1] *Acta tuberc. scand.*, 1938, **12**, 287.
[2] *Tubercle*, 1942, **23**, 215.
[3] *Lancet*, 1940, **1**, 1160.
[4] *British Medical Journal*, 1940, **2**, 376.

FORMATION OF INDIAN ARMY MEDICAL CORPS

PROPOSALS OF THE SOUTTAR MISSION

The India Office has announced that sanction has been given to the formation immediately of an Indian Army Medical Corps, to be organized on lines similar to those of the R.A.M.C. The new corps is to include both graduates and licentiates as medical officers. All regular and emergency commissioned officers of the Indian Medical Service will be seconded to it, and it will receive by transfer the whole existing personnel of the Indian Medical Department and the Indian Hospital Corps.

This action follows upon the recent visit to India of the Medical Personnel (Army in India) Mission headed by Mr. H. S. Souttar, Chairman of Council of the British Medical Association. The Mission was sent out by the Secretary of State at the request of the Government of India. In addition to Mr. Souttar, the members were Lieut.-General A. Hood, D.G.A.M.S., Major-General Sir Ernest Bradfield, late D.G.I.M.S., and now President of the Medical Board and Medical Adviser to the Secretary of State for India, and Lieut.-Colonel J. T. Robinson, R.A.M.C., who as A.D.G.A.M.S. has been in charge of medical personnel at the War Office.

The Mission set out in November, and on the way to India spent eight days in Egypt, devoting the time to an intensive investigation of the Indian hospitals, both general and C.C.S., in the Near East. They arrived in India in the middle of December, spending a month there, first visiting Delhi for an interview with the Viceroy and the heads of Departments. Other places visited were Calcutta, Lucknow, Lahore, Bombay, Poona, and Karachi. At Calcutta they met the leaders of the different medical associations.

Indian Medical Resources

The two sources of supply of doctors in India are the graduates (about 12,000) and the licentiates (about 35,000). The graduates are men who have passed through a full medical curriculum and have acquired a qualification which is registrable in the United Kingdom. Many of them have attained distinction and are capable of specialized work of a high order. For the licentiates there is no exact parallel in the medical profession in this country. They vary considerably in primary education and professional attainments. But their training, which twenty years ago was very poor indeed, has been improved, and many of them are skilled doctors who compete successfully in civil life with the university graduates. In two Provinces the status of their medical school has recently been raised and accepted as that of a college giving training for a university degree recognizable by the General Medical Council. All licentiates have passed examinations at the end of a four-years curriculum, and many have had several years' experience in practice.

The Mission, on their visit to Cairo, made special inquiries about the work of the licentiates in the field, and their own observation and the opinion of the commanding officers were that these men were capable of full medical responsibility, which up to now, together with the status and emoluments of members of the medical profession, they have been denied. They were judged by the Mission to be a loyal and hardworking body of men, not inferior in intelligence and capacity to a large number of graduates. Their main grievance, which is one of substance, is the withholding of professional responsibility and status.

The licentiates come from a financially poorer class of the community. The education of many of them has been subsidized by the Government, and in return they have had, after qualification, to engage for four or five years in Government service. In the Army, while the graduates receive full commission and pay, the licentiates can only receive the Viceroy's commissions, their pay is Rs. 75 a month (supplemented, it is true, by fairly good allowances), their pension rates and the pensions for their dependants are on a low scale, and on service they are not treated as members of the officers' mess.

The Mission proposed—and it has been accepted by the Government—that all candidates for a commission in the new corps, whether graduates or licentiates, should be required to undergo at least a three-months probationary course of training in India in those subjects which are of importance for military service. During this course they will receive instruction in such subjects as anaesthesia, blood transfusion, war wounds, nutrition, tropical diseases, and hygiene. They will be under close observation during this period, a certain amount of selection and classification will be possible, and the bestowal of a commission will turn upon the report given by the commandant. The outstanding feature of the new arrangement is that to every doctor who has qualified to practise in India will be given the opportunity to rise to any position in the corps which his abilities justify. Licentiates will receive commissions with the status to which they are entitled.

Creation of an Army Nursing Service

The other great advantage of the new corps is that it will make possible a service of orderlies of the type and training which Army nursing requires. The virtual absence of an effective nursing service from the Indian Army greatly impressed the Mission. There are only 300 registered male trained nurses in the whole of India. The bulk of the nursing is carried out by sepoys, who receive only a brief military training before they are turned into the wards to do nursing. Although the reorganization of the medical services of the Indian Army has been the subject of many reports during the last twenty years, apparently the importance of male nursing personnel as a vital part of Army medical service has escaped attention in these inquiries. An immediate attempt is to be made to attract to this service men of a superior class, who will be given an effective training in elementary nursing and first aid, with adequate pay and prospects of promotion, and it is believed that recruits will not be lacking and that in due course the Army in India will have a system of nursing orderlies like the first-class men on whom the R.A.M.C. depends.

The Mission were impressed by the possibilities of the training centres which they visited, and they took the view that if people of the proper class were recruited and technical training carried out by warrant-officers and N.C.O.s from existing sources and from compounders and male nurses, the same effort and expense would yield immensely superior results in the shape of "other ranks" personnel to those which have been hitherto forthcoming.

The effect of these changes upon the Indian Medical Service has been very gravely weighed and considered. That Service, which in one form or another dates back now for more than 180 years, has done magnificent work. Although it is now primarily a military service, responsible for the medical care of the personnel of the Indian Army, Navy, and Air Force, it was originally a civilian service which provided doctors for the Army. It has also been responsible for medical education, public health administration, and research. Its officers founded the first medical colleges, and until recently provided the majority of their teachers. It was the pioneer in the teaching and practice of Western medicine in India.

At the outbreak of the war the members of the Service numbered 780, of whom 59.6% were Europeans. The number is now 2,838, of whom only 19.9% are Europeans, so that the wartime increase has been almost entirely in the non-European element. The figures suggest the great change which has come over the Service. Meanwhile, there are these 35,000 licentiates, holding qualifications registrable in India but not in the United Kingdom, who, because they do not hold the recognized degrees, are not, under the existing law, allowed to receive commissions in the I.M.S. The Service has great responsibilities outside the Army. It would be impossible to embody it in the new corps, but to that corps its officers will be seconded. As for the other two organizations, whose personnel is to be transferred, the members of the Indian Medical Department will have a greatly improved position. The Department has two branches, British and Indian. Recruitment to the first is restricted to domiciled Europeans and Anglo-Indians, who take a five-year course at a medical college and obtain a diploma which entitles them to practise in India. Those who acquire a qualification registrable in the United Kingdom have been granted commissions in the I.M.S. The members of the Indian branch, who have received the licentiate's diploma, are entitled to practise in India only, and assist I.M.S. officers in the care of Indian troops. The other organization, the Indian Hospital Corps, is composed of persons intended for the performance of the same duties in hospitals, laboratories, medical stores, and field medical units as "other rank" personnel in the R.A.M.C., but it has never provided an adequate or satisfactory service.

This decision to form an Indian Army Medical Corps, a homogeneous Service of officers and other ranks, in all respects similar to the R.A.M.C., may well have a profound effect for good on the Indian war effort. The speed and thoroughness with which the matter has been carried through—almost without precedent for expedition in the slow-moving East—are a matter for congratulation alike to Mr. Souttar and his colleagues who undertook this strenuous and urgent duty and to the authorities in Delhi and London who facilitated their recommendations.

MODEL INDUSTRIAL MEDICAL CENTRE

An excellently equipped medical centre has lately been opened at the works of Morris Motors Ltd. of Cowley, Oxford. It is one of two blocks covering a floor space of 7,000 sq. ft. which are devoted to welfare, the second block housing various clubs and athletic activities. The medical centre is in the charge of a full-time works medical officer, assisted by State-registered nurses, and it has been built and provisioned on what may be described as the Nuffield scale. It is a quiet, attractive building, with a surgery for dealing with minor injuries—serious cases of injury are sent to hospital—an *x*-ray department, a physiotherapy unit, dental and ophthalmic departments, rooms for the staff, an almoner's office, and a waiting-room (but the arrangements are such that waiting is reduced to the minimum). The aim of the centre is diagnosis and prevention. It is provided with an electrocardiograph, a four-valve *x*-ray apparatus with rotating anode tube and an attachment for tomography, apparatus for blood-testing, and other diagnostic aids. The treatment of injuries is also undertaken, and ultra-violet lamps and short-wave and other apparatus for physiotherapy are provided. The dental department has its own *x*-ray equipment and up-to-date anaesthetic outfits; the well-equipped ophthalmic department is staffed from the neighbouring eye hospital.

In the arrangements for dealing with workers at this centre, all accidents, however trivial, are reported to the surgery; all newcomers to the factories may undergo a medical examination with a view to direction to jobs suited to their physical capacity, and a card index is kept of the medical history of every employee. It is hoped that from this centre a useful contribution will be made not only to the industrial health of the workers at Cowley but, by mass observation of sickness under factory conditions, to the new science of social medicine, for which there is now a chair at Oxford. It is intended to equip the *x*-ray department for the mass radiography of chests, and all employees with signs of tuberculosis will be sent for sanatorium treatment. A close liaison is maintained with both insurance practitioners on whose lists these workers are and the staffs of the hospitals, and when it is discovered what is wrong with a patient he is referred for treatment either to his practitioner or to the hospital as the case may be. In the dental department the dental surgeon examines and advises workers free of charge, carries out any extractions or conservation work, and makes dentures in the new plastics, at normal insurance rates. In the eye department employees who wish to have their eyes tested first obtain the necessary vouchers, if they are members of the contributory scheme, entitling them to examination and prescription, and then they are expected to make arrangements with their own opticians for the supply of glasses. The whole of the medical department is a part of the welfare work of the Nuffield organization, and the medical officer maintains close touch with the welfare supervisor, the social secretary, and others on that side.

Research into Nutriment of Canteen Meals

Another interesting welfare department at Cowley, opened on the same occasion, is a food research department, a joint enterprise of the Nuffield organization and Barkers (Contractors) Ltd., who are responsible for operating the canteens at the works. A biochemist is in charge, a dietitian and a chef are on the premises, and the laboratory is equipped with centrifuges and other apparatus for investigating the composition of foods. Study is also made of the problems of cooking and service, which are important factors in communal feeding in view of the unstable nature of food after its preparation for the table. To ensure that canteen meals are palatable, satisfying, and in conformity with dietetic principles will be the task of this department, which will report daily on the number of calories served per portion. The laboratory, which will impose its own improved standards on the canteen managers, is believed to be the only one directly connected with an industrial canteen. One of its first activities is, by means of a mobile laboratory, to go the round of the canteens and make researches on the spot on the stability of vitamin C in food prepared by what may be called mass cooking. The Ministry of Food has co-operated in this venture, and it is hoped that a certain amount of academic research on nutrition may be undertaken.

TRANSFUSION ACCIDENTS AND DEATHS

The memorandum printed below has been drawn up by the Blood Transfusion Research Committee of the Medical Research Council for circulation by the Ministry of Health to hospitals of the Emergency Medical Service and to the Maternity Services throughout the country.

If following a transfusion the state of any patient gives rise to anxiety and it is felt that the condition can reasonably be ascribed to some effect of the transfusion, it is requested that the incident should be immediately reported by telephone to the nearest blood supply depot in the London area or regional transfusion laboratory in the Provinces, so that any necessary investigations can be initiated at the earliest possible moment. At the same time the hospital pathologist should be informed.

The conditions which it is particularly desired to investigate are haemolytic reactions, and reactions due to deterioration or contamination of the blood or blood derivatives used for transfusion. Although these reactions produce very variable clinical pictures it is suggested that the occurrence of any of the following symptoms or signs following transfusion should be notified: sudden grave collapse, acute severe backache, haemoglobinuria, or jaundice. Rigors and febrile reactions should not be notified unless they are accompanied by one or more of the above signs or symptoms.

The investigations in such cases would be made very much easier if a sample of the blood, or blood derivative, from the bottle given was available. It is therefore requested that a few c.cm. should be left in every bottle of transfusion fluid given and that this should be kept in the bottle for at least 24 hours, and not thrown away until the patient has been revisited and it has become clear that he has not reacted unfavourably to the transfusion. As a routine, therefore, every bottle should be recapped after transfusion and put in a cold place (in a refrigerator if possible). The giving apparatus should be removed and washed immediately in cold water as usual.

If for any reason it proves impossible to make immediate contact with transfusion headquarters it is requested that a sample of blood should be withdrawn from the patient under sterile conditions, using a dry syringe if possible, and divided between two dry sterile tubes and one dry oxalate tube (for blood culture and other examinations). At the same time a clean specimen of urine should be obtained from the patient and kept. In the ordinary way these specimens of blood and urine will be collected by the transfusion officer when he arrives to see the case.

CAMPAIGN AGAINST TUBERCULOSIS

Some information about the steps already taken by the Government in its campaign against tuberculosis, particularly the stage reached in the supply of miniature radiography units to local authorities, was given by the Minister of Health at a Press conference in London on April 29.

He said that with the aid of expert advisers a detailed scheme covering the application of the system of miniature mass radiography in all its aspects had been drawn up, and full information was being sent in a comprehensive memorandum (Memo. 266/T) to all local authorities responsible for the treatment of tuberculosis. At the same time these authorities were being given full particulars of the new scheme of allowances. Two of the new mass radiography machines had now been delivered. The first was being used to train operational teams. The second had been delivered to the Lancashire County Council. As more of these units were produced they would be allocated in the following order: L.C.C., Middlesex C.C., Surrey C.C., Wales (Welsh National Memorial Association), Staffordshire C.C., Leeds, Newcastle-upon-Tyne, Nottingham, Essex C.C., Portsmouth, Bristol, Manchester, Sheffield, Birmingham, Liverpool, Norwich, and Northamptonshire C.C.

At present about one machine a month would be delivered. It might, therefore, take at least a year before there was a network of mass miniature radiography units operating in the most populous areas of the country. It was hoped that eventually miniature radiography would be a part of routine health examinations. To begin with, arrangements would be made, as the units gradually become available in different parts of the country, to examine suitable groups of people—ordinary healthy men and women—in places such as industrial establishments, offices, factories, or any place where large numbers of people could readily be assembled.

Only about three out of every 1,000 persons examined were found to be tuberculous and needing treatment. The miniature x-ray machines could photograph chests at the rate of more than 100 an hour, using ordinary cinema film. Each negative, only about one inch square, was later projected on a screen and examined by experts. Doctors could sort out the cases—perhaps 40 or 50 in every 1,000—where there was some suspicious sign which should be investigated further. In the small number of cases in which tuberculosis was diagnosed sanatorium or dispensary treatment would be recommended.

The Government had decided to provide special maintenance allowances, which would enable those persons found to be affected to give up work for a while and undergo treatment. These allowances would apply to everybody undergoing approved treatment, no matter through what means the diagnosis had been made. They would be administered by tuberculosis authorities as part of local health services, and would comprise "maintenance allowances" based on a standard scale and without any test as to means, to which might be added, at the discretion of the authority, extra grants or special payments towards commitments.

Allowances

The weekly allowances, to which Mr. Brown referred, are as follows: for a male applicant and wife (or female applicant with dependant husband) 39s.; for male or female applicant where the former rate does not apply 27s.; for dependants (other than wife or husband) aged 16 and over 12s.; 14 to 16 8s.; 10 to 14 6s. 6d.; under 10 5s.

Where the applicant is a person living as a non-dependent member of a parent's or other relative's household and is receiving treatment at home the allowance will be 25s., with additional payments if the person has dependants as stated above. To these will be added any special payments made at the discretion of the local authority.

The same rates apply to Scotland, where similar information has been given in a circular to local authorities.

Reports of Societies

ANALGESIA AND ANAESTHESIA IN OBSTETRICAL PRACTICE

At a meeting of the Section of Obstetrics and Gynaecology of the R.S.M. on April 16, Dame Louise McIlroy presiding, the discussion was on "Analgesia and Anaesthesia in Obstetrical Practice."

Dr. John Elam, who defined anaesthesia as relief from pain with loss of consciousness, and analgesia as relief without loss of consciousness, said that one of the essential things to remember before confinement was not to frighten the patient. Pre-medication was important, but should not make the patient too sleepy. When forceps was contemplated he had found potassium bromide and chloral helpful. The objection to barbiturates was that the patient on coming round was restless and perhaps uncontrollable. He acclaimed the virtues of the Oxford vaporizer, in which he used a mixture of trichlorethylene and ether. When it was necessary to use forceps in domiciliary midwifery he had felt quite safe with the Oxford vaporizer, doing the induction himself and then leaving the apparatus to the midwife. If there was overdosing with trichlorethylene labour was slowed down, but the moment administration was stopped the pains began to return, and within ten minutes were as strong as ever.

Prof. A. M. Claye spoke on the question of the effect of maternal anaesthesia and analgesia upon the infant, and summarized recent literature. He dealt in particular with the allegation that analgesics in labour, given in greater amounts than the pharmacological dosage, might be a factor causing anoxaemia with cerebral damage to the child. One extensive investigation, however, extending over 800 cases, suggested that cerebral injuries were due to mechanical factors—that is, faulty obstetrical manipulation—rather than to drugs given to the mother. His own conclusion was that the technique of administering anaesthesia and analgesia in common use in obstetrics required a great deal of learning. Probably the most fool-proof apparatus was Minnitt's. With the concentration of gas used it was virtually impossible to harm mother or baby. The success of more difficult methods depended on the acquisition of the necessary skill.

Dr. Grantly Dick Read said that he spoke as a general practitioner with an experience of thirty years' observation of normal and natural function. It was rather noteworthy that the Fellows of the R.C.O.G. probably attended only 1% of deliveries in this country, and yet it was they who continued to teach how obstetrics should be conducted. How many of them knew the phenomena of normal labour? It was assumed that normal labour was a painful process. He entirely disagreed. There were three types of labour: normal or natural, cultural, and abnormal or surgical. Cultural labour was the product of the institutions of civilization, which had introduced the woman to all manner of fears and tensions as she approached childbirth. If there was imbalance between the structures which received a stimulus and those which interpreted it, then normality and natural function were broken down. Fear and anxiety in this connexion did not persist among less cultured and more primitive races. It was this neurological factor which gave rise to the pain in normal labour. By eliminating fears *ab initio* a painless labour might be induced. Pain was dependent on certain tensions occasioned by inhibition of the function of labour. Painless labour did not occur in all normal cases, but the percentage was rapidly increasing, and as more and more midwives applied themselves to eliminate fear ante-natally and to teach the women the physical aspect of relaxation it would still further increase. By the teaching of relaxation, a certain readjustment of diet, and certain forms of exercise, combined with normal and reasonable ante-natal treatment, anyone who had the courage to try it out on 50 normal cases in succession would have an "eye-opener." He suggested more research into the psychological and the neuromuscular aspects of labour.

Mr. R. H. Paramore said that he found it extremely difficult to differentiate between the normal and the abnormal. There were borderline cases, and it was next to impossible to say what might happen. Childbirth was a laborious affair, involving much hard work during which the viscera were greatly compressed. No woman, in his opinion, should be submitted to a second stage of labour lasting longer than two hours, and in view of the shortness of the second stage in multigravidae one might well ask whether in the case of a first child one should wait so long. With the cervix fully dilated, extrusion of the child could occur only with great distension, and laceration of the tissues was common. He commended the use of spinal anaesthesia. No other method of anaesthesia to his knowledge had the same effect. Bleeding was much less with spinal anaesthesia than with general; and it had other advantages.

Dr. J. Mickiewicz gave the results of continuous pentothal anaesthesia in a series of 29 cases of Caesarean section, performed by Mr. Carnac Rivett at Queen Charlotte's. Anaesthesia was induced with 0.5 g. of pentothal in 10 c.cm. of saline; 2% pentothal was added from time to time to maintain the anaesthesia. It was usually found that the addition of from 2 to 10 c.cm. of the 2% solution at roughly 5-minute intervals was sufficient. The total dosage for Caesarean section was about 1.5 g. Coramine and oxygen were available in case of respiratory depression, but this had rarely been encountered. Atropine (1/100 gr.) was given one hour before operation. In this series there had been one maternal death on the fourth post-operative day, due to acute paralytic ileus, and there was one foetal death (on post-mortem examination the lungs were found to contain liquor amnii; this must have been due to premature respiration, not to respiratory depression). Dr. B. A. Sellick gave particulars of 251 cases at Middlesex Hospital in which intravenous pentothal had been given. They had included 33 cases of surgical induction, 95 of forceps delivery, 5 of post-partum haemorrhage (manual removal), 20 of Caesarean section, and 91 of perineal laceration. Two maternal deaths occurred—one after post-partum haemorrhage and one after Caesarean section—and there were 7 stillbirths. Six of the mothers and 10 of the infants required resuscitation. Miss Young gave some account of the training of midwives in the administration of gas-and-air anaesthesia. Out of 51 midwives of the Middlesex C.C. this last year, 25 were so trained. Captain A. C. Frost, R.C.A.M.C., mentioned the value of paraldehyde given per rectum. Dr. Russell said that the ideal anaesthesia was one in which quick induction was possible, and in which the patient could come out of the anaesthetic quickly.

Dr. Letitia Fairfield referred to a collection of statistics of 950 cases of Caesarean section, drawn from 20 different units in the course of six years. There had been six deaths from anaesthesia, and in all the six it was spinal anaesthesia which had been used. Everything was being done in L.C.C. hospitals to teach relaxation and the practice of normality, and to instruct the midwife in these respects, but, of course, this had been given varying emphasis in different hospitals. She had seen many women who had been carefully trained in relaxation methods, and in some cases the women had had remarkably painless labours, but in others the labour had been very painful. While relaxation was important, she suggested to Dr. Dick Read that he should not "oversell" it. The discussion ended with a final brush between Prof. Claye and Dr. Dick Read, the former suggesting that Dr. Read did the gynaecologists less than justice if he thought that they did not consider the psychology of their patients. Dr. Dick Read replied that he was not offering a panacea for all labours. Neither his own method nor any other was successful in all cases.

Correspondence

Private Practice

Sir,—On the assumption that all the population is insured against sickness and accident (paragraph 431 of his report) Sir William Beveridge makes the following observation: "The possible scope of private practice will be so restricted that it may not appear worth while to preserve it." This is the view of an economist, and it seems to me that, from this point of view, the position of private practice alongside a complete State Medical Service, if this takes a form acceptable to both doctors and patients, has perhaps not been sufficiently studied by our profession.

First, what is meant by private practice? Under the State scheme the patient's first and most intimate contacts will be with general practitioners. Behind them, however, there will be consultants, specialists, dentists, nurses, masseuses, pharmacists, opticians, instrument makers, etc. Will the private patient be allowed to choose for which of these services and the goods they supply he will pay, or will it be a case of paying for them all? If the former privilege is allowed, I suggest that many patients who would prefer to employ a G.P. in a private capacity will be less desirous of paying fees to the numerous shadowy, often unknown and fearsome, figures who, to them, work in the slightly sinister background of hospitals and laboratories. In the latter case, during the course of a long and expensive illness, many private patients will surely decide that their financial limit is reached, and they will seek the refuge of the State service.

It must be remembered that every private patient will be paying twice for any service or remedy he receives, and that the number of these patients will be much smaller than under present conditions. It is not, therefore, unfair to assume that the level of fees of private patients will be higher, and this for two reasons. First, either because they will belong to the wealthier classes, or, secondly, because they will be difficult, contentious folk, who take up more of our time than the average patient over non-essential details. My own experience has been that many patients who are entitled to medical benefit under the present scheme, whatever their parents' or husbands' income may be, do not hesitate to claim their rights: this has been quite noticeable during the present emergency. There is also an increasing tendency for the more prosperous section of the community to subscribe to the extended benefits contributory scheme or some similar organization. A man earning £1,000 a year, with a wife and two children, pays £300 a year in income tax at present rates, and I suggest that up to this income level very few people will be private patients; and even above it many will take advantage of a State service. Examination of income-tax figures for 1941-2 shows that only 2.1% out of fifteen million people assessed for income tax return gross income of more than £1,000 per annum.

It would appear, therefore, that the retention of private practice in a 100% insured population is likely to be a small asset to general practitioners, and much smaller to other members of the profession and to the members of the auxiliary services mentioned above. Furthermore, it will almost certainly be a diminishing asset for this reason. Practically every member of the community starts his or her career on a small salary or wage, and will at this period take advantage of the comprehensive free health service provided by the State. We believe that this will be a good and satisfactory service, so that as their prosperity increases such people are unlikely to change over and become private patients.

I suggest, therefore, that if 100%, or even 90%, of the population is completely insured the retention of private practice should have no place in our financial negotiations with the Ministry of Health. If it is allowed to intrude the Minister is almost certain to use it as a means to whittle down both our freedom and our remuneration, and it may even seriously prejudice any claim to compensation for the capital value of practices.

One other point not connected with the economic aspect. Many of us believe that the medical profession has lost status and prestige with the community. Discussions with the laity have led me to the conclusion that this is to some extent due to the widespread conviction that the contract or institution patient does not get so much care and attention as the one who pays. The justice or injustice of this conviction is impertinent to the argument; it undoubtedly exists. If private practice is permitted I feel it would be to our advantage to eliminate the possibility of this accusation by not allowing any doctor to do both types of practice. In conclusion, I have been in general practice for 23 years, and nine-tenths of my professional income is provided by private patients' fees ranging from five shillings to one guinea.—I am, etc.,

Birmingham F. B. Winfield.

"Capacity to Pay": A False Premise

Sir,—From the tone of certain recent statements and articles it may well be deduced that the future of the medical services in this country has been predetermined by bureaucracy, and that our profession will now be expected to accept its scheme as a *fait accompli*. Whether this is so I have no means of telling, but it is abundantly clear that the underlying motive for any change is a political one, which bears no relationship to any real need of the populace or to the outcome of any unbiased inquiry into the quality of the medical services that exist to-day. We all know that the easiest diseases to cure are those which the patient has not got, and yet we are acquiescing in this spurious diagnosis and allowing bureaucracy to foist upon us its quack remedy so that it can gain a false credit for cure.

It cannot be denied that there is a suggestion of fanaticism in the urgency with which the "reformers" pursue their object —a fanaticism which would be worthy of an altruistic ideal— but let us not be misled, for the motives underlying most political moves are far removed from altruism. The politician, whether in Parliament or outside, cannot rid himself of the human frailties which hanker after personal publicity, cheap popularity, acquisition of power. And so, instead of a scientific assessment of the pros and cons of the case, we find the whole issue prejudged and bolstered with false statements which are made to appear axiomatic.

As an example of this I quote the opening paragraph of a discussion, or rather a dictate, on a national health service which appeared in a responsible journal having a fairly wide circulation among a presumedly intelligent section of the public. It ran: "Twenty-five years hence Britons will shudder as they recall the incredible situation which existed, say, in 1943, when medical treatment depended on the capacity of the individual to pay for it." We, as doctors, are in a position to know how false such a statement is, but the great majority of the readers, being lay people, are likely to regard it as the truth. On the day that statement appeared I walked through the wards of a hospital and saw patients being treated with hundreds of pounds' worth of radium, some having *x*-ray therapy from most expensive plants, others having costly series of injections, many recovering from extensive operations followed by skilled nursing and after-care, and so on. The point is that these patients will either pay nothing at all or at most a small contribution to the actual cost of their board and lodging in the hospital, and this is multiplied ten thousand times throughout the country. In the face of all this we are asked to believe that "medical treatment depends upon the patient's capacity to pay for it." The most generous interpretation would be to assume that the journal really thought that it was living up to the quotation with which it emblazons its title: "The assertion of the truth." But a Press which is so ill informed has no moral right to express opinions for the guidance of others.

Since the war started the wildest statements have been made concerning medical organization which, while good propaganda for a State Medical Service, have no relation to the facts. I have conscientiously looked back over a surgical career of thirty years and can honestly say that in that time I have not known any patient lack adequate surgical treatment on account of his incapacity to pay for it. In a small number of cases there may have been other reasons (some a proper subject for sociological attention) which led to incomplete or unsatisfactory treatment, but none which could be laid at the door of our profession, and certainly none dependent upon a patient's inability to pay. This is a serious statement made after long deliberation.

What I believe the Briton of twenty-five years hence really will shudder at will be the dogmatic nature of the orders and control of treatment now bureaucratically forced on the profession, for the scientific basis of many of these "standardized" treatments will by then have been shown to be utterly false, if the experience of the past is to be any guide to the future.—I am, etc.,

London, W.1. NORMAN C. LAKE.

Unity in the Profession?

SIR,—In our present situation this is an ideal impossible of realization since there are two opposite interests: (*a*) the general practitioner and specialist group; (*b*) the public health services, pensions services, etc. The latter (*b*) are State officers and their natural inclination must be for a universal State service. They have entered such services because they were attracted to the study of public health or they desired a more regular life than either that of the general practitioner or that of the specialist. We of (*a*) have no quarrel with (*b*) in their choice of work, have collaborated with them for years, and hope to continue to do so.

It is, in my humble opinion, imperative that in the vital issues at stake all of (*b*) should be excluded from our deliberations. They will not help us, but they can hinder us in no small way. We (*a*) are fighting for our ideal—a panel system with a definite income limit, with freedom of medical treatment both for our patients and for ourselves, and no interference from any source. This panel system, as envisaged by the B.M.A., adequately supported, will provide an ideal service for the nation, and what more can the people or the Government ask of us? I repeat that in this fight our activities cannot—they must not—be hindered by those of a different ideology in our ranks. We must be rid of all such. We can fight and, I trust, win our battle.—I am, etc.,

Bradford. DONALD WATSON.

Preventive Medicine

SIR,—Your leading article on "Hours of Employment and Health" (Dec. 26, 1942, p. 756) and the lecture of Prof. J. A. Ryle on the "Science of Health" (p. 745) need to be considered together. You show how the long hours of work adversely affect the health of the workers, and it has long been known that fatigue is the greatest single factor hindering production. Prof. Ryle stresses, as he has done before, the value of preventive medicine.

To allow preventive medicine full scope we have to consider politics and medicine. We know that we can even now, though we frequently fail to do so, prevent many deadly diseases and much ill-health, but Prof. Ryle tells us that "it is becoming more apparent that in the future the emphasis of medicine will be increasingly upon its preventive and protective aspects." This may be true of the future, but what of the present? Can we really say that we have yet passed the stage of palliative medicine, reached that of curative medicine, and see preventive medicine in all its glory just down the road?

Men of great achievement find it difficult to attune their outlook to that of ordinary folk; and while Prof. Ryle knows how elementary is our present knowledge of medicine and how numerous are the diseases we can neither prevent nor cure, the general public, who take a great interest in the medical journals, have not this advantage. From this constant reference to the future position of preventive medicine I am afraid that people may come to believe that the science of medicine has advanced further than is really the case, and it might be in the national interest if it were to be more plainly understood how very limited is the sphere of preventive medicine at present. At the same time political considerations should not be allowed to stand in the way of allowing "preventive medicine" full measure of freedom in its own sphere. Hours and conditions of work in factories urgently need changing. The delivering of uncovered bread is a danger and our milk supplies might receive attention. These things could be done now.—I am, etc.,

New Barnet. JOHN ELAM.

Treatment of Head Injuries

SIR,—Dr. T. Rowland Hill has drawn the attention of your readers to the fact that the recovery of working capacity is only one aspect of medical prognosis. He quotes my statement to the same effect. I am delighted to accept his correction of my nomenclature; his reproach of illogicality, however, seems to go too far.

Dr. Hill emphasizes the importance of the differentiation between traumatic (psychogenic) anxiety and the mental state directly produced by cerebral injury. I fully agree with him and with his statement that this differentiation may be very difficult. Post-traumatic anxiety referring to the accident is comparatively rare after head injury, and it is relatively more common after accidents with no, or with mild, cerebral injury than after severe ones—probably owing to the length and depth of unconsciousness of the latter. Unspecific anxiety symptoms can often be traced back to experiences before the head injury, or to subsequent events (for instance, experiences in hospital), or to circumstances only indirectly connected with the head injury. In practice it is often difficult to assess the exact aetiology. I therefore counted in my study on headache all headaches following head injury, disregarding all, even the most obvious, clues to additional causes, psychological or physical. Ritchie Russell's figures for the occurrence of headache after injury can also be regarded as "post" and not necessarily as "propter." This point must be remembered if one forms an opinion about the frequency and severity of the after-effects. It is worth recalling that A. J. Lewis, comparing post-concussional and other neuroses, found a very similar incidence of symptoms. In effort syndrome, headache and giddiness (those usual post-concussional symptoms) were found in 72% and 78% respectively by P. H. Wood.

Headaches seemed to me the symptom most suitable for a statistical study of the after-effects of head injury, since they are by far the commonest symptom, and I have seen very few cases which complained of post-concussional symptoms but were free from headache.

Dr. Hill begins his examination with the question, "Do you feel the same man you were before the accident, or have you never quite recovered from it?" I, personally, try to refrain from leading questions, and this may account for the difference in our impressions. But I wish to repeat that the figures in my follow-up study on headache are based on direct questions. After some general inquiry about his state of health, each patient who appears in the tables was asked, Did he have headaches or giddiness? And did he sleep well? (Information about his concentration and fatigue was not gathered by direct questioning, but by an inquiry into his occupation or work.)

Jefferson has aptly formulated that we should treat each case of head injury as a potential neurotic. It has been my privilege to carry this suggestion into effect. Thanks to the co-operation of surgeons and neurosurgeons, these cases were treated from the first day with a view to preventing neurotic after-affects. The figures on the occurrence of headache and on the loss of working time may have been influenced by this co-operative effort.—I am, etc.,

London, N.W.7. ERIC GUTTMANN.

Vitamins and Physical Fitness

SIR,—I am criticized by Dr. A. A. Harper and his colleagues (April 17, p. 487) for "quoting only general experience as evidence." in contrast to their own "careful statistical examination." This criticism presumably refers to my observation that their recognition of simultaneous improvement in resistance to infection and gain in physical fitness is opposed to general experience. I had almost written "universal"/not "general," but refrained out of deference to the opinion expressed in their article. Universal experience would, I presume, represent statistics *in excelsis*. The conclusions of Dr. Harper and his colleagues were based upon an experiment conducted upon 69 subjects over a period of 21 weeks. I have before me the report of an experiment undertaken at the request of the Ministry of Health to discover the effect on London school children of taking a daily pill containing 1 mg. of vitamin B_1, 50 mg. of vitamin C, 600 international units of vitamin D, 4,000 international units of vitamin A, 2 mg. of riboflavin, and 20 mg. of nicotinic acid amide. The experimental subjects numbered 455; the work was conducted over a period of seven months. The conclusion was, "No measurable beneficial effect." I am a simple-minded man and I do not see how both these statistical results can be correct.

Dr. Harper and his colleagues direct my attention to the claim of the R.A.F. breath-holding and 40-mm. tests to afford indication of the resolution and power of endurance of the subject. The intention of the medical experts of the R.A.F. is to test the suitability of candidates as pilots. And whatever the rationale and criteria of their procedures their *ex cathedra* pronouncements must be accepted. They test endurance. Endurance of what? Presumably to tolerate the exceedingly unpleasant sensation of asphyxia. This doubtless is an accomplishment of some advantage, and it is not for me in my ignorance of aviation to question its validity as a requisite for the duties of a pilot. But is that "physical fitness"?

Apparently the majority, if not all, of their subjects demonstrated their potential ability as pilots. And all the subjects with whom I have been in contact exhibited unsuitability. Even I, with my ignorance of matters statistical, can see that such a coincidence strains credibility beyond the most generous limits. There must be a better explanation. Can it be that the atmosphere in which the R.A.F. tests are performed must be favourable to the production of that tranquillity which ensures stolidity and stabilization of the nervous system, and that in the ability to create such an atmosphere I am deficient? Is that the conception of "physical fitness" as this term is generally understood? (I have reluctantly again to employ the suspect "generally.")

I venture to assure Dr. Harper and his colleagues that I am well aware that the achievement of athletic prowess depends on many other things besides the general state of nutrition. A good many; some still elusive. But every little helps; and if the administration of vitamins could be shown to increase "physical fitness," even would-be world's champions would not disdain their use. Had Dr. Harper and his colleagues discovered an unequivocal improvement in the post-exercise deceleration test to follow their administration I should have been impressed. But, unfortunately, this was not forthcoming.—I am, etc.,

London, W.1 ADOLPHE ABRAHAMS.

Lupus Erythematosus

SIR,—Although I am primarily responsible, I believe, for the view that lupus erythematosus may be a cutaneous reaction to acute or chronic streptococcal infection,[1] I cannot subscribe to the opinion that this is true of all cases, as Dr. F. Glyn-Hughes and Dr. A. M. Spence suggest in their letter (April 10, p. 460). When I first propounded what has been described as "the streptococcal theory" I was subjected not only to criticism, which was welcome, but also to misrepresentation, both in this country and abroad. In France particularly I was accused of holding the view that lupus erythematosus is always of streptococcal origin. I do not believe this, nor have I ever said it. I am satisfied that in some cases it may be a toxi-tuberculide, and I think that the relative incidence of the streptococcal and tuberculous cases may vary in different countries. I have discussed the whole question elsewhere.[2,3]

By a careful study of the clinical history, a thorough physical examination, a consideration of the type of eruption present, and laboratory and radiological investigations, it is usually possible to decide with some certainty to which group of cases a patient belongs, but I admit that it may be difficult or impossible in some instances. The decision is important from the therapeutic standpoint, for, as I have pointed out,[3,4] the sulphonamide group of drugs, which in my hands has proved of value in many streptococcal cases, has been ineffective, as one might expect, in the tuberculous ones. Conversely, my impression is that injections of gold compounds are more likely to give satisfactory results in the latter than in the former.

In cases suspected of being streptococcal in origin it is important, as Dr. Glyn-Hughes and Dr. Spence indicate, that gross foci of infection should be dealt with before sulphonamide therapy is instituted. I have already stressed[2,3] the susceptibility of many patients with lupus erythematosus to sulphonamides Severe febrile reactions, with temporary exacerbation and extension of the eruption and swelling of the lymphatic glands, are not uncommon, and I have given reasons for distinguishing reactions of this kind from so-called "drug fever." I would repeat the warning I gave then: "It cannot be too strongly emphasized that the indiscriminate use of the sulphonamides is fraught with danger."

The clinical evidence, apart from the positive results with guinea-pig inoculations obtained by several observers, that a tuberculous toxaemia is responsible for the eruption in some instances seems to me incontestable. The following very remarkable and tragic case will serve as an example:

A female child aged 7 was diagnosed as having lupus erythematosus associated with extensive tuberculous cervical adenitis. No family history of tuberculosis obtained. Breast-fed until 9 months old. Skin first affected at the age of 10 months on the malar regions when she was at Folkestone in the summer. The parents observed that the eruption was clearly provoked and aggravated by exposure to sunlight. Until the winter 1940–1 it had always cleared completely during the winter months, only to relapse in summer. In June, 1940, the child had an attack of German measles, which was followed by right-sided cervical adenitis with subsequent abscess formation. The tonsils were first removed, and an operation on the abscess and glands then performed. After the operation the eruption completely disappeared, although the child was lying out of doors and was exposed to sunlight. It gradually returned, and in the following November enlarged glands appeared around the operation scar, the eruption becoming much worse and more extensive.

When I saw her (Feb. 11, 1941) there was typical lupus erythematosus with the bat's wing distribution on the cheeks and nose: elsewhere it was extensive, involving the scalp, neck, ears, back, and arms. There was a large, projecting mass of glands around the scar on the right side of the neck, and there were several palpable ones on the left side and below the chin. I agreed that operative treatment was indicated. A block dissection of the upper deep cervical group of glands on the right side was performed, and some four or five on the left side and two in the submental region were removed. I saw the child again eleven weeks after the operation. The lupus erythematosus had strikingly improved, being much paler and less active everywhere. There were still, however, palpable glands in the neck, the temperature was over 100° F. and the pulse rapid, there were some albuminuria and swelling of the ankles. I thought it probable that the bronchial and abdominal glands were involved. I advised treatment in a sanatorium.

In the following July the physician under whose care she came agreed that she was a case of lupus erythematosus of tuberculous origin, and said she had improved, but still had evening pyrexia He thought that there was abdominal tuberculosis. He has recently informed me that he had heard from the mother that the child died in December, 1941, from, he thought, generalized tuberculosis.

This case is remarkable in several of its features. Lupus erythematosus is rare in young children, and if, as seems likely, the original eruption, which appeared on the cheeks in summer-time from the age of 10 months, was of this nature, the case is unique in my experience. At all events, the fully developed eruption, as I saw it, was unquestionably lupus erythematosus, and an important point is that, although very extensive, it was not of the type usually seen in the so-called lupus erythematosus disseminatus, in which the recent acute lesions resemble those of erythema multiforme and there is often streptococcal septicaemia. On the contrary it was of the indolent hypertrophic type with thick adherent scales and marked follicular hyperkeratosis—the type, in fact, that I usually associate with the tuberculous form of the disease.

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[1] *Brit. J. Derm Syph.*, 1915, **27**, 365.

[2] *Lancet*, 1929, **2**, 483.

[3] *Brit. J. Derm Syph.*, 1941, **53**, 1, 33.

[4] *Lancet*, 1940, **1**, 583.

To sum up, if one considers the following points one must, I think, logically conclude that in this case the lupus erythematosus was a toxi-tuberculide: (1) the rarity of lupus erythematosus in young children, and the unusual severity and extent of the tuberculous adenitis; (2) the complete but temporary disappearance of the eruption after the first operation on what was at that time presumably the main and primary focus of infection in the glands on the right side of the neck, although the child was freely exposed to sunlight, which previously had always provoked an outbreak; (3) the relapse of the eruption associated with involvement of other glands on both sides of the neck and in the submental region; (4) the striking and more lasting improvement in the eruption after the second and more extensive operation; (5) the fact that the eruption, although very extensive, was not of the kind usually seen in the disseminate form of the disease, many cases of which have a severe and often fatal streptococcal septicaemia.

—I am, etc.,

H. W. BARBER.

Collapse Therapy

SIR,—Dr. Gregory Kayne's warning against the misuse of artificial pneumothorax treatment in pulmonary tuberculosis is timely. The number of cases of chronic empyema, pyopneumothorax, bronchopleural fistula, and gross displacement of the mediastinum and its contents following artificial pneumothorax treatment, that one now meets is appalling. Nor is adhesion section without its risks. At one time, not so long ago, such distinguished practitioners as Mr. Morriston Davies and the late Dr. F. G. Chandler abandoned the procedure, and even now, with the much-improved technique, failures are not unknown.

Unfortunately, one cannot tell beforehand whether any particular A.P. is going to be a success or otherwise; sometimes one obtains a delightfully selective collapse in a very unpromising case, which means that many more have to be attempted than can be persevered with. But, as Dr. Kayne writes, it should be axiomatic that ineffective pneumothoraces should be abandoned at the earliest possible moment.

The public has been so misled by popular propaganda on behalf of physical interference and chemotherapy that patients are now querulous if some such procedure is not undertaken for them. The more drastic the procedure the better pleased the patient; the proud possessor of a Monaldi pump is the envy of the institution. "Am I then to have *no treatment*?" is the disappointed complaint one hears from one's patients when told that such proceedings are unsuitable or unnecessary; and they cannot be convinced that, when all is said and done, the basis of the treatment of tuberculosis remains the slow and methodical building up of the individual's resistance by the sanatorium regime, and that physical interference, while excellent for the cases that need it, always carries additional risks.—I am, etc.,

Chichester. PATRICK HEFFERNAN.

Pulmonary Disease in Miners

SIR,—May I be permitted to comment on the leading article (July 11, 1942, p. 43) entitled "Pulmonary Disease in Miners," When this pathological lung condition was first described by the War Pensions Appeal Board at Auckland, N.Z., in connexion with war gas sequelae (*N. Zealand med. J.*, Dec., 1931, and later issues), we suggested the name "pulmonary degenerative changes", or "P.D.C."

While objections can be urged to both names, it is important that an attempt should be made to convey the various causative factors as well as the associated organic effects that result from the condition. It should be borne in mind that it is still uncertain how many of the associated symptomatic effects are brought about. It is also desirable to envisage the essentially chemo-electrical causation in all types of cases that are due to chemical trauma, be they dissolved gases or dust. I would suggest "chemofibrosis" if the condition is to be approached from the angle of causation in such types. The fact that a somewhat similar degenerative lung condition may arise from constitutional factors should not be overlooked. The merit of "P.D.C." lies in the fact that it can be readily qualified by the addition of words descriptive of either the causation or the resulting symptomatic effects.

While it is likely that impairment of the ciliary defence mechanism is largely responsible for associated infections, the causation of the dyspnoea is uncertain, though it has been narrowed down by later workers. The contribution of Sievers, Enzer, and Becker (New York) would appear to exclude anoxaemia to a large degree. Parkinson and Hoyle (London) have demonstrated the existence of radiological evidence of right heart abnormality. The San Francisco work (Reichert and others) demonstrates the possible importance of the collateral pulmonary circulation in cases where the heart factor does not appear to be dominant. The studies of the Auckland workers demonstrate the raised incidence of lung degenerative changes in a gas-exposed group as compared with other soldiers who could have had no exposure to chemicals. We also described the "right-heart" type of cardiac response to effort and the variation in the "distension-collapse level" in the external jugular vein as an indication of pulmonary artery pressure. The retinal engorgement that occurs is frequently overlooked, and also the fact that the pituitary gland, with its many trophic metabolic functions, could not fail to be involved in some degree. It should be borne in mind that, at present, we have no satisfactory explanation of the hypertrophic digital effects that are not infrequently observed. In view of the authoritative standing of the M.R.C. its further reports will be awaited with considerable interest.

—I am, etc.,

Auckland, N.Z. W. N. ABBOTT.

Gastro-enteritis in Infants

SIR,—In the recent communications on this subject in the *Journal* I have not noticed any reference to infusion into the bone marrow. This method is so simple and effective, and in my experience infusion into a vein of a dehydrated infant so difficult and the subcutaneous route so uncertain, that I thought a note on the method might be useful.

The site of choice in an infant is at the junction of the upper and middle thirds of the superficial surface of the tibia. A Tocantins needle, which is a stout, wide-bore, double hollow needle with a stylet 2½ cm. long, is gently made to penetrate the bone after preliminary infiltration of skin and periosteum with procaine—a sense of feel indicates when the bone has been pierced—the stylet is then removed, and a 1- or 2-c.cm. syringe half full of saline is attached to the inner needle, through which, if properly inserted, bone marrow can be withdrawn into the syringe by working the piston backwards and forwards. The syringe and inner needle are now removed, taking care in doing so that the outer needle remains *in situ* and is filled with saline to prevent an air-lock. An intravenous infusion apparatus containing the fluid to be infused—saline, glucose, or what you wish—which has been got ready beforehand, is immediately attached to the outer needle and the container raised to between 3 and 5 feet and the drip mechanism regulated to 40 drops a minute. It will be found that the fluid runs in quite readily at this speed—a pint can be infused in this way in about 4 hours The needle maintains itself in position without fixing and the limb is lightly splinted.

I have treated a number of cases by this method and not found any difficulty. An infant who died 80 days after infusion by this method showed no damage to the bone or bone marrow at necropsy.—I am, etc.,

Redhill, Surrey. L. J. BARFORD.

Tube Grafts in Cleft Palate

SIR,—As so often happens when diametrically opposite views are strongly expressed, I find that Major M. C. Oldfield and I are not talking about quite the same thing. In his reply (Dec. 12, p. 706) to my letter he speaks of one end of the tube graft being "attached to some part of the upper extremity or chest." Therein I quite agree with him that such a procedure is little short of barbarous in its acute discomfort to the patient. If, however, Major Oldfield would try attaching one end of the tube graft to the inner surface of the upper lip first, before swinging it into the mouth, I think he will come to agree with me that no pain whatever is occasioned the patient and that the method often serves a useful purpose in properly selected cases, both civil and military, and will enable him to effect restorations for certain patients for whom he could otherwise do nothing. Post-operative sedatives are never necessary or even requested, and the whole series of stage operations are done under local anaesthesia.

There is nothing very new or original in the use of tubed pedicle grafts that they should call forth what Wilfred Trotter termed "the most quickly acting antigen to science"—a new idea. They were described, used, and portrayed by Taliacotius (1546-99) exactly in the manner envisaged by Major Oldfield—not, so far as I know, for the palate, but for facial and nose restorations—the intervention of one additional simple stage (to the lip), and what a difference!—I am, etc.,

Wellington, N Z. H. P. PICKERILL.

Mitral Systolic Murmurs

SIR,—Probably every second of every day some doctor somewhere is confronted with a mitral systolic murmur, and he has got to do something, or nothing, about it. That is my excuse for again referring to this subject, so vitally important to both the doctor and the patient. Purely destructive sarcasm such as is contained in Dr. D. S. Lewis's criticism (April 10, p. 459) of my observations on Dr. Evans's article, in which he avoids the issues raised in the rest of my letter and picks out one of a pair of twin postulates indissolubly bound together while refraining from mentioning the other, merely still further fogs the issue and gets us nowhere.

What are these two postulates of Dr. Evans, and how does Dr. Lewis deal with my quotations of them, which the latter says proves my fogged state of mind and accuses me of dwelling in a "*reductio ad absurdum* of my own making"? They are:

1 "When the murmur is decidedly louder in the upright position it is the innocent kind"; and.

2. "*In instances in which a trivial* mitral systolic murmur becomes louder in the reclining posture, *and in which a murmur develops at the base of the heart and particularly in the pulmonary area,* the innocent nature of the murmur can be presumed."

I have italicized the words that Dr. Lewis accuses me of "altering or ignoring," which he says "changes entirely the meaning and significance of the paired quotations, besides disproving the charge of contradiction in terms implied by him." The only alteration I have been guilty of is substituting the word "when" for "in instances in which," and "when" is obviously much shorter and means the same. As to my omissions on which Dr. Lewis lays so much stress, they can only mean this: that if either he or Dr. Evans finds a "trivial" mitral systolic in a patient standing up, and they then lay him down and find that the murmur is louder and that another murmur is superadded, they are at once satisfied that these murmurs are "innocent." Why? It may be so, but I should like to know what causes the murmur and why it is "innocent." It is no good saying that the cause of the murmur is unknown and therefore does not matter. And what is a "trivial" murmur? A "soft" or "barely heard" one? But soft ones are often much more pathologically significant and dangerous than loud harsh ones.

In "M.R.B.1," the guide book for medical boards, that part alluding to "Heart (Diseases of the)," and presumably drawn up by competent cardiologists, says, "In all cases the heart should be examined whilst the man is standing and also whilst he is lying on his left side, otherwise some cardiac murmurs are difficult to detect." So evidently some notice has to be taken of these murmurs. Anybody talking about "innocent" murmurs should drop sarcasm and dogmatism and give his reasons for calling them so by advancing some physical cause for their occurrence. Broadbent mentions one—i.e., "A spurious murmur (mitral systolic) can be produced by compression of the edge of the lung by the ventricular systole." That, at any rate, gets us somewhere.—I am, etc.,

H. S. GASKELL, M.B.

Interstitial Emphysema during Labour

SIR,—Dr. Roger Stanley's description (April 17, p. 477) recalls to my mind a very similar but milder case. Eight years ago my niece, aged 24, was delivered of her first infant without much difficulty. Three hours afterwards her husband called me up, and said that the left side of her face and neck and down on to the thorax was "all swollen up." I asked him to palpate it, and on returning he replied that it "crinkled and crackled." His doctor called in a Queen Charlotte's consultant, who declared that he had never seen the like. My niece had no cough, but for the last two months had had severe albuminuria, and was in consequence kept on a very meagre diet. In about a week all the emphysema had disappeared. No trouble was discovered in the thorax, and since then she has had another child and has had excellent health.

Every endeavour I have made to discover the cause of this disorder has been unavailing. The condition is so rare that I felt that my case should be recorded also.—I am, etc.,

Telford. VAUGHAN PENDRED.

Trichlorethylene Anaesthesia

SIR,—I was much interested to read Dr. Philip Ayre's valuable letter (April 17, p. 489), and fully agree with his conclusions. I would like to suggest a possible answer to the question he poses at the close of his letter—namely, why the respiratory rate increases during trichlorethylene anaesthesia.

I have given trilene on 150 occasions on an open mask on lint as *sole* anaesthetic in operations ranging from tonsillectomy to gastro-enterostomy. This technique is not advisable for general use, but it seemed to afford the most convenient way of observing the effects of this agent uncomplicated by the simultaneous use of other agents such as pentothal, nitrous oxide, etc. Premedication in adults was usually morphine 1/4 gr. and atropine 1/100 gr. There is rarely any overbreathing in stages 1 and 2 of the anaesthesia, and I have only observed excitement, cyanosis, and hyperpnoea in the anaesthetic-resistant type.

The tachypnoea begins when the patient has entered stage 3, plane 1, of anaesthesia, when the greatest concentration of the anaesthetic is being administered to produce saturation. The respirations are *shallow* and rapid, and are often followed by a period of apnoea, which ends spontaneously, as I have seen on several occasions, though I prefer to restart the breathing by gentle compression of the chest. I have seen typical anoxic convulsions at this stage in one case. The pulse remained regular, full, and unchanged in rate during this apnoeic period, and I did not observe cardiac irregularities except on one or two occasions. I did not intubate these patients, but always inserted an oral airway.

When stabilization in stage 3, plane 2, is achieved the rate of respiration usually settles down, but remains about 30 per minute, and, of course, at this stage the quantity of anaesthetic supplied is lessened. I tried giving CO_2 to ward off apnoea, but this only produced deep, rapid respirations, and did not prevent the onset of apnoea, which was longer in duration when it did occur. I then tried administering oxygen in a steady stream under the mask as soon as stage 3, plane 1, was entered, and found that in most cases this prevented the onset of apnoea and kept the respiratory rate within reasonable bounds.

I believe that the explanation of these facts is as follows. When the anaesthetic concentration in the blood and tissues reaches a certain level, a varying degree of histotoxic anoxia ensues. This causes the rapid, *shallow* respiration of oxygen lack, resulting from anoxia of the cells of the respiratory centre. Addition of CO_2 causes increased fatigue of the respiratory muscles, and increases the anoxia. As a result of the tachypnoea, carbon dioxide is washed out, the respiratory stimulus lowered, and apnoea follows and persists until the blood CO_2 rises sufficiently to stimulate the respiratory centre and restart breathing. This should not be waited for, as the spontaneous resumption depends on the basal metabolic rate, the amount of reserve of oxygen, and the state of the cardiovascular system.

This explanation fits in with the fact, which Dr. Ayre emphasizes in his letter, that administration of plenty of O_2 with the trilene will prevent the onset of tachypnoea, and I believe that this should be a routine procedure with this anaesthetic. For administration of 4 litres of oxygen a minute, as Dr. Ayre recommends, a Coxeter's dry flowmeter would be required, since the rotameter type is calibrated to deliver only 2 litres a minute.—I am, etc.,

Nelson, Lancs. T. D. CULBERT.

Foot-and-Mouth Disease in Man

SIR,—In reply to Dr. I. C. Monro (April 24, p. 520) I can add to my remarks in my letter of March 6 only that convalescence was not complete for 3 to 4 weeks, the lesions resolving slowly but ultimately clearing up. There was no evidence of nail involvement or otherwise on the patient's body.

The diagnosis was not absolute, and without laboratory support this can only be tentative. But I, personally, have never seen a Vincent's infection with anything quite like the appearance of the lesions in this patient's mouth, or even, more notably, the intense, peculiarly penetrating and sickly sweet smell which dominated all other signs.—I am, etc.,

Dingwall. KENNETH I. E. MACLEOD.

Chemical Luminescence Test for Blood

SIR,—With reference to the article by Dr. John McGrath entitled "The Chemical Luminescence Test for Blood" in your issue of Aug. 8, 1942 (p. 156), it should be pointed out that the claim that the test is specific for blood is not supported by facts. To give only one example, copper salts give a positive test. Verdigris, which is often a constituent of paints, gives even greater luminescence than blood stains. The test appears to be of a similar nature to the benzidine test and the guaiacum test, and does not appear to have any particular advantage over them in the routine examination of blood stains. It has further the disadvantage that the test has to be carried out in the dark, and does not facilitate the disposal of large numbers of cases.—We are, etc.,

S. RAJAGOPAL NAIDU,
Chemical Examiner to Govt. of Madras.
Madras N. PITCHANDI,
Assistant to Chemical Examiner.

Research in the Continental Clinic

SIR,—The excellent paper by Dr. F. M. R. Walshe on "Strategy and Tactics in Research" (April 17, p. 467) gives ample scope for thought on the future reorganization of medical research. I agree fully with most of his ideas, particularly with his emphasis on the importance of "true discoverers" and their schools of thought (e.g., Sherrington, Hopkins, and Lewis). Perhaps I may add to the discussion by referring briefly to the way research was conducted on the Continent, where a great deal of medical research was done in the clinics, and the contact with the theoretical institutes was very close.

As a rule the head of a university clinic, especially in the more important centres of medicine such as Berlin, Vienna, Munich, Heidelberg, etc., was a man of world reputation with an outstanding record of scientific research. His position was somewhat like that of the superintendent in a municipal hospital in London, but he had perfect liberty in the choice of his assistants, in his research, and in the use of his budget. In some places, as in Berlin, he was even free to choose the patients from the pool of the distribution centre for admission to the clinic, according to research and teaching requirements. There was always a great number of applicants and a waiting list for assistants in these clinics, and he could choose the most suitable. In order to secure a high standard of research work most clinicians made it a condition that their assistants, after their qualifying examination and their practical year, had had a theoretical training of at least 2 years as assistants in either an institute for biochemistry, physics, bacteriology, or physiology, or, in the case of surgeons, in anatomy or pathology.

After 4 years in the clinic the assistant became eligible as lecturer if his research work satisfied the faculty, and after another period of 4 years or more he could be appointed assistant professor (extraordinary professor) by the Ministry of Education on recommendation by his chief or other members of the faculty holding a chair. After that they were considered potential successors and heirs to the throne (chair). They either carried on the school of thought of their teacher or became themselves founders of a new tradition. Not much was thought of those who had not their particular "line of research," which was carried on over a long period. This tradition gave opportunities to follow up an idea over a long period, even through more than one generation. The younger men had the benefit of critical control by experienced research workers, who gave them technical advice and critical judgment, and as a rule had a sufficient knowledge of relevant literature and its value. The chief of the clinic had the ambition to be a benevolent godfather to his assistants' work.

The dual control by faculty and State did not abolish, but restricted, abuses such as favouritism for sons, in-laws, or members of influential feudal student clubs. Religious rather than racial prejudice played a part, in some Catholic States working against Protestants, and vice versa, in both cases against the members of the Jewish faith community. Paul Ehrlich, who remained a Jew, never became appointed to a chair. The physicist, Prof. Lenard in Heidelberg, a baptized Hungarian Jew, not only held the chair but became an honorary Aryan and author of a book on German physics under Nazi rule.

Industrialists were often far-sighted enough to support research without expecting quick returns, and contributed not only by money, but also by placing their experience, assistants, or equipment at the disposal of a research worker. I mention the example of A. v. Weinberg (I.G. Farben), the close friend and supporter of Ehrlich.

Fate has placed me on the wrong side of the fence, and it may be that adverse experiences have influenced my views on essentials for successful research. They are: (1) Life-long or long-term appointments, grants, and facilities in departments (clinical and/or theoretical) of their own to be given to older and experienced research workers who have proved their ability by research achievements. They should have full freedom in the choice of their research, of their collaborators, and in the use of their budget. (2) Appointments or grants to be given to suitable younger research workers for periods of at least 3 to 5 years in order to enable them to perform a piece of work under the guidance of an experienced man of Group 1 in either clinics or theoretical institutes, or both. They could either assist in the work of their chief or do independent work under the guidance of his criticism and advice. (3) Chances of promotion from Group 2 to Group 1 for all suitable research workers. (4) Opportunities for research should be given to doctors and scientists according to ability and success *only*, and the choice should be independent of and not be influenced by prejudice and privilege.

Those who are in the position to make the choice should always realize that theirs is a responsibility not only to the nation but to mankind. There are still scientists who, like Archimedes, would rather have their head chopped off by an ignorant barbarian than abandon their thoughts and problems.—I am, etc.,

London, W.1. E. M. FRAENKEL.

Marching and Standing

SIR,—When long marches are such an important part of the training of the soldier, I think it worth while to publish the following marching tip. It was shown to me 50 years ago by a very good pedestrian, and I have used it on many a strenuous march in many parts of the world.

On the march, as soon as leg weariness is felt or, better, before this, and afterwards about every five miles, lie on the back and elevate the legs to nearly a right-angle with the body, resting the heels and only the heels against any available object. The legs must not be held up by muscular effort: keep them elevated for four minutes. It is best to time this with a watch. Time seems long under these circumstances and is apt to be cut short. There is no use in prolonging the time as the circulation has then re-established itself. The effect is quite remarkable. One's boots seem to have got a size larger and the toes can be moved freely inside the boot. On standing up all signs of leg-weariness have disappeared and the feet feel delightfully light and comfortable. Of course, this is only the way in which a limb is emptied of blood by the surgeon. It would seem that with the upright posture and prolonged walking the heart action and the drive of the leg muscles are not sufficient to maintain a thoroughly satisfactory circulation in the feet. The upright posture is a recent acquisition of *Homo sapiens*. I have never known anyone who was not surprised and delighted at the result of this procedure. I believe it is worth ten miles a day to anyone who adopts it. I think, too, that the relief of congestion has a great influence in preventing sore feet and blisters.

In Mesopotamia, where on desert marches there was nothing to rest the feet against, I evolved a drill. The men lay down in two rows, feet to feet, and then rested their heels against those of their opposite numbers. I think that this is a measure which might find useful application in the case of shop-girls and all who have much standing to do. I believe it would result in much increased efficiency. Standing quite still and so depriving the leg muscles of their pumping action can be very painful. In old days in the Navy a man was, as a punishment, made to stand on a chalked circle.—I am, etc.,

Taynuilt, Argyll. P. F. CHAPMAN.

Artificial Respiration

SIR,—I cannot agree with two points in Dr. E. J. Thomson's letter (April 17, p. 490), in which he says that in artificial respiration (1) atmospheric pressure is the force we are dealing with, and (2) the problem is to get air out of the lungs, not in.

1. As we are immersed in the atmosphere it presses equally inside and outside the chest and can in practice be ignored, except, for example, in the "iron lung," in which some of the weight of the air is rhythmically taken off the outside of the chest, causing inspiration.

2. In Schäfer's method inspiration is actually the weak point (not expiration), because it relies on elastic recoil due to the muscle tone of the diaphragm. Tone progressively declines in drowning cases, and when it has quite gone (owing to death of the nerve cells) the lungs contract by their own elasticity and pull the flaccid diaphragm right up so that it becomes useless for artificial respiration by this method. Schäfer made the very natural assumption that when pressure was relaxed the thorax would return to its original volume and thus cause inspiration. This is correct in normal subjects but not, unfortunately, in bad drowning cases. That is one reason why our Naval doctors are now recommending my rocking method (which works by gravity and is independent of muscle tone) in preference to Schäfer's as soon as available. (See *First Aid in the Royal Navy,* just published at 2s. by H.M. Stationery Office.)

Dr. Thomson's other point is that the rocking method would not be available at low tide on shallow beaches such as the Solway. I believe a builder's two-wheel hand-cart (for carrying ladders, etc.) would serve this purpose and be readily transportable for organized bathing, though Schäfer must be kept up till it arrives. But Schäfer's method fails far too often.—I am, etc.,

Hull FRANK C. EVE.

A Nutritious Diet-drink

SIR,—The warnings in your leader on minimum standards of feeding are most timely. It is of little value to state the "rations" that are authorized; the important point is to know the actual rations that are obtained. I would, however, draw attention to the still greater importance of utilizing as food all the rations that are actually received. Owing to the ignorance of English cooks and the convenience of "mass" cooking in canteens and institutions much food value is being wasted.

I have had the opportunity during the last 12 months of having charge of dysentery wards in several mental hospitals. I have found a considerable number of patients suffering from cellulitis of the legs and feet, swellings about the body, unnourished nails and teeth, and other pre-scorbutic symptoms; and this in spite of, on paper, a sufficient supply of root and green vegetables. Over-cooking and use of soda were the two greatest faults in the institution kitchens.

By the co-operation of wise medical superintendents and by the willing fellowship in service of the cookery supervisors I got a "tisane" made daily and issued as a ration in place of tea to all such patients. This preparation received the full vitamins A and C from the vegetables, and the result has proved the value of a diet ration always well known in all the South Continental hospitals. The "tisanes" were made from the vegetables available from day to day. They were chiefly from potatoes, carrots, turnips, cabbage, and some onions, leeks, and celery as and when available. By putting them through the fine mincing machine a valuable salad was also added, made from the hearts of savoys, brussels sprouts, raw carrots, raw turnips, with occasional watercress and onions and celery.—I am, etc.,

London, W 1. JOSIAH OLDFIELD.

Dr. Johnson's Asthma

SIR,—Sir Arthur Hurst's splendid paper on asthma (April 3, p. 403) has dispelled most of my doubts on this controversial subject. I do not think he is quite correct, however, in his reference to Sir John Floyer. He states that Floyer wrote a *Treatise on Asthma* in 1698 and that Dr. Johnson, who was his patient, relates how he "panted on" till his death at the age of 83, thirty-six years later. I doubt very much whether Johnson ever was a patient of Floyer's or even met him. I cannot find any evidence of it in the pages of Boswell; and besides, Johnson did not leave his native Lichfield to try his fortune in London until 1737, three years after Floyer died. At that time he had not emerged from the mists of obscurity, and his impecuniosity was such that the fees for a man of the standing of Floyer would have precluded him from seeking his advice.

The only mention of Floyer by Johnson is in two letters written in the last year of his life in 1784, when he was suffering from attacks of breathlessness which he attributed to asthma. It was natural that he should be interested in a man who was not only an authority on the subject but had suffered from the complaint himself. Here is an extract from the first letter: "My asthma is, I am afraid, constitutional and incurable; but it is only occasional, and, unless it be excited by labour or cold, gives me no molestation, nor does it lay very close siege to life; for Sir John Floyer, whom the physical race consider as an authour of one of the best books upon it, panted on to ninety, as was supposed; and why were we content with supposing a fact so interesting, of a man so conspicuous? because he corrupted, at perhaps seventy or eighty, the register, that he might pass for younger than he was. He was not much less than eighty when, to a man of rank who modestly asked his age, he answered, 'Go, look'; though he was in general a man of civility and elegance." There, in a few sentences, is an entertaining and illuminating pen-picture of Sir John by the great lexicographer himself.

The second extract is from a letter to his physician, Dr. Brocklesby: "I am now looking into Floyer, who lived with his asthma to almost his ninetieth year. His book, by want of order, is obscure; and his asthma, I think, not of the same kind with mine."

Dr. Johnson was quite right in surmising that he was not a true asthmatic. He was obviously suffering from myocardial insufficiency with progressive heart failure.—I am, etc.,

Leeds. R. G. MELVIN.

Houses to Live In

SIR,—So 10,000 flat-roofed farm-workers' cottages are to be built with concrete floors, walls, ceilings, and roofs! Any rural practitioner in the West Country knows how even good ordinary houses will "sweat" with our quick changes of humidity and how discouraging is the treatment of the rheumatic cottager living on a stone ground floor. For months in the year these dank rheumatism traps will not have a dry clout in them: a tent would be much healthier. And they are being sponsored by a Ministry of Health! Truly we are becoming nose-led by a city-minded bureaucracy.

The all "stone" method of construction can be made to give excellent results in North Africa or, centrally heated, in a dry drained town, but is totally unsuited to the coastal and moorland areas of Great Britain.—I am, etc.,

Newton Ferrers, S. Devon. W. F. BENSTED-SMITH.

Chairs of Child Health

SIR,—I observe in the issue of the *Journal* of April 17 a statement, in connexion with the inaugural lecture on "The Health of the Child" to be given in Newcastle by Prof. Spence as first holder of the Chair of Child Health in the University of Durham, that Durham is the first university in the kingdom to establish such a chair. The date of the institution of such chairs is of small moment so long as they *are* instituted, but I think it should be pointed out that a Chair of Child Life and Health has been in existence in this university since 1931.—I am, etc.,

SYDNEY SMITH,
Dean of the Faculty of Medicine,
University of Edinburgh.

Obituary

WARRINGTON YORKE, M.D., F.R.S.

Professor of Tropical Medicine, University of Liverpool

Warrington Yorke, who died on April 24, was the son of the late Rev. H. Lefroy Yorke, and was born at Lancaster in 1883. He attended University School, Southport, and Epworth College, Rhyl, and studied medicine at the University of Liverpool in the time of Sherrington, Paul, and Rubert Boyce. He obtained the degrees of M.B., Ch.B. in 1905, followed by that of M.D. in 1907; in 1929 he became M.R.C.P., followed by the Fellowship in 1934.

[*Vandyk*

Very early in his medical career he joined the School of Tropical Medicine because the study of diseases of the Tropics attracted him. In 1907 he went to Nyasaland on a two-years commission to study blackwater fever. He was appointed Director of the Runcorn Research Laboratory of the Liverpool School in 1909. During 1911-12 he was in Northern Rhodesia on the British South Africa Company's Sleeping Sickness Commission, and soon after the commencement of the last war in 1914 he was in Sierra Leone investigating sleeping sickness. He was appointed Walter Myers Professor of Parasitology in 1914 and he held this post until 1929, when he was made Alfred Jones Professor of Tropical Medicine. During the period 1920-9 he acted as honorary assistant physician and then was appointed honorary physician for tropical diseases in the Liverpool Royal Infirmary. From 1937 he served as examiner in tropical medicine and hygiene to the Conjoint Board in London.

Besides taking part in and leading several scientific expeditions to the Tropics, Yorke was commissioned to travel widely in connexion with projects designed to disseminate knowledge of medical progress in tropical countries. Thus he went to Antwerp to supervise the tropical health exhibit at the International Colonial and Maritime Exhibition; to Buenos Aires for the British Empire Trade Exhibition; to Dresden for the International Hygiene Exhibition. In 1939, and again in 1942, he went to the United States of America, the latter journey being undertaken on behalf of the Medical Research Council and the Ministry of Supply. During the latter part of his career he was especially interested in the advance of chemotherapy, and to this branch of research he made numerous scientific contributions of an original character and of a high order. He was a member of the Tropical Research Committee of the Medical Research Council, and also of the Chemotherapeutic Research Committee of Imperial Chemical Industries. Over and above this great range of work he found time to engage in many other activities. He was chairman of two public schools—Penrhos College and Birkenhead School—and was also chairman of Greenings and Sons Limited and two affiliated companies, and on the board of the West African Drug Company.

Warrington Yorke's outstanding work in tropical medicine earned him wide recognition abroad, and he was a member of numerous foreign scientific bodies. His reputation was recognized by invitations to address many foreign societies, and the engagements which he fulfilled in Germany, Italy, and America represent only the few which he found it possible to accept. In 1925 the Chalmers Memorial Gold Medal of the Royal Society of Tropical Medicine and Hygiene was conferred on him for his conspicuous services to the cause of tropical medicine, and in the year 1932 he was elected a Fellow of the Royal Society, which appointed him Croonian Lecturer this year.

The Alfred Jones Professorship of Tropical Medicine which Yorke held is of historic interest in the annals of the Liverpool School. The chair was established in 1902 and the first occupant was Ronald Ross, who held it until 1913. His successor was J. W. W. Stephens, and he, in 1929, was succeeded by Yorke, who occupied the chair until the time of his death. The duties of the Professor of Tropical Medicine have become almost yearly more onerous as a result of the progress of research and the extension of the ground to be covered. It was fortunate indeed that Yorke's early training and wide experience qualified him admirably not only to fulfil the duties of this chair with great distinction but also to add very greatly by his own original research to our fuller understanding of many important tropical diseases. At the Annual Meeting of the British Medical Association in 1934 he was president of the Section of Tropical Diseases.

In the last war Yorke served in the R.A.M.C. and was stationed in Malta; during this war he was engaged, up to within a short time of his death, in conducting courses for Service medical officers going abroad to tropical countries. He married in 1916 Elizabeth Annie Greening, and they had two children. He is survived by his wife, one son, now unfortunately a prisoner in Japanese hands, and one daughter.

D. B. BLACKLOCK.

Sir **PHILIP MANSON-BAHR** writes:

Warrington Yorke stood for accuracy and truth. What he wanted were facts and proofs, and it must be admitted that he generally provided both. In manner he was direct, alert, questioning, and vivacious. It therefore followed that he abhorred shams and shibboleths. He preserved a sane, analytical, and healthy attitude to medical research in general and to tropical medicine in particular. It is therefore not too much to claim that to Continental workers he typified the spirit of British research, and his reputation thereby became world-wide. In tropical literature his critical reviews were a joy to read and digest, and in every case they constituted a real lasting contribution. In teaching he was clear, didactic, practical, and instructive; in research original, inventive, resolute. He went straight for his objective and never hesitated or swerved in his course till results had been obtained. In tropical medicine Yorke typified an epoch, and his loss will be mourned not only by the School of Tropical Medicine of which he was the fountain-head and moving spirit, but also by scientific circles all the world over.

We regret to announce the death at Fareham of Surgeon Captain **JAMES CAMPBELL BRINGAN**, R.N. (ret.), who had long specialized in eye diseases, first while serving in the Navy and afterwards in civil life at Portsmouth. He studied medicine at Glasgow University, graduating M.B., Ch.B. with honours in surgery in 1902. During the last war he was appointed a Chevalier of the Order of the Redeemer of Greece, a Chevalier of the Crown of Italy, and received the silver medal of the Italian Red Cross. Before his retirement from the Navy he had been ophthalmic surgeon to the R.N. Hospitals at Malta and at Haslar, and to the R.N. Depot, Bournemouth. He became ophthalmic surgeon to the Portsmouth Eye and Ear Hospital and to St. Mary's Hospital, Bournemouth, and was a member of the Ophthalmological Society of the United Kingdom. He was elected chairman of the Portsmouth Division of the B.M.A. three years ago.

We regret to announce the death on April 6 of Dr. **HAROLD SNAPE**, late of Pendleton, Lancs. He was born in Manchester on Aug. 16, 1875, son of Alderman Joseph Snape, J.P., and from Manchester Grammar School went to Owens College, graduating M.B., Ch.B. of the Victoria University with first-class honours in 1899. In the last war he served, with the rank of captain, R.A.M.C., as anaesthetist to the 2nd Western General Hospital, Salford; after demobilization he became examining medical officer under the Ministry of Pensions and held a number of posts as medical referee to assurance companies. During his years of active practice Dr. Snape had been anaesthetist to the Manchester Children's Hospital, honorary physician to the Pendleton Dispensary Branch of the Salford Royal Hospital, and visiting surgeon to the Southport Infirmary. He was an officer of the Order of the Hospital of St. John of Jerusalem and an honorary life member of the St. John Ambulance Association. He joined the B.M.A. in 1901 and contributed several papers on anaesthesia to these columns.

We regret to announce the death in April by enemy action of Dr. **ARTHUR ARBUTHNOT STRATON** of Newport, Isle of Wight, who was honorary surgeon to the Royal Isle of Wight County Hospital at Ryde and consulting surgeon to H.M. Prison.

Parkhurst. Dr. Straton studied medicine at St. Mary's Hospital, graduating M.B., B.S.Lond. in 1907 and winning the gold medal at the M.D. examination in 1913. He also took the F.R.C.S.Ed. diploma. Before settling in private practice he had been resident surgical officer at the Wolverhampton General Hospital, senior house-surgeon at the Royal Sussex County Hospital, Brighton, and resident obstetrical officer at St. Mary's. During the last war he served as temporary captain, R.A.M.C. He had been a member of the B.M.A. since 1911. A warm tribute has been paid in the local press to Dr. Straton's devotion to duty, his kindness and generosity, his robust common sense and ripe wisdom. A former colleague writes: During the years that I lived in the Isle of Wight Dr. Straton was my near neighbour and an intimate friend, and I had a high opinion of him as a family doctor. He will be sorely missed, for he was in the forefront of his profession both as a physician and a surgeon.

We regret to announce the death on April 17 of Dr. **HENRY BUIST**, one of the best-known medical practitioners in Dundee. He had been a member of the B.M.A. for 40 years, was president of the Dundee Branch in 1926-7, and had also served as president of the Forfarshire Medical Association. Dr. Buist was a native of Dundee, and before taking up the study of medicine at Edinburgh was for some little time a schoolmaster. He graduated M.B., Ch.B. in 1901 and proceeded M.D. in 1928; he was an honorary life member of the St. Andrew Ambulance Association and a J.P. for the city of Dundee.

The death is announced of Prof. **PAUL BÉGOUIN**, formerly professor of surgery at Bordeaux University and president of the French Surgical Congress in 1927. Most of his publications deal with gynaecology.

The Services

Surg. Cmdr. R. L. Stubbs, R.N.V.R., has been awarded the R.N.V.R. Officers' Decoration.

Temp. Surg. Lieut. C. B. Holland, R.N.V.R., has been awarded the D.S.C., and Temp. Surg. Lieut. J. L. B. MacFarlane, R.N.V.R., has been mentioned in dispatches (posthumously) for bravery in Northern Waters.

Capt. (Temp. Major) T. R. Wilson, R.A.M.C., has been awarded the M.C. in recognition of gallant and distinguished services in North Africa.

Capt. E. T. Gilbert, R.A.M.C., has been appointed O.B.E. (Military Division) in recognition of gallant and distinguished services in the field.

A *Supplement* to the *London Gazette* dated April 20 announces the award of the Albert Medal in Gold to Temp. Surg. Lieut. M. J. Clow, R.N.V.R., for gallantry in saving life at sea. The announcement reads as follows: "Surg. Lieut. Clow was between decks when H.M.S. *Ibis* was hit and badly damaged. Wounded men were brought to him in the sick bay, among them an engine-room artificer badly burnt about the arm. Surg. Lieut. Clow gave him an injection of morphine, and, as the ship was now sinking, helped the man up the ladder and out on to the upper deck. As the man had no life-belt he put his own on him. Then he got him into the water, and made sure he was free of the ship before he himself abandoned it. In doing this Surg. Lieut. Clow became entangled in the rigging and was taken down some way before he got clear. He then swam for three hours without a life-belt before he was picked up."

The *London Gazette* announces the posthumous award of the Albert Medal to William Chisholm, M.B., ship surgeon. The announcement reads as follows: "The ship in which Mr. Chisholm was serving was torpedoed in darkness and immediately began to sink. A fire broke out, which enveloped the bridge in flames, and orders were given to abandon the vessel. She sank within eight minutes. One of the senior officers, who was on the bridge, was badly injured. He was taken to the surgery, where Mr. Chisholm immediately attended to him, and afterwards, as he was helpless, helped him to the deck in order to get him away from the sinking ship. Mr. Chisholm's efforts, however, were unsuccessful and neither he nor the officer was seen again. Although the ship was sinking rapidly, Mr. Chisholm remained and deliberately sacrificed his chance of safety in a gallant attempt to save the life of another."

CASUALTIES IN THE MEDICAL SERVICES

Previously reported Prisoner of War, now reported Wounded and Prisoner of War.—War Subs. Capt. W. E. G. Bradford, R.A.M.C., Capt. A. E. Brewer, R.A.M.C., War Subs. Capt. J. K. Drucquer, R.A.M.C.

Universities and Colleges

UNIVERSITY OF OXFORD

Radcliffe Scholarship in Pharmacology, 1943.—This is awarded by the Master and Fellows of University College on the nomination of the Professor of Pharmacology. Candidates must have taken the pharmacology course in Oxford and have passed the examination in pharmacology and principles of therapeutics either in December, 1942, or June, 1943. A special examination in pharmacology for the scholarship will be held in the Department of Pharmacology on Tuesday, July 6, at 10 a.m. Candidates should be prepared to answer questions on pharmacological methods and biological standardization. They may be examined orally as well as by written paper. Those wishing to enter for the examination should send their names to the Department by 12 noon on July 5.

UNIVERSITY OF LONDON

The official *University of London Gazette* reports that regulations for the M.D. and M.S. examinations have been amended by the addition of the following after the reference to the essay: "The essay must be satisfactory as regards literary presentation as well as in other respects." During the war an additional M.B., B.S. examination will be held early in February, which means the holding of this examination three times a year—namely, February, April, and October.

The Senate has appointed a special committee to report on the question of providing further facilities for the medical education of women in London, and on the procedure to be adopted for the provision of such additional facilities.

Mr. George H. Macnab, M.B., F.R.C.S., has been appointed Dean of Westminster Medical School in succession to Sir Adolphe Abrahams, who has retired.

UNIVERSITY OF MANCHESTER

The following candidates have been approved at the examination indicated:

THIRD M.B., CH.B.—*Pathology and Bacteriology*: S. S. Epstein, G. V. Feldman, Margaret Hedley, Marion B. T. McIntosh, T. M. Martin, Nancy B. Penney, J. A. Shrigley.

Medical Notes in Parliament

Medical Inspection by Women Doctors

Mr. BELLENGER on April 20 condemned the routine medical examination of men in the Army by women medical officers. Dr. MORGAN said the woman medical officer had her duty to do and did it. She had no emotional reaction. About 2% of males and females did not like medical examination by people of the opposite sex.

Mr. ARTHUR HENDERSON said the nation owed gratitude to the women doctors, who to-day rendered most important service. The Army now had a large number of mixed regiments of anti-aircraft artillery, and required women doctors to cater for the needs of women serving in them. The problem did not exist in the Navy or in the R.A.F. These routine medical inspections were designed mainly to detect cases of skin disease or infestation, and had been carried out as a routine on all personnel returned from or proceeding on leave and when men were transferred from one unit to another in the United Kingdom. In future such inspections would be made only when the medical officer in charge of troops or the senior administrative medical officer considered them necessary. They were only required when cases were suspected in a unit and the sufferers were not reporting sick. The inspections had hitherto been known as "F.F.I."—free from infection. In future they were to be called "health inspections," and soldiers and auxiliaries would have the right to be examined by medical officers of their own sex. If this was not immediately possible the full examination would be postponed. In the interim a partial examination would be made at which men would be stripped to the waist and women would wear the equivalent of a bathing costume. At all inspections a third person of the same sex would be present. It was proposed to introduce, so far as possible, the atmosphere of the clinic rather than that of a parade.

Nurses in Scotland

Mr. WATT asked on April 20 whether a Nurses Bill would be introduced for Scotland. Mr. JOHNSTON replied that the Scots committee, presided over by Lord Alness, took views on some aspects of the problem of State recognition of assistant nurses which were divergent from those adopted in England by the Athlone Committee. He was endeavouring to see how far it was possible to bridge the differences before formulating a Bill for Scotland.

Answering Mrs. Hardie on the same date Mr. JOHNSTON said the Scottish Nurses' Salaries Committee had made recommendations regarding the salaries of nurses employed in general hospitals other than approved training schools, and in fever, sick children's, and tuberculosis hospitals, and on the conditions of nursing employment generally. All matters remitted to the committee had been covered with the exception of superannuation and questions relating to assistant nurses and nurses employed in public assistance institutions and mental hospitals. The report was presented to Parliament and copies were available. Mr. Johnston added that he was communicating with local authorities and voluntary hospitals commending the recommendation for adoption.

Fitness Centre at Gleneagles

Mr. JOHNSTON stated on April 20 that after consultation with the Minister of Fuel and Power he had appointed a consultative committee, under the chairmanship of Sir Robert Bruce, consisting of five members nominated by the miners' organizations, five nominated by the mine-owners' associations, one from the Ministry of Fuel and Power, and one from the Ministry of Labour and National Service: (*a*) to assist in ensuring that the benefits of the fitness centre at Gleneagles Hospital were recognized throughout the mining industry in Scotland, and that the fullest advantage was taken of them; (*b*) to assist in the re-employment of patients treated at the centre; and (*c*) to advise on non-medical matters affecting the welfare of patients treated at the centre.

Food Inspection

Mr. ERNEST BROWN, replying on April 20 to Sir William Jenkins, said a communication was sent to local authorities in the course of last year impressing upon them the need for taking all practicable steps to secure the due discharge of the duties of inspection imposed upon them by the Food and Drugs Act, 1938, especially in relation to cleanliness in production, treatment, and distribution of milk. This service was subject to the exigencies of the man-power situation, but arrangements had been made by which sanitary inspectors would not be recruited for military service except in special cases in which their professional qualifications were required in the armed Forces.

Minister of Health on Local Authorities

Mr. ERNEST BROWN addressed the Conservative M.P.s' Social Services Committee at the House of Commons on April 20. He said there was no increase in infectious disease; his Department was collecting information about the results of Regulation 33B on the incidence of venereal disease. The Government recognized the association of environmental conditions with the state of public health, and housing proposals were in preparation. Mr. Brown said he was consulting all interests concerned on the future of the health services. Health and medical services must continue to be worked through local authorities, but adjustments were required. Local authorities hated regional control, and it would be necessary, pending local government reform, to deal with the existing major local authorities, with adaptations. He wished to give as great a scope as possible to the smaller local authorities, who were responsible now for infectious diseases hospitals and were keen on their maternity and child welfare duties. Parliament should build on these. In hospitals there must be regional grouping. He hoped to issue a White Paper on the future of the hospitals. Mr. Brown added an assurance that he was determined to maintain the voluntary hospitals and the right of private medical practice.

Compensation for Practices

Mr. MCENTEE inquired on April 22 whether, in the re-organization of the National Medical Service, it was proposed to compensate doctors for capital invested in purchasing practices and premises used for professional purposes. Mr. BROWN said compensation for loss of value of practices would certainly be one of the subjects with which his proposals would deal.

Financial Help for Tuberculous Persons

Mr. PRITT inquired on April 22 whether the attention of Mr. Brown had been called to an article by Sir Wilson Jameson in *Current Affairs*, No. 37, of Feb. 13, 1943, entitled "National Health"; what special financial help was now being given to sufferers from tuberculosis to meet cases where treatment was put off or stopped for financial reasons; and how much had already been paid out under this head to the latest date for which figures were available. Mr. BROWN said he had seen this article. It had reference to arrangements which were in preparation at the time of its writing. These were not yet in actual operation, but the details had been worked out in consultation with medical experts and representatives of local authorities. A circular and memoranda containing detailed guidance for the local authorities by whom the allowances were to be administered would be issued shortly.

Medical and Ancillary Man-power

On April 22 Sir ROBERT GOWER asked the present number available, respectively, in Great Britain of qualified doctors, pharmacists, opticians, nurses, and other persons concerned in the provision of services or equipment connected with the health of the people. Mr. BROWN gave the following approximate figures:

Registered medical practitioners (excluding N. Ireland) in civil practice or in the Forces	49,100
State-registered nurses (on Register for England and Wales) .	99,590
Qualified pharmacists (excluding N Ireland) . . .	25,150
Opticians (ophthalmic and dispensing, excluding N. Ireland)	6,270

"Relieving the G.P."

Sir ROBERT GOWER asked Mr. Brown on April 22 whether, to make the maximum effective use of the services of available doctors in implementing the Beveridge report, he would institute an investigation into the extent to which doctors could be relieved of routine work by pharmacists in relation to dispensing and carrying out various tests, by qualified opticians in relation to sight-testing, and by increased numbers of qualified nurses both for visiting patients and for assisting in surgery work. Mr. BROWN answered that he intended to consider possibilities of relief of this kind at the appropriate stage of the preparation of his proposals.

Pensions Appeal Tribunals

Sir WALTER WOMERSLEY announced on April 22 that the Government had decided that arrangements should now proceed for setting up independent tribunals to hear appeals from all classes of claimants whose title to compensation was rejected under any one of the various war pension schemes administered by the Ministry of Pensions. Each tribunal would include a legal chairman, a doctor, and a member of the service or class covered by the scheme under which the claim was made. It was the intention to establish 9 tribunals to begin with. These would sit at various centres for the convenience of appellants. Their number would be increased as found practicable, but owing to the difficulty which still existed in obtaining the full personnel required the increase could only be gradual. Legislation would be introduced as soon as possible after the House resumed its sittings. Active steps were being taken to complete preparations for the tribunals to begin their work with the least possible delay.

Nurses Bill

On April 20 the House of Lords took the Committee stage of the Nurses Bill. Lord HORDER moved to insert a new clause to provide that any person should be liable to summary conviction if, knowing that some other person was not registered or enrolled, he made any statement or did any act calculated to suggest the contrary. Lord Horder said that as the Bill stood it was not an offence for a third person, not the nurse herself or an agency, to represent a woman falsely as having qualifications. Lord SNELL accepted the amendment and the Committee stage concluded.

The Nurses Bill was reported in the House of Lords on April 21 without further amendment and was read a third time. Lord KEYES and Lord CHATFIELD repeated the request that naval pensioners with long experience in naval hospitals and in sick-bays of ships should be entitled to the designation of State-registered nurses. Lord Keyes understood that under the Bill these men would be classed as assistant nurses. Lord SNELL said these remarks would be conveyed to the Minister of Health.

On April 22 the Nurses Act received the Royal Assent.

Ministry of Health Report.—Mr. Ernest Brown hopes to publish in three months a summary report on the work of the Ministry of Health.

Notes in Brief

Mr. Ernest Brown states that the Crown has not undertaken to bear the responsibility for costs and damages in the event of a claim being made against a special practitioner giving compulsory treatment under Regulation 33B.

The Minister of Health is advised that it has not been possible to establish the causes of outbreaks of epidemic catarrhal jaundice in this and other countries. A special study of this disease is being made under the auspices of the Medical Research Council.

Sir James Grigg told Mr. Bellenger on April 6 that a soldier might be compelled to be medically examined whether the examination was carried out by a male or a female doctor. He emphasized that he answered a question on the legality and not on the expediency of such examination.

No. 15

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended April 17.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	103	9	29	2	7	158	17	48	4	8
Deaths		1	4				—	4		1
Diphtheria	723	34	187	100	24	786	37	216	44	28
Deaths	16	2	4	2	—	16	—	2	—	1
Dysentery	107	13	45	—	1	208	12	40	—	—
Deaths		1		—	—				—	—
Encephalitis lethargica, acute	2	1	1	—	—	5	—	—	—	—
Deaths		—								
Erysipelas			58	12	1			48	9	1
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				36		4	41		25	
Deaths	49	5	6	9	4	44	7	12	15	1
Measles	16,732	1,041	687	7	90	4,087	388	452	146	57
Deaths	12	1	1	—	2	3	1	1	3	
Ophthalmia neonatorum	91	4	20	—	—	108	4	19	2	—
Deaths .. .										
Paratyphoid fever ..	3	—	2			8	1	—		
Deaths	1	—	—		—	1	—	—		
Pneumonia, influenzal*	1,139	70	7	13	11	1,089	58	9	5	—
Deaths (from influenza)	43	1	4	1	2	36	4	—	1	1
Pneumonia, primary ..			250	39				341	27	
Deaths				11	14			—	12	14
Polio-encephalitis, acute	1	—				1	—			
Deaths		—					—			
Poliomyelitis, acute ..	5	—	—	1	—	3	—	2	—	1
Deaths		—					—			
Puerperal fever† ..		5	12	3	—		2	10	1	—
Deaths .. .		—					—			
Puerperal pyrexia ..	159	7	17		1	162	10	20		1
Deaths										
Relapsing fever ..	—	—			—	—	—			—
Deaths										
Scarlet fever	2,058	173	260	39	53	1,027	60	176	58	27
Deaths	2	1	—	—	—	2	—	1	—	—
Small-pox	—	—	—		—	—	—	—		—
Deaths	—	—		—	—	—	—	—	—	—
Typhoid fever‡ ..	11	2	2	8	1	11	1	4	7	—
Deaths	1	—	1	—	—	1	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths	—			—	—	—			—	—
Whooping-cough .	1,944	137	277	40	35	1,555	229	47	36	9
Deaths	13	2	5	3	1	16	3	—	—	
Deaths (0–1 year) ..	388	54	65	51	31	343	31	67	46	27
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	4,707	682	657	233	156	4,615	577	635	244	159
Annual death rate (per 1,000 persons living)			14·8	15·3	§			14·3	16·3	§
Live births	6,550	764	1019	401	309	6,266	640	944	343	289
Annual rate per 1,000 persons living ..			20·8	26·4	§			19·5	22·9	§
Stillbirths	236	27	39			232	18	43		
Rate per 1,000 total births (including stillborn)			37					44		

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* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Puerperal fever is included with pyrexia, except in London (administrative county).

‡ Includes paratyphoid A and B for Northern Ireland.

§ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* during the week scarlet fever notifications rose by 65, while those of measles and acute pneumonia fell by 1,324 and 151 respectively. The decline in scarlet fever occurred in the South, especially in London, 36. Small rises, the greatest being Lancashire 31, occurred elsewhere.

Notifications of acute pneumonia fell in Durham by 41, Lancashire 34, and Essex 32, but only small fluctuations were reported in other counties.

There were 10 fewer cases of whooping-cough than in the preceding week. The largest variations were rises in Yorks West Riding 26 and Middlesex 23, and a drop of 31 in London.

The incidence of measles fell mainly in Derbyshire by 289, Yorks West Riding 272, Gloucestershire 217, Devonshire 181, Durham 122, Essex 129. The counties reporting the largest rises were Suffolk by 155, Staffordshire 148, Worcestershire 96, Bedfordshire 87.

No further cases of dysentery were reported from Cheltenham M.B., where there was a large outbreak in the preceding week, but 9 cases were reported in Bristol C.B. 7 and Thornbury R.D. 2. The highest totals were Essex 18 (Ilford M.B. 13), and Yorks West Riding 20 (Dewsbury C.B. 19).

In *Scotland* there was an increase of 16 in the incidence of dysentery and a drop of 105 for measles. Cases of dysentery were reported from twelve areas, the largest centre of infection being that of the city of Aberdeen, 8 cases. The fall in the incidence of measles did not extend to the western area, where 527 cases were recorded, compared with 523 in the preceding week. The largest declines were those of the cities of Dundee 59 and Edinburgh 40.

In *Eire* the rise in the notifications of diphtheria was due to the experience of Dublin, where 40 cases were recorded.

In *Northern Ireland* there were 227 fewer notifications of measles. Only one case was reported in Lisnaskea R.D., compared with 207 in the previous week.

The Week Ending April 24

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,770, whooping-cough 1,827, diphtheria 710, measles 13,490, acute pneumonia 866, cerebrospinal fever 83, dysentery 69, paratyphoid 5, typhoid 3.

Medical News

The Harveian lecture will be given by Sir Thomas Dunhill on "Short Oesophagus with Thoracic Loculus of the Stomach" at 11, Chandos Street, at 4.30 p.m. on Monday, May 17.

Two Cantor lectures on "Some New Properties of Inorganic Dusts" will be given by Prof. H. V. A. Briscoe, D.Sc., before the Royal Society of Arts, John Adam Street, Adelphi, W.C., on May 17 and 24, at 1.45 p.m.

Prof. G. Grey Turner will deliver the George Haliburton Hume memorial lectures in Newcastle-upon-Tyne at the meetings of the Newcastle and Northern Counties Medical Society on May 20 and 27, at 4.30 p.m., at the Royal Victoria Infirmary. His subject is "The Management of Injuries and Diseases of the Oesophagus."

A meeting of the Faculty of Radiologists will be held at the R.S.M., 1, Wimpole Street, W., on Saturday, May 22, at 11 a.m., when Prof. B. W. Windeyer will deliver the Skinner lecture on "Malignant Tumours of the Upper Jaw." The lecture is open to all members of the medical profession.

At a meeting of the Illuminating Engineering Society on Tuesday, May 11, in the Hall of the Institution of Mechanical Engineers (Storey's Gate, St. James's Park, S.W.) an address will be given at 5 p.m. on "Light and Vision" by Sir John H. Parsons, F.R.S., F.R.C.S. Tickets of admission may be had from the Illuminating Engineering Society, 32, Victoria Street, S.W.1.

The Socialist Medical Association is holding a health workers' convention on Sunday, May 16, at 5 p.m., in the Large Conway Hall, Red Lion Square, W.C., under the chairmanship of Mr. Somerville Hastings, F.R.C.S. The speakers will include Dr. H. Joules, Dr. D. Stark Murray, and Dr. Edith Summerskill, M.P.

A conference on wartime nurseries will be held on May 15 at 3 p.m. at B.M.A. House, Tavistock Square, W.C., under the auspices of the National Society of Children's Nurseries, the Nursery Schools Association of Great Britain, and the London Women's Parliament. The main part of the conference will be open for discussion. Applications for tickets should be sent to the Conference Secretary, London Women's Parliament, 24, High Holborn, W.C.1.

The Nutrition Society has arranged a whole-day conference on nutrition in infancy to be held on Saturday, May 22, at the London School of Hygiene and Tropical Medicine, Keppel Street, W.C.1, beginning at 10.30 a.m., with Prof. L. G. Parsons in the chair. The following papers will be read: (1) "Nutritional Needs in Infancy," by Dr. H. M. M. Mackay; (2) "Recognition of Nutritional Disorders in Infancy," by Wing Commander R. W. B. Ellis; (3) "Treatment of Nutritional Disorders in Infancy," by Dr. A. A. Moncrieff; (4) "Public Health Aspects," by Dr. J. C. Spence and Dr. H. E. Magee. The discussions after the four papers will be opened by Prof. Noah Morris, Dr. S. G. Graham, Dr. J. V. C. Braithwaite, and Mr. F. Le Gros Clark, respectively. Further details of the Nutrition Society can be obtained from the Hon. Secretary, Dr. Leslie Harris, Nutritional Laboratory, Milton Road, Cambridge.

An extraordinary meeting of the Association of Surgeons of Great Britain and Ireland will be held in London on Thursday, July 22, at the Royal College of Surgeons of England, when the following subjects will be discussed: "The Treatment of Burns in the Field and in Hospital," and "The Use and Abuse of Sulphonamide in War." This meeting will be preceded on July 21 by a reception given by the President and Council of the Royal College of Surgeons. The secretaries for the meeting are E. C. Hughes and Philip H. Mitchiner, who will issue full details to Fellows in due course.

The Lord President of the Council has appointed Charles S. Hanes, Ph.D., F.R.S., to be Director of Food Investigation in the Department of Scientific and Industrial Research. Dr. Hanes is at present serving with the Food Mission in North America.

The National Association for the Prevention of Tuberculosis announced on April 6 that, owing to the difficulty in obtaining nursing and domestic staff, the Colony for Boys at Burrow Hill, Frimley, Surrey, will have to be closed in three months' time. This colony has some 80 beds for the treatment and training of tuberculous youths.

A new and limited issue of the *British Pharmacopoeia*, 1932, which has been out of print for some time owing to destruction of copies by enemy action, is now on sale. Copies (21s., or 21s. 9d. including postage) may be obtained from Constable and Co. Ltd., 10, Orange Street, London, W.C.2. Also available are the First Addendum (1936) 5s.; Second Addendum (1940) 2s.; Third Addendum (January, 1941) 3s. 6d.; Fourth Addendum (October, 1941) 5s.; and the Fifth Addendum (1942) 5s.

The issue of the *Schweizerische medizinische Wochenschrift* for Feb. 13 is dedicated to Prof. Ernst Anderes, professor of gynaecology and obstetrics at Zurich University, on the occasion of his 60th birthday.

The British Records Association has issued a memorandum, under the title *Modern Records: What Can We Safely Destroy?* which should be of great assistance to those who wish to answer the national call for paper and to clear valuable office space, but are desirous not to destroy documents which may be of historical value. After a brief discussion of general principles, it gives schedules of documents which it is desirable to preserve, and of those which may generally be destroyed. Copies can be had free on application to the honorary secretaries, British Records Association, c/o Public Record Office, Chancery Lane, W.C.2.

The Henry George Plimmer Fellowship is tenable at a recognized institution at home or abroad, but the Fellow will be considered to be attached to one of the Biological Departments of the Imperial College of Science and Technology, South Kensington, S.W.7, and will work under the general supervision of a professor of that department. The subject of research may include morbid anatomy, histological anatomy, chemical pathology, protozoology, bacteriology and allied subjects in either zoology, medicine, or botany. Applications for this Fellowship must be made to the Rector of the College by June 1.

The sanatorium at Nayland, near Colchester, is being taken over by the Council of Management of Preston Hall, who will provide treatment and occupational therapy and industrial training there for women suffering from tuberculosis, especially those discharged from the Services, on the same lines as at Preston Hall and at Douglas House (Bournemouth). The institution, which will be known as Nayland Hall, came under the direction of the British Legion on May 1, and is to be administered from Preston Hall by Dr. J. B. McDougall.

A national drying plant for the preparation of dried plasma has been established in Edinburgh. In spite of the call-up of men and women the number of blood donors in Scotland continues to ncrease; in Glasgow alone there are 6,000. Dumfries now has a subsidiary blood bank.

The Alnwick Rural District Council has placed on record its ppreciation of the faithful services of Dr. A. Scott Purves as its medical officer of health during the past 50 years. He was eappointed for the duration of the war.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

The Barrel Bandage

Q.—*What is the barrel bandage and how is it applied to compound fractures of the jaw?*

A.—The barrel bandage for fractures of the jaw was described in an article by Mr. W. Kelsey Fry in the *Journal* of Dec. 2, 1939 (p. 1086). Mr. Fry pointed out that the four-tail bandage was no longer used by those surgeons familiar with the treatment of fracture of the mandible. For the barrel bandage about six feet of 2-in. to 2½-in. bandage, preferably unbleached calico, is required. The middle of the bandage is placed under the jaw, well back just in front of the angle; then a simple knot is tied over the vertex of the skull (Fig. 1). Using both hands, open the knot so that the front loop comes in front of the forehead and the back portion under the occiput (Fig. 2). The two ends are then taken and upward tension is exerted, and by a slight adjustment the two running hitches are made to occupy a position slightly above and in front of the ear The two ends are then tied in a reef knot on the top of the head (Figs. 3 and 4).

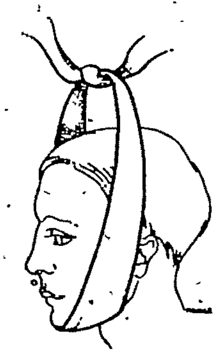

FIG. 1

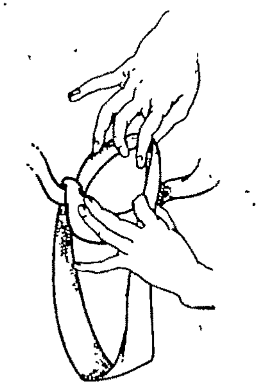

FIG. 2

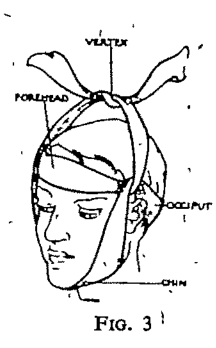

FIG. 3

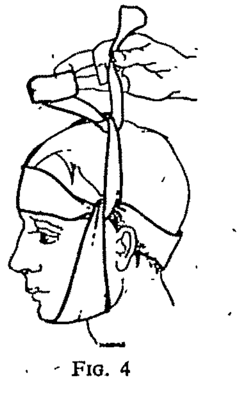

FIG. 4

Duration of Diphtheria Prophylaxis

Q.—*What is the approximate duration of the protection given by alum-precipitated toxoid injections against diphtheria, and what is the optimum period that should elapse between the two injections? Is the protection less complete when the second injection is given* *with only a two-week interval instead of four? I am often asked by parents how long the protection lasts and how I know whether it is successful.*

A.—(*a*) Such a question unfortunately cannot be answered dogmatically. "Protection" depends on the virulence of the strain of diphtheria attacking the child, and probably the dose implanted. The Ministry of Health memorandum of January, 1940,[1] stated that the immunity following artificial immunization "persists for years and perhaps for life." This is a shade too optimistic. If we measure the antitoxin in the blood of immunized children the average drops somewhat each year, and most immunologists urge a reinforcing dose of prophylactic on entry into school—i.e., from 3 to 5 years after immunization in early childhood.

(*b*) Broadly, the longer the interval between the two injections of A.P.T. the better the subsequent immunity—six months would be better than one month and four weeks better than two weeks. But we cannot risk the low immunity for six months, and a month is a reasonable compromise. Parents easily remember the date, and the system works. If T.A.F. be chosen, probably the optimum dosage would be three doses of 1 c.cm. at 4 weeks' interval.

(*c*) We could ascertain that the immunization is successful by Schick-testing every child, or a representative sample of the children. With a good A.P.T., an interval of four weeks, and a dosage of 0.2 and 0.5 c.cm. as recommended by the Ministry of Health, the conversion of Schick-positive to negative has been usually found to occur in from 90 to 100% of children—most recent figures being much nearer the 100% level.

Ring Pessaries

Q.—*In these days of rubber shortage, and from the fact that my suppliers have replied to my order for ring pessaries—"None available"—and since it is not always feasible or advisable to recommend operation for patients requiring such pessaries, is there anything else one may use in conservative treatment for such cases?*

A.—Ring pessaries are of rubber, and rubber is not to be had. Some surgical firms can no longer supply the common types of pessary. But ring pessaries may also be of the rigid type. Previously these were of vulcanite, but now the modern plastics are pressed into use, and bright, semi-transparent "rings" are making their appearance. The rigid ring pessary has always had its advocates. It is lighter, cleaner, and does not readily provoke a vaginal discharge. On the other hand it is not so easily introduced, and thus a smaller size must be used than would be possible in the case of the compressible rubber ring. If not superior, the rigid pessary is a good substitute and worthy of trial.

INCOME TAX

Purchase of Practice

W. B. asks what allowance would be permitted if he were to "buy a practice on easy terms—i.e., out of the actual income received."

*** Periodical payments of the kind indicated usually are made up of two distinct elements: (*a*) repayment of money advanced or left on loan, and (*b*) interest on the amount still outstanding. No allowance can be made as regards (*a*)—essentially such payments are "savings" of capital—but an allowance for the interest can be made if the advance is from a bank. (In the case of interest paid to private persons the borrower can recoup himself by deducting tax from the payments as they are made.)

LETTERS, NOTES, ETC.

A New Syndrome?

Dr. C. E. H. MILNER writes: I wonder if other readers have shared my recent experience in being called upon to treat cases of the type I will describe. I am at present attending four middle-aged women suffering from identical minor, but disabling, symptoms—those of what I venture to call "basket carriers' peri-articular fibrositis." All four are working, and organizing, for some 16 hours a day. All four wear complete upper and lower dentures. All four sleep indifferently and wake early, with painful paraesthesia of the right arm, which starts in the deltoid muscle and tracks, via the joint elements of the elbow, into the fingers. At breakfast they drop knives and teaspoons and are mentally irritable. As the day goes on the symptoms diminish, and by early evening they have for the most part disappeared—only to return in all their severity at bedtime, when the sufferers are only too ready, and anxious, to sleep. In all four *all* the fingers are affected, so that the question of cervical rib does not arise. On clinical examination no loss of muscular power or anaesthesia can be detected; but two of the patients present fibrositic nodules within the deltoid muscle, over the head of the humerus, as well as in the anconeus. As in so many cases of fibrositis, the cause appears problematical—possibly toxic, possibly postural, possibly occupational. Treatment has been disappointing. Salicylates have been prescribed, together with tincture of gelsemium; and alternately small doses of Lugol's solution. The total fluid intake has been doubled or trebled. Coffee has been forbidden; likewise sherry—as if there were any need! Local heat and local deep, vigorous massage have afforded but temporary relief. The simplest prescription has perhaps produced the greatest comfort—a good hot morning bath, with a handful of washing soda; and a couple of tab. codein. co. at bedtime.

Nit-wits

Dr. DEVEREUX FORREST (Torquay) writes: I am quite at a loss to find the point of the frequent papers recently on the greater incidence of infestation among those of meaner intelligence. Surely this is what a person with an average percentile intelligence score might reasonably expect—to wit, that it is highly probable that the least intelligent will also be the least careful in their personal hygiene and habits, thus being more prone to get infested; that when they are infested they will be slower to find it out; and that when they do find it out they will be slower still to deal with it adequately. I trust that this letter has not suggested a probable poor percentile intelligence score by myself!

Factors Influencing Lactation

Dr. JEAN MACKINTOSH (Aberdeen) writes: I should like to correct an error which has crept into your account of the meeting of the Scottish Group of the Nutrition Society (April 24, p. 517). There it states that "Dr. Mackintosh excluded diet as one of the main causes" of decreased incidence of breast-feeding. The relevant sentence in the paper reads as follows: "There are several other factors, however, which come into play besides any nutritional deficiency in the successful establishment and maintenance of breast-feeding." Good nutrition is very important, but there are other psychological factors which also play an important part. The incidence of breast-feeding at six months in the recent surveys quoted in my paper ranged between 30 and 40%.

Legal Protection for Serving Medical Officers

To judge from inquiries received from time to time some doctors holding commissions are still under the impression that because they are employed in the armed Forces it is not necessary for them to belong to one of the defence societies, on the assumption that such employment makes them immune to legal attack. As pointed out in these columns three years ago in a letter on the subject from the presidents of the Medical Defence Union and the London and Counties Medical Protection Society, legal proceedings against a medical man may be taken months, if not years, after the alleged negligence or misdemeanour has occurred. Every doctor is liable to legal attack, and he may require protection even against the authority by whom he is employed. Equally important is the fact that the Government does not accept responsibility for alleged errors of medical officers; it has never undertaken to do so, though in exceptional cases it has been known to take this action after pressure from a defence society. Again, a number of cases have occurred in which defence societies have defended doctors brought before courts martial on charges of alleged negligence or of alleged disciplinary offences. Added to all this members of a defence society may obtain free advice on a number of difficult questions; and, finally, it is worth while remembering that the subscription is exempt from income tax.

The Epiglottis in Anaesthetic Deaths

Dr. ERNEST CULPIN (Brisbane) writes: The annotation on the epiglottis in anaesthetic deaths (Sept. 12, 1942, p. 344) is highly important, but the fact that such an article should have so prominent a position is a sad commentary on the medical profession. A freely patent airway is an essential for all anaesthetics, and if the profession would learn from a natural demonstration such an article would not be necessary. It must be assumed that all members of the profession are acquainted with the gross anatomy of the ai passages. The simple lesson is given by the position of the head mouth, tongue, jaws, and neck of the athlete when nearing the tap in a 440-yards race or a 100-yards sprint, at which time he i endeavouring to get all the air (oxygen) he can by providing th clearest possible airway. This should be the position of the patie under anaesthesia, particularly during operation for removal tonsils, when the epiglottis and probably the larynx will be und direct vision of the surgeon during the whole of the operation; addition the entry of blood or dirty tonsillar secretion into the lary will be controllable and prevented. The epiglottis will have opportunity of occluding the larynx. The reported cases, wherei is stated that after digital freeing of the epiglottis conditions w satisfactory, in themselves prove that the epiglottis should not would not have caused the trouble had not neglect allowed i do so.

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[1] Min. of Hlth. Memo. 170/Med., 1940.

BRITISH MEDICAL JOURNAL

LONDON SATURDAY MAY 15 1943

HEAD INJURIES IN MOTOR-CYCLISTS

WITH SPECIAL REFERENCE TO CRASH HELMETS

BY

HUGH CAIRNS, D.M., F.R.C.S.

AND

H. HOLBOURN, D.Phil.

(From a Military Hospital for Head Injuries and the Nuffield Department of Surgery, Oxford)

In an earlier paper (Cairns, 1941) attention was called to the use of crash helmets to alleviate the head injuries of motor-cyclists, and 7 cases were reported. We now have records of 106 accidents in which we have been able to examine the crash helmet and, usually, the patient. This material provides further information about head injuries in motor-cyclists, and also enables us to compare the relative values of different types of helmet.

Two main varieties of helmet are in use. In one the outer shell is composed mainly of hard vulcanized rubber; in the other, of compressed wood pulp. Apart from their composition, there are important differences of construction. In the vulcanized type (Fig. 1) the inner suspension system is connected to the outer shell by means of a stout cord at the base of the helmet; if the cord is broken there is nothing to prevent the rider's head from coming into contact with the crown of the outer shell. In the pulp type (Fig. 2) the inner slings are stitched separately into the substance of the outer shell, and the stout cord at the base merely retains the hatband in place.

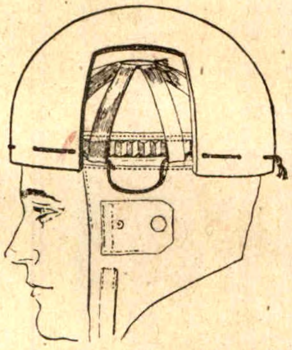

FIG. 1.—Vulcanized rubber helmet.

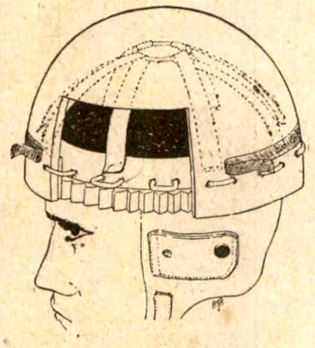

FIG. 2.—Pulp helmet.

Material

Our material consists of cases admitted to a Military Hospital for Head Injuries and extramural cases brought to our notice from various sources because of our interest in crash helmets (Table I). Of the hospital cases, those admitted after the acute stage were sent for assessment of their fitness to return to duty, for convalescence, or for special treatment; they were thus a specially selected group. The cases admitted in the acute stage were unselected, except that they did not include the accidents in which the motor-cyclist died before he could be moved to hospital, nor the mild accidents in which the motor-cyclist did not require hospital treatment. The immediately fatal cases and a few of the mild ones are represented in the extramural group—the fatal cases to a disproportionate extent. These have been largely traced through the help of ordnance depots receiving damaged helmets.

TABLE I.—*Head Injuries in Motor-cyclists With and Without a Crash Helmet (Figures for Non-crash-helmet Cases in Black Type)*

	Hospital Cases				Extra-mural Cases	Totals
	Admitted in Acute Stage		Admitted in Subacute or Chronic Stage			
Very mild (no amnesia)	1	**(3)**	3	**(10)**	9	13*
Mild (amnesia < 1 hour)	6	**(6)**	14	**(21)**	7	27*
Moderately severe (amnesia 1–24 hours) ..	8	**(10)**	23	**(53)**	4	35
Severe (amnesia 1–7 days)	4	**(2)**	7	**(52)**	1	12
Very severe (amnesia > 7 days)	2	**(9)**	3	**(35)**	1	6
Unclassified (duration of amnesia unknown) ..	—	—	—	**(4)**	3	3
Fatal	1	**(3)**	—	—	9	10
Totals	22	**(33)**	50	**(175)**	34†	106

* Six of the cases in these two groups were so slightly injured as not to require hospital treatment.

† In 2 cases a patient had two separate accidents while wearing the same helmet.

In classifying the cases according to their severity we have used the total duration of amnesia. With certain limitations common to all the subgroups, this provides a rough measure of the intensity of concussion. The severity of head injuries depends on other effects besides concussion—effects such as bruising, infarction, or laceration of parts of the brain, and intracranial haemorrhage or infection—but the clinical state of concussion, as judged by the duration of amnesia, is the only available measure.

In the first six case reports which follow we have attempted to give a fair sample of our material. Cases have been selected from the groups in Table I, so far as possible in proportion to the number of cases in each group. However, we have not taken a case from the "severe" group, since its cases closely resemble those of the "moderately severe" group.

A Very Mild Case

Case 1.—While travelling at high speed Cpl. A., aged 22, hit a rut in the road and was thrown on to his head. The left frontal region of his crash helmet (vulcanized type) showed a large area of abrasion and a fracture, and his triplex goggles were broken into many fragments, but these did not become detached (Fig. 3). He had a cut in his left eyebrow, and his forehead was bruised. He felt dazed for some hours, but did not lose consciousness. He complained of headaches for four days, but remained with his unit. Six months later he was performing full duty efficiently. (Case of Surg. Lieut. B. Robinson, R.N.V.R.)

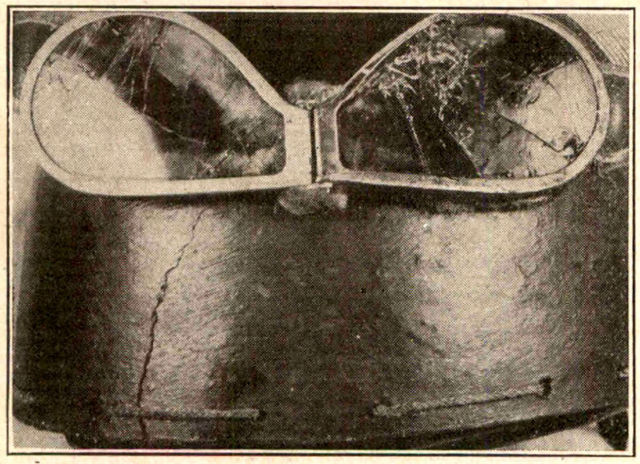

FIG. 3.—Case 1. Broken crash helmet, seen from the left, and goggles, which were worn upside down. The wearer was able to remain with his unit.

A Mild Case

Case 2.—Rifleman B., aged 19, was admitted to hospital after the second of two accidents at an interval of five days. In the first he had had a tyre burst while travelling at 30 to 35 m.p.h., and had gone into a ditch and pitched over the handle-bars. He woke up two minutes later and found himself sitting in the ditch. He was taken back to his unit in a lorry. Five days later, on his next cycle journey, he collided with a lorry which suddenly turned right when he was overtaking it on a main road at 35 m.p.h. This time he was amnesic for 10 minutes, and had bruises on the left side of his forehead, left shoulder, and both knees. Radiographs showed no fractures. After 23 days in hospital he returned to his unit. Although of normal intelligence, he was irresponsible to a degree that probably rendered him unusually prone to accidents.

His crash helmet (pulp type) showed high up in the right frontal region areas covered with a thin layer of earth that were probably produced by the first accident. Lower down in the right frontal region was an extensive area of deeper abrasions and lacerations that was probably caused by the second accident.

Moderately Severe Cases

Case 3.—Cpl. C., aged 24, also had two accidents. In the first, which belonged to the very mild category, he ran into a car that was on the wrong side of the road. His right external malleolus was struck by the bumper, and his handle-bar caught the front-door handle of the car. He was flung off on to the back of his head, but did not lose consciousness. He was unable to stand on his right leg for a quarter of an hour after the accident, but remained at duty and was riding a motor-cycle again next day. His pulp helmet showed a fracture in the occipital region (Fig. 4), which was identified by the patient and his commanding officer as being the result of this accident.

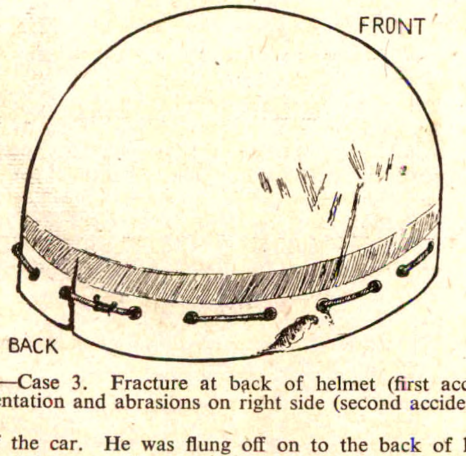

FIG. 4.—Case 3. Fracture at back of helmet (first accident). Indentation and abrasions on right side (second accident).

One month later he ran into a flock of sheep. This time his head injury was moderately severe: he was amnesic for two hours and had bleeding from the right ear, with a fracture of the right squamous temporal bone running into the petrous bone. His crash helmet (the same one) showed abrasions on the right side, with a dent at the edge (Fig. 4). He also had bruises of the right shoulder and elbow. He was kept in bed for 17 days, and then, after being up for only half a day, was transferred to a convalescent hospital, where he at once began to have headache and dizziness on exertion and soon became depressed. He was therefore eventually admitted to this hospital. Examination showed no signs other than the fracture of the skull. He was reassured, given graduated exercise, and returned to duty 12 weeks after the second accident.

These cases illustrate the value of crash helmets, and they also raise certain other aspects of accident prevention which, though beyond the scope of this paper, nevertheless deserve more attention than they have received in the past. In Cases 2 and 3 the successive accidents within a short period suggest that these patients might have been more prone to accidents than normal, and that after one accident the liability to accidents is for a time increased.

In Case 3 the treatment given after the second accident was not satisfactory. There is still a tendency to keep patients in bed too long after a mild head injury and then to discharge them from hospital without adequate reassurance or any attempt at physical hardening. In these circumstances unwonted exertion is often followed by headache and dizziness, and the patient, now beyond the control of a medical officer and perhaps at the mercy of over-sympathetic relations, loses confidence in his recovery. His fears aggravate his symptoms and may render him unfit for duty.

Case 4.—Signalman D., aged 28, had a head injury on Nov. 27, 1941. According to another dispatch rider, who was following him, they were travelling at 40 to 45 m.p.h. along an arterial road, when a car in front of them suddenly pulled out, and the patient had to brake so hard that he skidded and fell, striking his head against the kerb. His crash helmet (pulp type, Fig. 5) was penetrated in the right frontal region; the surrounding area showed lines of fracture and numerous abrasions, deepest at the anterior edge of the helmet. He had a retrograde amnesia of 3 to 4 minutes and a post-traumatic amnesia of just under 24 hours. Radiographs of the skull showed multiple fissured fractures of the right fronto-parietal region extending on to the greater wing of the sphenoid (Fig. 6), but without any depression. The right fronto-malar suture was also separated. When he was examined two months later no abnormality of the central nervous system could be detected. He did well, and returned to his unit 10 weeks after the accident.

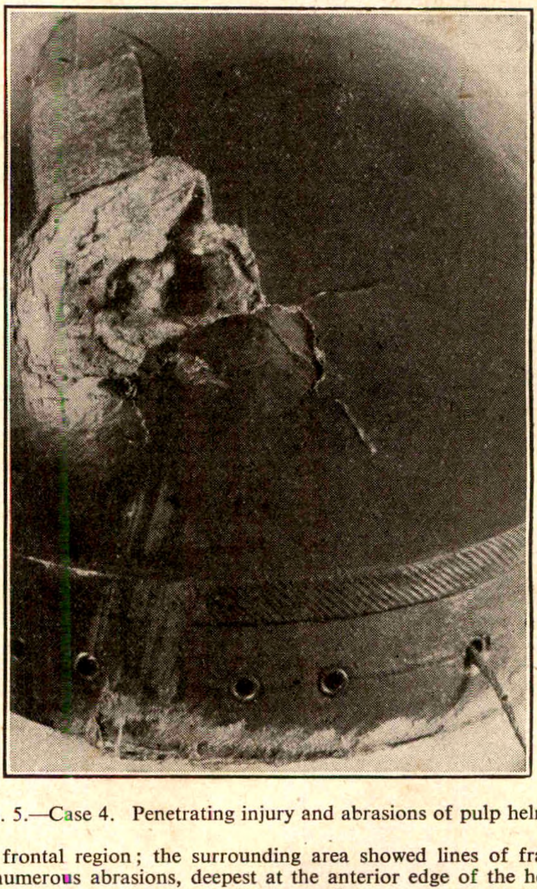

FIG. 5.—Case 4. Penetrating injury and abrasions of pulp helmet.

In this case the blow must have been particularly severe, for helmets of this type rarely show gross fractures, and as a rule the skull beneath them is not fractured. It is likely that without the protection of a helmet this man would have had a compound depressed fracture of the skull, with penetration of the dura and severe, perhaps fatal, laceration of the brain.

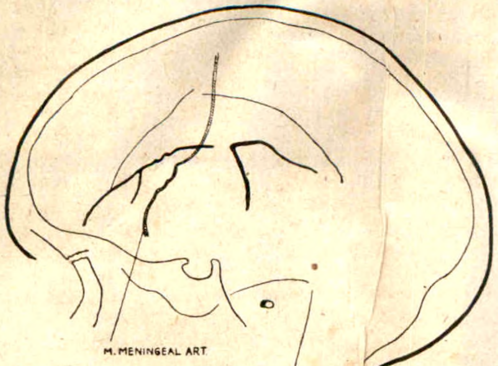

FIG. 6.—Case 4. Multiple fissured fragments of skull in right fronto-parietal region without depression.

A Very Severe Case

Case 5.—L'cpl. E., aged 24, ran into the back of an unlit stationary lorry in the middle of the night. He had a small scalp wound above the left ear, with a Y-shaped fracture of the underlying squamous temporal bone, and a superficial graze on the left cheek; he also bled from the right ear. His retrograde amnesia (estimated four months later) was 8 days and his post-traumatic amnesia about 20 days. On admission to hospital he was in coma, with spastic limbs, bilateral ankle clonus, and extensor plantar responses on each side. Within 12 hours he became violently restless, and remained in this state for 8 days; but after hot baths he became quieter. He was, however, still confused for some days, and during this time he had an incomplete and temporary right facial palsy of the peripheral type. The signs of organic neurological damage cleared up completely, but he still complained of headaches on exertion and gross impairment of memory. Attempts at active physical and psychotherapeutic rehabilitation failed, and he was invalided from the Army 4½ months after the accident.

His crash helmet (pulp type) showed a fracture with slight depression at the left lateral edge. Beneath this fracture the rim of the fibre hatband was broken, and the break corresponded with the scalp wound above the left ear.

This patient had a severe brain injury, with fracture of the base of the skull, which might have been fatal if he had not been to a considerable extent protected by the crash helmet from the full violence of the blow. Eventually he made a good recovery; but after such a prolonged period of post-traumatic coma and amnesia the capacity for satisfactory work may be slow to return, and in this case recovery was complicated by the fact that before the accident his adjustment to Army life had not been altogether satisfactory.

Fatal Cases

Case 6.—L'cpl. F., aged 27, came over the crest of a hill to find an oncoming car turning right towards the entrance of a station. His cycle struck the offside front wheel of the car, and he was thrown a distance of 40 feet, striking his head against cobbles (Fig. 7). His crash helmet (vulcanized type) had an extensive fracture on the left side (Fig. 8), and there was an extensive fracture also in the left temporo-parietal region of the skull, spreading into the middle fossa. The patient never recovered consciousness, and died 51 hours after the accident. Before death he had right hemiparesis and rapid bubbly breathing. Necropsy showed, in addition to the skull fracture, extensive laceration and haemorrhage of the left hemisphere beneath the site of the blow, together with a small amount of extradural clot. (From notes supplied by Brig. Hedley Whyte, D.S.O.)

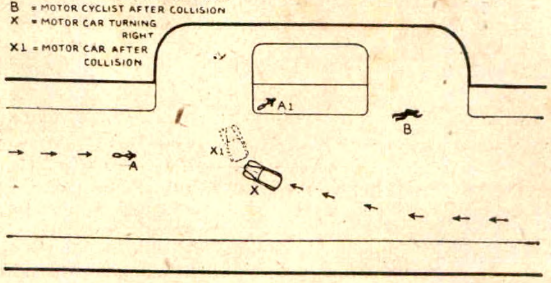
A = ONCOMING MOTOR CYCLE
A1 = MOTOR CYCLE AFTER COLLISION
B = MOTOR CYCLIST AFTER COLLISION
X = MOTOR CAR TURNING RIGHT
X1 = MOTOR CAR AFTER COLLISION
A1
B
X1
A
X

FIG. 7.—Case 6. Diagram of accident.

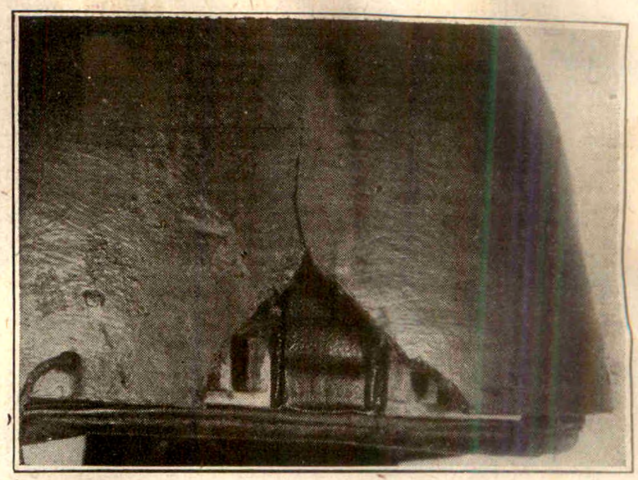

FIG. 8.—Case 6. Fracture of vulcanized helmet.

In this case a less brittle and more strongly buffered helmet, protecting a wider area of the temporal region, might have prevented the fatal brain damage. Violent blows in the unprotected region of the external ear and mastoid process seem to be very liable to produce death.

In the fatal cases which we have examined death was not always due to head injury. In the following case—the only fatal case among those admitted to our hospital—the crash helmet was effective in preventing brain damage, but the patient died from bronchopneumonia secondary to injury of the thorax.

Case 7.—Travelling fast in daylight, with his head bent forward, Pte. G., aged 29, crashed into the back of a stationary lorry. Witnesses say he bounced back about six feet and landed sitting on his motor-cycle, then slowly keeled over sideways. A few hours later he was admitted to hospital in a comatose restless condition and showing signs of traumatic asphyxia. Temperature 103°; pulse rate 150; respiration rate 40. His crash helmet (pulp type, Fig. 9) showed a large dent high up in the frontal region, with an eccentric deep semicircular mark which suggested that he had run into a piece of piping projecting from the back of the lorry, though it is stated that he hit the tailboard. There was also a deep transverse groove running across the posterior surface of the helmet. No signs of a lesion could be found in the scalp or skull. He had a bruise on the front of his sternum, fractures of upper thoracic vertebrae, and compound fractures of the left second and fourth metacarpals. Lumbar puncture (10 hours after injury) showed lightly blood-stained fluid under an initial pressure of 140 mm. H_2O, with a protein content of 100 mg. per 100 c.cm. and 7,200 red cells per c.mm. During the next three days he became less deeply unconscious; but his breathing

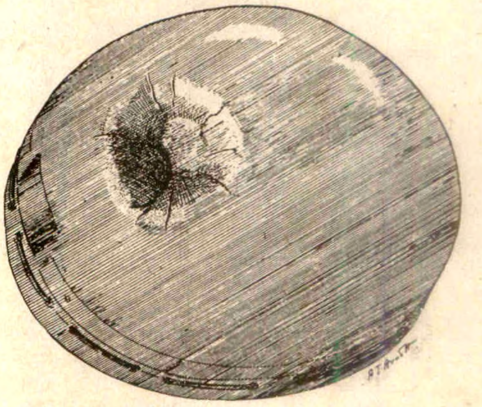

FIG. 9.—Case 7. Severe indentation of pulp helmet.

remained rapid and stridorous, and he gradually developed signs of bilateral bronchopneumonia, with a small pneumothorax on the right side, widening of the upper mediastinal shadow, disappearance of the heart sounds, and a persistently rapid pulse with gallop rhythm. He died four days after the accident.

Necropsy (carried out by Drs. Robb-Smith and Dorothy Russell) showed a fracture of the sternum beneath the bruise on the chest wall. There were considerable extravasation of blood in the upper mediastinum, slight bruising of the wall of the left ventricle of the heart, and bronchopneumonia. Neither the scalp nor the skull showed any sign of damage, and the only lesion found on the surface of the brain was a small amount of subpial haemorrhage along the medial sagittal border of each cerebral hemisphere. Coronal sections showed numerous petechial haemorrhages, with softening of the white matter, symmetrically scattered through both temporal lobes, linear haemorrhages in both fusiform gyri, and a few perivascular haemorrhages in the left frontal lobe. These were not sufficient to cause death, and on microscopical examination there were no signs of fat embolism. There was some bruising of the dura just above the foramen magnum and of the muscles of the neck. The spinal column showed a fracture-dislocation between the third and fourth thoracic vertebrae and a crush fracture of the body of the sixth thoracic vertebra, without injury to the spinal cord.

In this case there was undoubtedly a very severe blow to the head, and the crash helmet appears to have been most effective in preventing damage to the brain and skull; but it was not able to absorb all the energy of the blow on the head, and some of the force was transmitted to the spinal column. The primary cause of death was bronchopneumonia and mediastinal haemorrhage, due to a second blow on the chest and possibly also to the spinal injury.

Marks on the Helmet

From the marks on the outer shells of the helmets it is possible to deduce the positions of the blows and to some extent their severity. On the vulcanized type of helmet a serious blow generally causes a triradiate Y-shaped fracture of the outer shell, with its junction near the centre of the blow and the vertical limb usually extending to the edge of the helmet. With blows of still greater severity the upper arms of the Y may curve round and reach the edge, so that portions of the helmet become detached (Fig. 10).

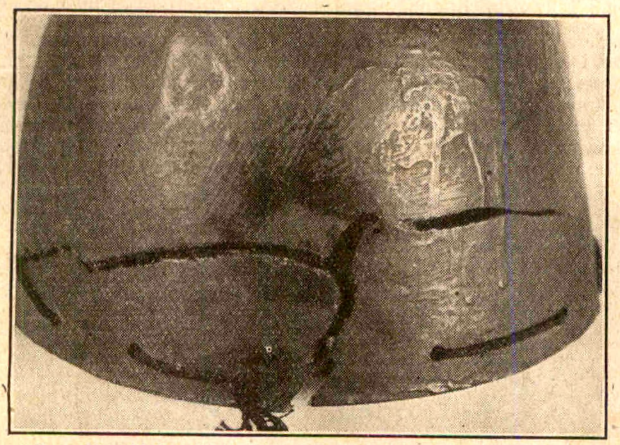

FIG. 10.—Vulcanized rubber helmet showing typical severe blow in the occipital region. The wearer was able to continue at duty.

The imprint of the object causing the blow is generally found near the junction of the Y. If the blow is due to the road inconspicuous groups of small pits, the imprints of the sharp corners of the road metal, are found at this point. The pits often have small tails to them, due to a small amount of "slip" between road and helmet. The pits may be easily overlooked, as they appear insignificant in comparison with the long and deep abrasions produced when the helmet is sliding along the surface of the road. And it must often happen that the pits due to the original blow are completely obliterated by abrasion marks due to subsequent sliding. In less serious blows the inconspicuous pits may occur without any fracture.

A blow by another vehicle usually causes a fracture. Near the centre of the fracture lines the paint may show an extremely faint polish at the summits of its irregularities, akin to the polish which occurs on the thicker parts of a starched collar from the pressure of the iron (Fig. 10). Sometimes the impact of another vehicle produces a smooth area denuded of paint.

The pulp type of helmet, being less brittle, seldom shows gross fractures; instead, an indented slightly softened area is produced by the blow. In this area there is slight wrinkling of the material, with little tendency for the wrinkles to run to the free edge (Fig. 9). Impact with the road usually causes small jagged tears of the layer of gossamer covering the helmet. The only clear evidence of impact with another vehicle is obtained in cases such as Case 7, in which an imprint of some geometric shape is seen in the helmet. No imprints of geometric shapes are found in the vulcanized helmets, presumably because the material breaks before it is sufficiently deformed to leave a permanent impression.

Multiple Blows

In 40% of 81 cases the helmet showed marks of more than one blow. In 2 cases the history and the character of the indentation in the helmet suggested that the patient struck two objects at once, one in the front part of the crown of the helmet and the other in the occipital region. In another case the helmet was crushed by the wheel of a lorry and fractured on both sides. In the remaining cases it is likely that the patients received successive blows against widely different areas of the helmet. There were indications in the marks that one blow was more severe than the others.

Case 8.—Pte. H., aged 27, struck the back of a lorry in daylight while riding his motor-cycle. He had a scalp wound in the forehead, a fractured frontal sinus, amnesia for two days, and double vision for two to three weeks. His crash helmet (vulcanized type) showed an irregular defect in the mid-frontal region, and, at the apex of this defect, depression of one fragment of the shell. In the right postero-lateral region the shell showed a second fracture, which was surrounded by areas of abrasion.

In this case there were clearly two blows—one on the front and one on the back of the helmet. Possibly the first blow was caused by the patient's head striking the lorry, and the second by his subsequent fall to the ground. That the main blow was on the forehead is shown by the severity of the damage to the front part of the helmet and by the fact that the damage to scalp and skull was beneath that area.

Evidence for multiple blows is also obtained from those cases in which there are fracture of the jaws and damage to the skull in some part other than the frontal and temporal regions.

Case 9.—Lieut. I., aged 24, crashed into a lorry which suddenly turned right into a side road. On admission to hospital two hours later he showed a simple fracture of the lower end of the left fibula, a comminuted fracture of the symphysis of the mandible, a fracture of the left condylar process of the mandible, and a fracture of the adjacent tympanic plate. There was no other fracture of the skull. His crash helmet was unmarked in the front, but showed a line of abrasions and a fracture in the left occipital region, with some general depression of the left occipital part of the helmet. The patient was amnesic for 7 days, and during the first part of this period was in a very confused state. He subsequently made a good recovery.

In this case there were obviously two blows—one on the face and one in the occipital region. Most of these cases of multiple blows appear to have occurred when the rider collided with a vehicle, such as a lorry or a taxi, and the first blow was probably due to striking the vehicle, the second to striking the ground. But in one fatal case of which we have read the report there is a circumstantial account that the rider fell and struck a fallen tree-trunk, then bounced up into the air, fell, and struck his head again.

Our observations confirm the experience of Rowbotham (1941) that "in road accidents in particular the head may be struck more than once." In the initial examination of a case of head injury, therefore, the medical officer should not be satisfied with finding one scalp wound, but should search the head for evidence of another. In a case which came to our notice neglect of this rule resulted in death from meningeal infection through an untreated wound of the hairy part of the scalp.

The Site of the Blow

The site of the marks on the helmet and the damage to the underlying scalp or skull showed a close correspondence. In 30% of our cases we could not establish a precise relationship —usually because there was no mark on the scalp or skull (e.g., Case 7), but sometimes because the marks on the head, though close to the marks on the helmet, were not directly below them. In only 5% was there a definite variance between the site of the marks on the helmet and those on the head. In the remainder—i.e., in 93% of those in which requisite data were available—correspondence was precise.

The helmet thus provides a permanent record of the blow, and this is useful in patients who come under observation after their bruises and lacerations have healed. In some of our cases it has led to detection of fractures of the skull which had been overlooked at the first radiographic examination.

When the site of the main blow is plotted diagrammatically it is seen that blows on the frontal quadrant are almost as frequent as all the others put together (Fig. 11 and Table II).

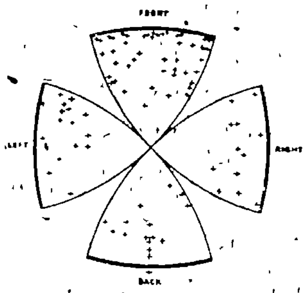

FIG. 11.—Diagram of site of main blow in 91 cases.

Blows on the front half of the helmet are over twice as frequent as blows on the back half. The majority are at or fairly near the edge of the helmet (the average height of blows is 4.5 cm. above the brim), and blows on the crown, an area approximately equal to that of a quadrant, are very rare: there were only 3 cases in which the blow was primarily on the crown. The case of the motor-cyclist is quite different from that of the equestrian, who starts his fall from a considerable height and has time enough to perform the rotation necessary for a fall on to the crown of his head. The motor-cyclist rides close to the ground, and in an accident usually falls from his machine in a forward, or lateral and forward, direction without enough height to perform the necessary rotation.

TABLE II.—*Effects of the Main Blow on Skull and Brain in Relation to Site of Injury*[*]

Site of Injury	Total No. of Cases	Cases with Skull Fracture	Deaths attributable to Brain Injury
Frontal ..	47	16	3
Lateral ..	28	17	3
Occipital ..	21	3	—

These observations show the importance in design of providing particularly good protection at and immediately above the edge of the helmet, especially at the front, where blows are two to three times as common as in any other part.

Effects of Blows in Different Regions

The outstanding feature of Table II is the mildness of the effects of blows in the occipital region in comparison with those on the frontal and lateral regions. It may be that in motor-cyclists a blow in the occipital region occurs only after the body of the motor-cyclist has almost come to rest; and that this is the explanation of the slightness of occipital injuries. Motor-cyclists probably do not turn somersaults in mid-air unless the initial violence is taken on some other part of the body before they turn over on to the occiput. Furthermore, the occipital region is more completely protected by the helmet, and below that by the neck muscles, than are other parts of the cranium.

Blows on the frontal and lateral regions are much more dangerous, and the figures of deaths and of fractures suggest that the lateral blow is the more dangerous of the two. The lateral regions are not well covered by the present designs of helmet, and the main effect of the blow may fall on the cranium below the level of the helmet. Similarly, the lower part of the frontal region is exposed to blows, particularly when motor-cyclists wear a helmet which is on the small side: in them the main violence may be applied to the unshielded supra-orbital ridge.

Of the 3 cases in which the blow was on the crown of the helmet, one was the result of a mild glancing blow that produced only momentary amnesia. In the other two the blow was severe, and was associated with a crush fracture of the spine. One of these has been already described (Case 7); the other is as follows:

Case 10.—Driver J., aged 20, was following a van at 40 m.p.h. when it suddenly slowed and swung into the middle of the road in preparation for turning left. His cycle struck the near-side mudguard of the now almost stationary van, and he was flung over the handle-bars. He was rendered momentarily unconscious, and had an abrasion on the bridge of his nose, pain in the back, and fractures of metacarpal bones of both hands. No signs developed in the central nervous system, but radiographs showed a crush fracture of the seventh thoracic vertebra. He returned to duty four months after the accident. (Major P. Clarkson's case.) His crash helmet (pulp type) showed numerous pitted and linear abrasions on the crown in an area 20 by 9 cm., extending forwards to the upper part of the frontal region. The patient's story was that his head had struck the back of the van; but this is unlikely, for in one of the abrasions was a fragment which was identified as road metal. In the inner sling of the helmet the stitches holding the two anterior loops to the outer shell were completely torn through.

It is significant that this case and Case 7 are the only two cases in the series in which a fracture of the vertebral column was found. However, the incidence of spinal column and spinal cord injury in motor-cycle accidents cannot be properly assessed without including a study of those patients who die soon after the accident and before they reach hospital; and in these cases thorough post-mortem examination is rarely made. In a series of 46 fatal motor-cycle accidents studied from the records of the Claims Section of one of the Army Commands there were three cases of instantaneous death ascribed, without necropsy, to broken neck. While the evidence is thus not very satisfactory, it does suggest that spinal injury is relatively uncommon after motor-cycle accidents, but that it should be looked for especially in those cases in which the blow is on the top of the head.

Absence of Marks on the Helmet

The value of head protection has been criticized on the grounds that brain damage is produced by violence applied to parts other than the head and transmitted to the base of the skull through the facial bones or the spinal column. In our series there were only 9 cases in which the helmet shell did not bear any marks of a blow, though the patient was regarded as a case of head injury.

Of these cases 5 proved to have had a head injury. In three of them there was laceration of one eyebrow below the crash helmet, which was too small for its wearer. In one case there was evidence of a blow on the leather flap covering the left ear. In the other case the lining of the helmet was broken and it is presumed that there was a blow on the head: this was one of our early cases, seen at a time when we were not yet expert at recognizing marks on the shell.

In 1 case the nasal bones were fractured and the patient did not become unconscious. In 2 cases the patient had a fracture of a limb bone, amnesia of short duration, and no evidence of a blow on the head or face. In these two cases it is possible that there was no brain injury, for amnesia may occur in uncomplicated cases of fracture of the femur in which there is no head injury. In one such case it was possible to demonstrate that, although the patient appeared to respond rationally during the stage of primary shock, he subsequently had amnesia for the greater part of the period. Another possible explanation for these cases is that there may have been a blow in the region of the foramen magnum transmitted through the vertebral column; but in the absence of any evidence of vertebral injury this seems unlikely.

In the ninth case, described as one of concussion, closer inquiry, after we had failed to find any marks of injury to the helmet, revealed that the man had not been concussed but had become amnesic from fright.

Case 11.—Gunner K., aged 27, was admitted to our hospital some two months after a motor-cycle accident suffering from the after-effects of head injury. The story obtained by the medical officer was that the man had collided with a car and that his retrograde amnesia was 1 to 2 seconds and his post-traumatic amnesia 6 hours. His complaints were of fairly continuous headaches, dizziness, and a feeling of weakness on attempting to do physical training. Examination showed no signs in the central nervous system. As his crash helmet bore no marks and he was obviously a rather nervous individual, his history was gone into more closely. Inquiry disclosed that there was in fact no retrograde amnesia and that his post-traumatic amnesia had not begun until half an hour after the injury, and had lasted until he was awakened 5½ hours later by a medical officer, who told him that he had had an accident. With the patient under pentothal, Capt. P. W. Nathan was later able to obtain a connected story of the whole period of amnesia and also fresh information about the man's anxieties and fears, which provided an adequate explanation of his symptoms.

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[*] The number of cases was not large enough to enable us to estimate the relationship of the site of the blow to the duration of amnesia.

It is probable that this case would have remained under a false label if absence of marks on the crash helmet had not led to closer inquiry.

Thus in the 106 accidents we are considering there is evidence of a blow on the head in all but 4. Of these four, one was a case of broken nose and another was a case of amnesia from fright. In the remaining two it is possible that slight brain injury may have resulted from violence applied to the base of the skull through the spinal column, though it is more likely that the brief amnesia which occurred was due to shock associated with fracture of a long bone. These observations do not disprove the contention that brain injury may result from injury to the face or spinal column, but they do establish the fact that in motor-cyclists brain injury is almost invariably associated with a blow on the head, protection against which can be provided by a properly fitting crash helmet.

Damage to the Helmet Lining

In considering the information which can be obtained from knowledge of the site of the blow we have dwelt of necessity on the damage to the outer shell, but it is important to recognize that the protective value of a helmet should rest to a great extent on its inner lining. With blows on the crown of the helmet the slings should absorb the energy of the blows, but they cease to do this as soon as the rider's head comes into contact with the outer shell. Owing to the rarity of blows on the crown, these slings are rarely brought into play; for in pulp helmets, in which it is to some extent possible to judge the strain placed upon them, the slings were broken in only two cases.

Against frontal, lateral, and occipital blows the hatband offers protection in proportion to its power to act as a buffer. This part of the inner lining could be altered with advantage, especially in the frontal region, where blows are most common.

The presence of a cord on the outer surface of the shell has been criticized by Gardner (1941) on the grounds that friction of the cords increases the deceleration of the head, thus rendering the effects of the blow more severe. We agree that the severity of the injury depends largely on the rate of deceleration, and that this rate can be reduced by sliding. Gardner suggested that the presence of the cord increased materially the risk of spinal injury. In our series of 104 cases there were only 2 cases of fractured spine, in one of which the blow was on the crown of the helmet and the cord was intact. We consider that the cord has proved to be an unnecessary feature of the design, and are thus in general agreement with Gardner. But we do not think that it is important in promoting deceleration, because the coefficient of friction between the surface of the helmet and the road, or whatever object the helmet strikes, is not altered adversely by the presence of the cord.

Our main objection to the cord concerns its use in the older type of vulcanized helmets as the connecting link between the inner lining and the shell (Fig. 1). In our series the outer cord was broken in 30 of the 52 vulcanized helmets and in only 9 of the 52 pulp helmets. This difference is significant, and is due to the fact that in the vulcanized type the cord is stretched when the helmet is struck and forced further on to the head; whereas in the pulp type the cord is not stretched as a result of the blow, since each sling, being stitched to the shell separately, is independent of the cord. As the helmet moves along the surface struck, the friction is usually enough to break the stretched cord of the vulcanized helmet, but does not suffice as a rule to break the unstretched cord of the pulp helmet. These effects may be compared with the well-known observation that when string is tightly stretched it can be much more easily cut with a pocket-knife than when it is not under tension.

The Theory of the Mode of Action of Crash Helmets

The chief functions of a crash helmet are two: (1) prevention of local injury in the region of the blow; and (2) prevention of effects remote from the region of the blow—viz., concussion, so-called contrecoup injury, etc.

Prevention of Local Injury.—The shell of the helmet acts partly by spreading the blow over a wider area, thereby diminishing its intensity at any one point. It is in this way, for example, that the helmet protects the scalp and skull from the pointed parts of the object struck, such as the sharp fragments of road metal projecting from the surface of the road. Hence, even by the action of the shell alone, some diminution in the number of fractures of the skull should be expected. In addition, some of the fractures should be prevented from becoming depressed, thereby reducing the liability to dural penetration and damage to the underlying brain. Since, owing to the stiffness of the shell, bending of the skull by the force of the blow is also lessened, there should be less contusion of the brain at the site of impact. The so-called "coup" lesion is, in our view, due to the bending of the skull under the blow.

The shell of the helmet also functions by "lengthening the blow"—that is, by spreading it out over a longer interval of time, so that it is not so intense at any particular instant. However produced, lengthening reduces not only the local injury but all other effects of the blow. The shell accomplishes this by sliding over objects for some time instead of stopping more abruptly, as the unprotected head would do owing to its greater coefficient of friction. But the main way in which the blow is spread over a longer time is by means of the buffering action of the slings and hatband. The blow lasts during all the time that the slings are being stretched or the hatband is being compressed, instead of only during the time taken to deform the scalp and skull. It is consequently reduced in intensity, and the local damage to scalp, skull, and brain is less severe. These parts of the existing types of helmet could be improved.

The blow is also lengthened to some extent by the rotation of the helmet relative to the head.

Prevention of the Remote Effects of the Blow.—The blow produces a change in the velocity of the head which may be either an acceleration or a retardation (Denny-Brown and Ritchie Russell, 1941). Calculation shows, however, that the change in the linear (or straight-line) velocity of the head produces only insignificant effects. The main effects are produced by a change in rotational velocity. As a rule the blow imparts a sudden rotation to the head. This is the cause of all gross bruises or lacerations of the cortex remote from the site of the blow. All the available evidence points to its being also the cause of the concussion. Anything which reduces the force of the blow will tend, other things being equal, to diminish the sudden rotation and its attendant lesions. Spreading the blow over a larger area is not effective from this point of view, since the total force is unaltered. But spreading it over a longer interval of time is to some extent effective, since the total force at any instant is reduced. Hence, owing to the sliding action of the shell and the buffering action of the slings and hatband, the helmet is effective in reducing the so-called contrecoup injuries and concussion.

Observations on the Effects of Crash Helmets

There are three groups of motor-cyclists to be considered: (1) those who die on the road before they can be moved to hospital—approximately 20% of 46 fatalities in one Army Command whose records we examined; (2) those who are

TABLE III.—*Influence of the Crash Helmet on the Incidence of Fracture of Skull and Duration of Amnesia (Hospital Cases only)*

	Acute Cases		Subacute and Chronic Cases	
	No Crash Helmet	Crash Helmet	No Crash Helmet	Crash Helmet
Fracture of Skull	63%	32%	39%	40%
Amnesia:				
Nil	3	1	10	3
< 1 hour ..	6	6	21	14
1–24 hours ..	10	8	53	23
1–7 days ..	2	4	52	7
> 7 days ..	9	2	35	3
Unclassified ..	3	1*	4	—
Totals ..	33	22	175	50

* Death due to causes other than head injury.

admitted to hospital; and (3) those whose injury is so slight that the motor-cyclist is not taken to, or is not detained in, hospital. Our information on the first and third groups is meagre. In the hospital cases there is a very significant difference between the motor-cyclists who were wearing crash helmets and those who were not (Table III).

Fractures.—Fractures of the skull are less frequent: as shown in Table III, of the patients admitted to our hospital in the acute stage only 32% of those wearing crash helmets had a fracture of the skull, as compared with 63% of those not wearing crash helmets. That the subacute and chronic cases do not confirm this finding is probably due, at least in part, to the fact that in those who wore a crash helmet our ability to find fractures long after the injury was considerably increased by knowing, from the marks on the helmet, where to look for them by means of further radiographic examinations.

Such fractures as do occur when a crash helmet is worn are probably much less severe than they would otherwise have been; for instance, the fracture may be fissured instead of depressed, as is perhaps exemplified in Case 4. In this hospital's series of injuries involving the frontal and ethmoidal sinuses, which have been collected by Major C. A. Calvert, there are 34 cases in which it is known whether or not a crash helmet was worn (Table IV). Among those who did not wear a crash helmet severe fractures of the inner table of the skull are common: as the table shows, there are examples of cerebrospinal rhinorrhoea, intracranial aerocele, meningitis, brain abscess, aneurysm of the internal carotid artery, lesions of the optic nerve or chiasm, and displacement of the orbit—in fact, most of the severe complications of extensively depressed fractures involving the frontal and ethmoidal sinuses. The patients who wore crash helmets were all free from these complications, with a corresponding improvement in the after-results. It is true that the chances of a patient being sent from a distance to this hospital are greater if he has one or more of the complications mentioned above than if he has none of them; but there is no selection as between those who have worn crash helmets and those who have not, and the most reasonable explanation of these figures is that the crash helmet is effective in preventing fractures of the frontal sinus from becoming depressed, from spreading widely, and from tearing the overlying dura, events which comprise one of the most important causes of morbidity and mortality among injured motor-cyclists. But to exercise this effect the helmet must come well down over the forehead, and, in view of the number of motor-cyclists who wear helmets which are too small for them, it is rather surprising that the results shown in Table III appear to be so uniformly favourable to the crash helmet.

TABLE IV.—*Damage resulting from Fractures of Frontal and Ethmoidal Sinuses in Motor-cyclists*

	Without Crash Helmet	With Crash Helmet
Anosmia	14	1
Rhinorrhoea	7	—
Meningitis or brain abscess	2	—
Aerocele	1	—
Injury to carotid artery	2	—
Injury to optic nerve or chiasm	4	—
Displacement of eyeball or severe oculomotor paralysis	4	—
Disposal:		
Duty	12	8
Permanently unfit for military service ..	9	1*
Died	3	—
Under treatment	—	1
Totals	24	10

* Owing to malunited fracture of lower limb.

Concussion.—In those patients who were wearing crash helmets, concussion, as measured by the duration of amnesia, was milder than in those who were not. As Table III shows, there is a significant reduction in the length of the amnesia: taking the acute, subacute, and chronic cases together, among the 208 cases in which no crash helmet was worn there were 44 (22%) with an amnesia of more than 7 days' duration; while among 72 cases in which a crash helmet was worn there were only 5 (7%) with an amnesia of more than 7 days.

Hence crash helmets cause a significant change in the percentage of fractures and long amnesias in those patients who come into hospital. The severity of injuries in a hospital population is not an easy thing to alter, and the fact that a detectable alteration has occurred implies that crash helmets have had a profound effect on the severity of injuries on the road. Unfortunately, it is not possible to give a mathematical "proof" that this alteration in severity has been in the direction of making the injuries milder, but common sense tells one that in most directions the change must have been for the better.

Some indirect quantitative evidence as to the effectiveness of crash helmets comes from a comparison between the two types of helmet. In the patients whom we have observed in hospital the distribution of the two types of helmet has been approximately equal (37 pulp and 35 vulcanized), but throughout the Army in this country during the period under investigation the issue of pulp and vulcanized helmets has been in the proportion of 2:1. The reasonable explanation of this is that half the accidents in wearers of pulp helmets were made so much milder than they would have been if a vulcanized helmet had been worn that the patient never came into hospital. The alternative explanation, that the pulp helmet made the accident so severe that half its wearers died before they got to our hospital, is rejected on the grounds that (*a*) the pulp helmet is the better helmet of the two (see below), and (*b*) such an enormous increase in the death rate would be easily seen from the figures of deaths to all motor-cyclists from all causes; these have, in fact, shown a decline since the introduction of crash helmets. No deductions can be made from this decline alone, since it is influenced by so many factors.

The estimate that the pulp helmet alleviates one-half of the injuries to such an extent that the dispatch rider does not require to go to hospital is a minimum estimate, based on the assumption that the vulcanized helmet had no effect in increasing or alleviating injury. But if, as we have reason to believe, the vulcanized helmet is of considerable use, this is an under-estimate of the effectiveness of crash helmets.

Using the minimum figure—that the pulp helmet saved one-half of its wearers from hospital—we can return to the data of Table III, which show that of the 72 hospital patients of all kinds wearing a crash helmet only 16 (22%) had an amnesia of one day or more, whereas of the 208 hospital patients not wearing a crash helmet 98 (47%) had an amnesia of one day or more. If we combine these facts with the supposition that there were at least another 37 pulp-crash-helmet accidents in which the riders never came to hospital because their injuries were so much reduced by their helmets, we obtain the result that the severe amnesias in 100 crash-helmet accidents number only about 15, at most, whereas in 100 non-crash-helmet accidents they number 47. We therefore deduce that the present helmets have reduced the severe amnesias to at least one-third of what they would have been.

Comparison of Types of Helmet

For a direct comparison of the two types we can use our figures for the total number of crash-helmet cases, which include many that did not come to this hospital and in which, since information was sought from all sources, there is a high proportion of fatalities. There were 52 of each type. Table V shows that in the vulcanized helmet group the outer shell is broken with much greater frequency, and skull fracture in cases coming into hospital is nearly twice as common. On the basis of these figures and those of the general distribution of the two types of helmet we may conclude that as regards prevention of fractures of the skull the pulp helmet is about four times as good as the vulcanized. If the vulcanized helmet were of no use in preventing fractures, then the pulp helmet would reduce fractures to one-quarter of their former incidence.

TABLE V.—*Comparison of the Two Types of Helmet*

Type of Helmet	Total	Fracture of Helmet Shell	Fracture of Skull	Deaths	Remarks
Vulcanized ..	52	43	23	5	All due to head injury
Pulp	52	18	12	5	4 died of injuries to parts other than head

There is no significant difference in the duration of amnesias in the two groups of cases. But for this comparison our figures are rather small. However, if we suppose that the serious amnesias in the two groups are in fact equal, then, since there are twice as many pulp helmets as vulcanized helmets in use, the serious amnesias per accident are twice as great in the vulcanized group as in the other.

Conclusions

In all, 106 examples of head injury in motor-cyclists wearing crash helmets have been examined.

The site of the blow on the helmet and the injury to the underlying scalp and skull correspond.

Over 50% of the blows are on the front of the helmet. The least common site of injury is the crown of the helmet.

Blows on the occipital region are least dangerous and those on the temporal region most dangerous to life. Blows on the crown may be associated with crush fractures of the vertebrae.

In 40% of the cases the head receives more than one blow.

In motor-cyclists it is very rare that brain injury results from a blow limited to the face.

The crash helmet is effective in diminishing local damage to the brain and its coverings at the site of impact, and it tends to lower the incidence of cases of prolonged amnesia.

Though our figures are rather small they suggest: (*a*) that the incidence of fractures of the skull is quartered by the better (pulp) type of helmet: the severity of those that do occur is less; (*b*) the incidence of prolonged amnesia (one day or more) is only one-third of that in accidents in which no crash helmet is worn; (*c*) in non-lethal accidents the pulp crash helmet so alleviates the injury that one-half of the dispatch riders who without its protection would have to go to hospital do not need to do so.

Of the two types of crash helmet in common use the pulp helmet is superior to the vulcanized rubber helmet.

Further improvements in the design of helmets offer a profitable field of preventive medicine.

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A practical example of rehabilitation was mentioned at the sixty-third annual meeting of the Mental After-Care Association. The superintendent of one of the homes for convalescent male patients arranged with a local factory doing war work of much importance, first to train him in some semi-skilled processes with light and portable material, and then to send such material to the home in order that he might teach the patients to work upon it. Although this experiment was started only towards the close of last year, already the finished work sent back to the factory by the patients has greatly exceeded the firm's expectations alike in its accuracy and in the speed with which it has been done. Even more gratifying is the beneficial effect apparent in the patients. Their conversation at table is no longer about nerves and insomnia, and the reflection that they are taking some active part in the national effort is a great stimulus to their conversation, self-respect, and mental health. Col. Henry Yellowlees, chairman of the association, said at the meeting that the original object with which the association was founded was curative work, and the council had aimed at turning ex-patients into useful citizens, constructing a bridge over which the patients might pass from the restraints and seclusion of mental treatment to the freedom of responsible working life. Mr R. Sargood, chairman of the Mental Hospitals Committee of the L.C.C., said that his council had no intention of doing this work itself, but was content to leave it in the hands of the association. The Bishop of London also supported the objects of the association (of which 13 bishops are vice-presidents), and spoke of the function of the pastoral office in helping people to regain mental health. During last year the association dealt with 2,500 patients, of whom over 1,000 were sent to the homes.

THE DIET IN DIABETES

BY

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Recent correspondence in the *Journal* has shown that some physicians are doubtful about the necessity for accurate dietetic control in the treatment of diabetes; it follows that they must be prepared to doubt the importance of maintaining the diabetic's blood sugar at a level near to normal. To all those who share this scepticism and to all those who are interested in the study of their less docile diabetic patients I offer, in full consciousness of all that I have still to learn, this short summary of my experience, conclusions, and practice.

Early in my experience as a physician, nearly 20 years ago, I found that it was possible to maintain excellent health and vigour in those rebellious severe diabetics who refused to follow any regulated diet, no matter how liberal it might be. Some of them made no secret of their refusal to follow directions, but others tried (often successfully) to pass themselves off on their doctor as model patients. About 12 years ago I began to approve of the abandonment of strict dietetic control for those patients who found that they could succeed in maintaining a sugar-free urine only at the cost of hypoglycaemic attacks. Finally, during the last eight years I have never (except in the case of diabetes of very recent onset) advised a diabetic patient to eat a regulated diet, and I have often transferred a conscientious but worried patient from controlled to uncontrolled diet without deterioration in his condition. At the present time none of my diabetic patients are on a controlled diet.

General Principles of Treatment

My experience has been that in all cases of diabetes seen by me the maximum attainable degree of health and vigour could be maintained despite a persistently high blood sugar. The chief aim of diabetic treatment seems therefore to be not a sugar-free urine or a low blood sugar but the maintenance of the patient in health and vigour. This can be accomplished in severe diabetes only by insulin. The object of regulation of meals should be not the maintenance of a carbohydrate balance but the avoidance of hypoglycaemic attacks. Glycosuria implies a regrettable waste of good foodstuffs, but an abundant glycosuria is not incompatible with sustained health and vigour.

Overriding all rules should be the maxim that the right line of treatment for each individual diabetic is that line of treatment on which he is best able to maintain health and vigour over a prolonged period. A lifetime of study may be necessary to make sure that years of apparent good health do not conceal the insidious development of arteriosclerotic or degenerative processes. For that reason I make a plea for the prolonged study of the group of persistently hyperglycaemic (but otherwise healthy) diabetics, for in this study lies the final justification or refutation of the need for strict dietetic control.

Insulin

Insulin in solution is usually given in preference to insulin suspension, the chief reason for the preference being that it demands less complicated instructions as to the prevention of hypoglycaemic attacks. In most cases of severe diabetes in adults two injections daily are found to suffice, but in many children a third (evening) injection is required to prevent a morning ketosis. The total daily dose varies with different cases between 10 and 60 units. If the dose is too low polyuria will probably attract the patient's attention, the urine at some periods of the day will contain ketones, and the weight will fall. If the dose is too high hypoglycaemic attacks will occur in spite of the fact that the patient is eating freely and frequently.

Patients are taught to weigh themselves often and to report at once any substantial change of weight. They are also taught that an illness of any sort (especially a pyrexial illness or an illness accompanied by vomiting or dysphagia) must be looked on as a serious threat to life entailing probably immediate admission to hospital.

Diet

The first rule taught to a diabetic is that, while no harm follows an occasional omission of the insulin injection, very grave harm will follow if insulin is injected and no accompanying meal taken. This warning makes it clear to him what he should do if compelled by emergencies to miss a meal. The second rule is that a small carbohydrate meal, which need be no more than a hunk of bread, should be taken between each of the three chief meals of the day. The diabetic taking insulin at breakfast and after his midday meal should always have something more to eat in the middle of the morning and in the middle of the afternoon. This rule safeguards him from occasional attacks of hypoglycaemia, especially those which occur from inevitable postponement of one of his chief meals. The third rule is that unwonted bodily exertion should always be followed by ingestion of a little carbohydrate. This precaution is particularly important for those engaged in intermittent heavy manual work or in athletics.

When the patient is first admitted to hospital the state of coma or severe ketosis so often present on admission is corrected, and then he is allowed to eat as he likes. The calorie content of his diet is calculated in order to observe (and if necessary correct) any marked eccentricities of personal taste, and to make sure that it is not inadequate. As a rule two daily injections of insulin of from 10 to 30 units each are given, and this trial dose is increased if there is not a steady gain in weight or if ketosis appears. Usually at some period the patient (unless elderly) is deliberately allowed to experience a mild hypoglycaemic attack.

Urine-testing is never taught, and those patients who insist on testing their urine are cautioned that a sugar-free urine may be a warning of hypoglycaemia.

Most of my patients eat a diet with a high carbohydrate and a minimal protein content. Gluttony is almost unknown. Many are engaged in fairly heavy manual work and have very irregular hours of duty.

Coma

No clinic has been able to produce statistics of recovery so good as those of Joslin, and his doctrine of plenty of insulin and plenty of intravenous saline summarizes, I am convinced, the decisive measures in the treatment of coma or threatened coma. During the first few decisive hours of treatment insulin and saline are administered in amounts dependent on the rate of improvement in the patient's mental state, respiration, and circulatory condition. During these few hours there is little risk of hypoglycaemia. But if the dosage of insulin has been high hypoglycaemia may readily occur at a later stage, for the duration of effect of a large dose of insulin is much longer than that of an ordinary maintenance dose.

I have found that, once the acute stage of coma has been corrected, there is nothing to be feared from the free administration of glucose in amounts considerably above what is required to prevent hypoglycaemia. Coma must often be treated without facilities for blood-sugar estimations, and it seems to me that the permission to administer glucose freely is an essential simplification of treatment; the physician cannot allow himself to be in the position of feeling uncertain whether cerebral disturbances are due to ketosis or to hypoglycaemia. The young doctor must be taught that it is the profound metabolic disturbance in which untreated diabetes culminates that is the cause of coma, and not the accompanying hyperglycaemia; otherwise he may well look on the precautionary administration of glucose to a patient under treatment for coma as a dangerous procedure, or, even worse, may hesitate to give heroic doses of insulin for fear of a hypoglycaemia which he may not succeed in controlling.

Children

The problem of managing the diabetic child is obviously simplified by allowing frequent feeds of normal composition and administering insulin often enough and in large enough doses to prevent ketosis and achieve a gain in weight. But in one important respect the position as regards dieting in children is different from that in adults. Any child, whether diabetic or not, may overeat grossly on occasion, filling his stomach till he vomits. Such "gorges" in the diabetic child are usually the cause of a stormy attack of coma, not, I suspect, provoked by the absorption of too much carbohydrate but by the vomiting. My impression is that the diabetic child to whom the tasty foods of normal children are not forbidden is less likely to indulge in occasional outbreaks of gross gluttony than the controlled diabetic, but if he does indulge he will suffer for it just as certainly.

Acute Diabetes

It is possible that occasionally diabetes is seen at so early a stage that prompt treatment will avert degenerative changes in the pancreas. Though of course it is not easy to prove that the rare cases of complete recovery under treatment might not have recovered spontaneously if untreated, it is obviously wise in all cases of very recent onset to insist on complete rest in bed and very careful control of the blood sugar by means of insulin and a measured diet; only when the passage of time has made it clear that the condition is an established one should the patient be allowed to resume normal activities and an uncontrolled diet.

The Mild Diabetic

By a "mild diabetic" is meant a patient who is able to maintain as high a level of health and vigour without insulin as when taking insulin. Putting aside the regulation of the diet for such conditions as obesity, my experience is that these patients, the elderly, the obese, the arteriosclerotic, and the hypertensive, are none the worse for a high blood sugar. I am very doubtful of the wisdom of restricting the intake of the mild diabetic. In some such patients a sugar-free urine can be achieved only at the cost of under-nutrition. Yet such patients, if allowed a normal diet, may lead an active life without the help of insulin. The borderline patients, who can live without insulin but are better on insulin, sometimes insist on dropping it for a spell. It is my experience that, when they do this and later consent to start injections again, their (small) insulin requirements are not increased by the period of omission.

It is of course important to warn every mild diabetic of the possibility that acute intercurrent illness may bring about a rapid change for the worse and precipitate diabetic coma.

Complications

When the complication is one the danger of which lies in its tendency to provoke coma—e.g., septic infection—the same line of treatment which is successful in the treatment of coma may be applied to its prevention. When the diabetic has to undergo a major surgical operation the physician's attention should be directed not towards keeping the blood sugar low but towards averting ketosis. Tuberculosis is, in my experience, neither more nor less difficult to treat than in the normal subject.

The aetiology of the retinitis, the cataract, and the arterial thickening so common in elderly diabetics is still unknown. There is not, I think, any evidence as to whether such complications are commoner in patients with persistent hyperglycaemia than in the controlled group. But the evolution of these lesions, once they have appeared, does not seem to be affected by the level of the blood sugar. In so-called diabetic gangrene the level of the blood sugar does not appear to have any effect on the progress of the lesion.

Discussion

Against the conclusion which I have drawn from the sustained good health of diabetics whose diet is not controlled—namely, that adequate insulin dosage and the avoidance of hypoglycaemia are the only essentials in the treatment of diabetes—several arguments may be advanced.

1. It may be argued that the health of my patients would have been still better if their blood sugars had been lower. In reply to this it should be noted that the change from a

measured to a free diet has often been made without deterioration in health or vigour.

2. It may be argued that the patients believed to be eating an uncontrolled diet were in fact unconsciously eating a diet which maintained a fairly accurate carbohydrate balance. This is not so.

3. It may be argued that the insulin requirements of my patients are greater than they would be on a measured diet. This may be so, but, as none of my patients need more than 60 units a day and the majority take between 10 and 40, the point is not very important. (This point would be important if it could be shown that cases of established diabetes under control gradually progressed towards complete cure. This question has already been dealt with in the paragraph on acute diabetes.)

4. It may be argued that in 20 years' time the fate of the surviving uncontrolled diabetics may be worse in respect of late complications than that of the controlled group. That is certainly possible. It is no answer for me to claim (as I do) that over 10 years' observation reveals no evidence of premature arteriosclerosis, for it may be that in the development of late diabetic complications there is a clinically silent stage analogous to that in the development of syphilitic aortitis.

If it were not for this objection I would have no hesitation in proclaiming that the maintenance of a carbohydrate balance was an unnecessary adjunct to the treatment of diabetes. But time will settle the question. Twenty years have already elapsed since the isolation of insulin, and soon many young diabetics treated in the first decade after its introduction to therapeutics will be reaching middle age. It will then be possible to judge between the rebellious and the docile, and for that very reason I wish to repeat my plea for a continued careful observation of the former class.

Summary and Conclusions

A plea is made for the study of the group of severe diabetic patients who refuse to follow any regulated diet but will take insulin. Prolonged study of these uncontrolled but otherwise healthy diabetics will show whether their persistent hyperglycaemia favours the onset of arteriosclerotic or degenerative complications. Observations during a period of over ten years yield no evidence that it does so.

Study of this group has convinced me that regulation of the diet with a view to maintaining a normal blood sugar is unnecessary; this opinion is based solely on the sustained good health of patients on uncontrolled diet. The patient must take enough insulin to prevent ketosis, and arrange his meals so as to avoid hypoglycaemia. If he does this his condition is not improved by maintaining a carbohydrate balance. The mild diabetic who does not require insulin does not benefit (unless obese) from strict dietetic control.

In diabetes of very recent origin it should, however, be assumed that accurate dietetic control will favour whatever chance of complete cure may exist.

Normal (uncontrolled) diet in the child is not associated with frequent attacks of coma. Outbreaks of gluttony in the diabetic child are dangerous and lead to coma, not because they produce hyperglycaemia but because they are followed by vomiting.

In the treatment of coma insulin and intravenous saline are the two essentials. If at any stage the onset of hypoglycaemia is feared, then glucose can be administered freely and without blood-sugar control.

Two grants of £1,000 each have been made by King Edward's Hospital Fund for London to assist in the establishment of two group preliminary training schools for nurses—one at Hampstead to serve a North London group of hospitals, and the other at Blackheath to serve a group south of the river. Additional financial help will be given during the next three years should such further help be necessary. The King's Fund is prepared to consider similar schemes by other groups of hospitals in its area and to make grants up to a total of £5,000 for this year, with assurance of continued help for three years in case of need. Further particulars may be obtained from the Nursing Recruitment Centre, 21, Cavendish Square, W.1.

TREATMENT OF ASTHMA BY NICOTINIC ACID

BY

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Maisel and Somkin (1942) have recently published a preliminary report on the treatment of the asthmatic paroxysm with nicotinic acid. Relief of the paroxysm was obtained in 21 out of 30 cases treated with the drug, either by intravenous injection (16 out of 21 patients relieved) or orally (5 out of 9 patients relieved). Eighteen patients who had received intravenous therapy were subsequently given the drug orally, and 11 of these cases were definitely improved. Neuwahl (1942), who had obtained satisfactory results with the drug in angina pectoris, also used it in 7 cases of asthma in order to note its action on smooth muscle. Of his patients 4 were improved and 3 were made worse. It is not known whether the drug acts by relieving bronchospasm or by affecting the pulmonary vessels, or whether it is converted into or liberates another substance which is the physiologically active agent. Neuwahl suggested a pharmacological similarity to histamine; but, as Maisel points out, this does not appear to explain its action in asthma.

For some months before either of these reports came to my notice I had been treating asthma with nicotinic acid, both during the paroxysm and between the attacks. It was hoped that its action in dilating blood vessels might be accompanied by a similar action on the bronchioles.

Treatment of the Paroxysm

Of 19 cases which received treatment during the paroxysm 7 had had slight or no relief from adrenaline or had relapsed. Most of the attacks treated were severe ones. The possibility was considered that improvement following the treatment might be due to psychological influences associated with coming into hospital and receiving injections, and an attempt was made to control this factor by giving an intravenous injection of sterile water, preferably before nicotinic acid, to 12 of the cases. In some instances a control injection was given in a later attack. The effect of the control injection was then compared with that produced by nicotinic acid. Slight transitory improvement was noted in 7 cases after the use of sterile water. Two patients not included in this series had their attacks completely relieved though they did not receive nicotinic acid. In order to be sure of a rapid action, nicotinic acid was as a rule given intravenously in doses of 50 mg. (half those used by Maisel). One ampoule was dissolved in 10 c.cm. of sterile water and the injection was given very slowly. Two cases received intramuscular injections, and in one of these the dose employed was 100 mg. One case received 50 mg. intravenously and 50 mg. intramuscularly. A second intravenous dose was given to many of the patients during a relapse or a succeeding attack, sometimes within a few hours of the first dose. Six cases, 4 of which had already received nicotinic acid intravenously, were given the drug orally in doses of 50 or 100 mg. (1 or 2 tablets) during a paroxysm.

Results.—The effect of nicotinic acid in 16 of these patients was to produce definite improvement in at least one of the attacks for which the drug was given. In 8 cases the relief was practically complete; in the other 8 there was a residual wheeze for many hours. In all cases adventitious sounds persisted in the lungs—a fact noted by Maisel. Improvement usually began to manifest itself within a few minutes of the injection, the patient falling asleep in many instances and awaking the next morning much relieved. The duration of relief varied considerably and did not always appear to be dependent upon further doses, parenteral or oral. The period of relief was sometimes as short as half an hour, but in other cases there was no further attack for some days, even when the attacks had been frequent before admission. On the whole a relief of several hours was obtained. Further injections sometimes repeated the improvement resulting from the first one, but in 5 cases later injections resulted in little or no relief. This suggests that in some instances the efficacy of nicotinic acid is affected by repeated use, contrary to what is stated by Maisel. It is of course possible that the smaller dosage employed by me might in part explain this difference. Two cases were not improved at all by nicotinic acid. Neuwahl refers to severe exacerbations of asthma which occurred in 3 of his cases. This effect was also seen in 2 cases of this group. One case developed a status asthmaticus 24 hours after an intravenous injection which had given considerable relief and had been followed 20 hours later by an oral dose.

Flushing, tingling, and a feeling of heat appeared within a few minutes of the administration of nicotinic acid, and these symptoms were often pronounced and preceded improvement of the asthmatic attack. Occasionally headache, giddiness, depression, palpitations, and increased tightness of the chest were noted. As Maisel observed, improvement sometimes follows a bout of coughing.

Treatment between the Attacks

In 30 cases, many of which had severe and frequent paroxysms not controlled by ephedrine or stramonium, nicotinic acid treatment was given between the attacks for periods varying from a few weeks to several months. Of these patients 11 had received treatment previously during an acute paroxysm. The drug was given orally generally in doses of 50 mg. two or three times daily. Some cases received 100 mg., particularly on retiring. Children usually received half these doses. It should be noted that Maisel employed oral doses of 200 mg. 3 times daily before meals and once on retiring, but no mention is made over what period such dosage was given.

Results.—The results from this treatment were on the whole favourable. Sixteen cases showed definite improvement as compared with their recent condition before beginning nicotinic acid. This improvement was characterized by a definite reduction in either the frequency or the severity of the attacks and often by both these factors. The period of improvement varied considerably, from a few weeks to several months. Ten other cases showed slight improvement, assessed on the basis of a reduction in the frequency or severity of the attacks or upon the fact that relapse occurred within two weeks of starting treatment. In 4 cases no material change resulted from nicotinic acid therapy. In 9 cases courses of nicotinic acid were alternated with courses of citric acid tablets, the latter acting as a control. The patients were not informed that any change over to different tablets had been made.* In 6 of these cases the effect of nicotinic acid was definitely superior to that produced by the control tablets, the patients generally showing an early relapse when receiving the latter. Two cases, however, were maintained on the control tablets for many months with infrequent attacks. Six cases relapsed rapidly when they were taken off nicotinic acid and received no treatment.

Flushing and the other symptoms produced by nicotinic acid were often present in this group, and two patients abandoned their treatment because of unpleasant effects. It should be noted that several patients in whom the effect of nicotinic acid had worn off responded subsequently to adrenaline and ephedrine, but some were refractory to all treatment.

Conclusions

These results on the whole confirm those of Maisel and Somkin that nicotinic acid appears to be of value in the treatment of the asthmatic paroxysm. The drug when given over long periods also appears to be useful in diminishing the frequency and severity of the attacks. It is necessary to be cautious, however, in assessing the value of any treatment in this condition with such irregular incidence of attacks and susceptibility to psychological influence. Improvement after control injections and tablets illustrates this point. Nevertheless, in the majority of cases in which control therapy was employed, nicotinic acid proved much superior to the control measures in relieving the paroxysms and reducing their frequency. In view of the larger doses given by Maisel and Somkin, it would certainly seem an advantage to increase the dosage above 100 to 200 mg. daily in those cases which do not improve. Yet, although the drug appears to be non-toxic, it can on occasion produce unpleasant symptoms, and the possibility of an exacerbation of the asthma (not noted by Maisel) must be borne in mind. I agree with Maisel and Somkin that at present nicotinic acid should only be regarded as an adjuvant in the treatment of asthma, particularly when adrenaline and ephedrine are proving ineffective or when ephedrine cannot be taken because of toxic symptoms. Further trials with the drug are obviously necessary.

Summary

Nicotinic acid was given to 19 cases of asthma during one or more acute paroxysms in doses of 50 or 100 mg., as a rule intravenously. Definite improvement was obtained in 16 cases. Two cases had marked exacerbations. Control injections of sterile water were usually much less effective.

The drug was given over a long period in 30 cases, 11 of which had already received intravenous therapy. The frequency and severity of the attacks were definitely reduced in 16 of these. The doses used were 50 or 100 mg. 2 or 3 times daily. Half these doses were administered to children. The cases which improved on the drug frequently relapsed when it was discontinued or when they were receiving control tablets of citric acid.

I would like to thank Dr. W. Allen Daley, Medical Officer of Health to the London County Council, for permission to publish this report.

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MENINGITIS DUE TO DIPLOCOCCUS MUCOSUS*

BY

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AND

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McFarlan (1941) has recently described the characters of a capsulated Gram-negative diplococcus which had been isolated from the purulent cerebrospinal fluid of a young man. The man had been first seen on account of bed-wetting and slovenliness, and was found to have scanning speech and intention tremor. Pyrexia and signs of meningitis supervened, but he made a rapid recovery after sulphapyridine treatment. The organism was identified as *Diplococcus mucosus*, originally described by von Lingelsheim (1906, 1908) and isolated by him from the nasopharynx and cerebrospinal fluid. Cowan (1938) had described similar strains isolated from the cerebrospinal fluid of patients after operation for cerebral tumour.

While there is considerable evidence that certain of the nasopharyngeal Neisseria may under favourable conditions give rise to meningitis, the pathogenicity of the capsulated diplococci for man has not been conclusively proved. It therefore seems of interest to report a case in which the causative organism was almost certainly *Diplococcus mucosus*.

Clinical Features

The patient, a man aged 29, with two years' military service, is a driver attached to a field ambulance. On May 24, 1942, he developed a slight sore throat, and the next day a pink macular and papular rash was noticed on the trunk. His throat improved, but he felt vaguely out of sorts during the whole week and the rash persisted. There was no fever during this period.

On May 31 he became suddenly ill with severe frontal headache, pains in the back and limbs, and fever. On admission to hospital a few hours later the temperature was 102° F. and pulse 100. The patient was confused and restless, and complained of intense headache. A profuse pink maculo-papular rash was present on the chest, abdomen, upper part of back, and proximal part of the limbs. No petechiae or purpuric patches were seen. Neck rigidity was present, but Kernig's and Brudzinski's signs were negative. A left divergent strabismus and left-sided ptosis were present, but it was subsequently found that the strabismus had existed since childhood. The pupils were dilated but reacted normally to light. Abdominal and plantar reflexes were normal. There was a leucocytosis of 12,400. Lumbar puncture soon after admission yielded a turbid fluid under increased pressure.

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* The absence of flushing, etc., with citric acid did not appear to be regarded by the patients as indicating a change of treatment.

* A report to the Medical Research Council.

Sulphapyridine was given by the mouth, the initial dose being 2 g. Oral administration was satisfactory, and 9 g. were given in the first 24 hours. The patient rapidly became quieter, and the temperature had fallen to 99.4° F. by the following morning. The general condition was better, the headache less severe, and the mental state normal. The rash had almost completely faded, but petechiae were noted on the anterior aspect of the legs and there was a circular purpuric patch an inch in diameter on the right calf. The ptosis persisted and neck rigidity was still present, but Kernig's sign was negative. Lumbar puncture again yielded a turbid fluid; the pressure was normal. Sulphapyridine was continued in a dosage of 1 g. every 4 hours.

Improvement continued, and during the next few days the rigidity, ptosis, and headache abated. The dosage of sulphapyridine was decreased and the drug was discontinued on June 5, a total of 22 g. having been given. A slight right otitis externa, noticed on June 8, responded quickly to treatment. Convalescence was rapid, and no abnormality was detected on routine examination on June 14.

Laboratory Findings

The cerebrospinal fluid obtained on May 31 was turbid. There were 330 cells per c.mm., mainly polymorphs; protein 240 mg. per 100 c.cm. Fair numbers of Gram-negative diplococci were present, sometimes intracellularly. The opposed sides of the cocci were flattened, but the organisms were on the whole rather larger and more irregular in size than meningococci. Culture of the deposit on blood agar aerobically produced in 24 hours a profuse growth of yellowish mucoid colonies consisting of encapsulated Gram-negative diplococci. The characters of these organisms were as follows:

Morphology.—Gram-negative cocci occurring in pairs with the opposed sides flattened. A capsule was demonstrated by nigrosine and Muir's method.

Growth in Broth.—Diffuse turbidity in 24 hours at 37° C. aerobically.

Agar and Blood Agar, 24 Hours Aerobically.—Abundant growth of low convex, opaque, greyish-yellow round colonies, 2 to 3 mm. in diameter, smooth surface, entire edge, mucoid consistency, undifferentiated. There was no true haemolysis, but the blood underwent a brownish discoloration. Growth was slightly better at 37° C. than at 22° C.

MacConkey's Agar, 24 Hours Aerobically.—Good growth of similar colonies, tending later to develop an effuse periphery and a finely crenated edge.

Gelatin Stab.—Growth along the line of the stab and on the surface. No liquefaction in 3 weeks.

Biochemical Reactions.—Acid, without gas, was produced in glucose in 24 hours, but not in lactose, mannite, sucrose, or dulcite. Litmus milk was unchanged, indole was not produced, and the M.R. and V.P. reactions were both negative.

Pathogenicity.—1 c.cm. of a 24-hour broth culture was injected intraperitoneally into a guinea-pig without effect.

The cerebrospinal fluid obtained on June 1 was still turbid and contained smaller numbers of pus cells, but no organisms were seen in direct films. No growth was obtained on culture. Protein was 80 mg., chlorides 700 mg. per 100 c.cm.

The organism agrees in all respects with the type A form of *Diplococcus mucosus* described by McFarlan, who has discussed the systematic position of these strains and suggests that they are probably variants of the *Neisseria pharyngis* group. Though the evidence points strongly to the present strain being the cause of the meningitis, it would have been more conclusive if the isolation had been made on more than one occasion. Response to sulphapyridine was so prompt, however, that no organisms were found in the second specimen.

We are indebted to the Director-General, Army Medical Service, for permission to publish this report.

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MULTIPLE MUSCLE HERNIAE

BY

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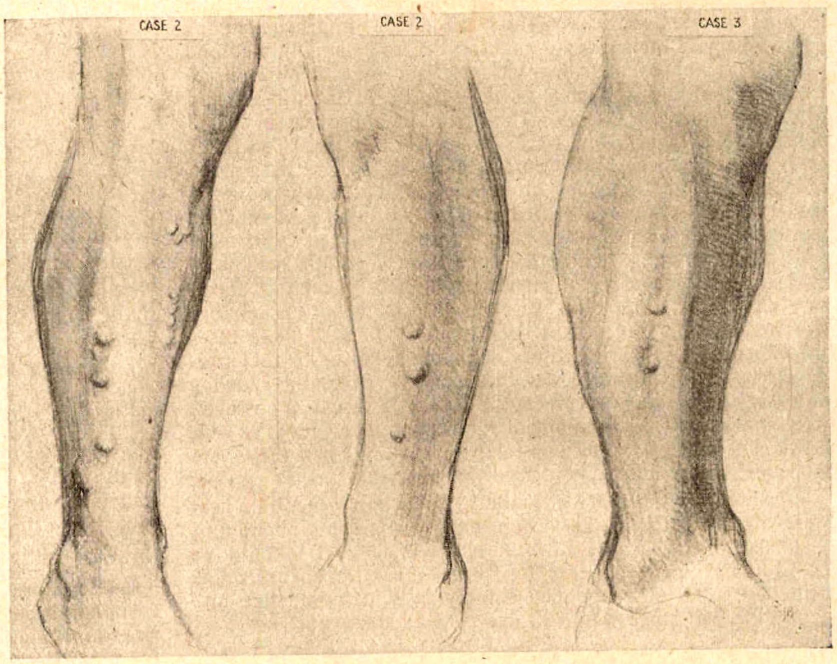
Although from time to time one sees simple muscle herniae, usually of the tibialis anticus, they give rise to little comment, as frequently they cause only slight if any trouble. In most standard textbooks the subject is dealt with very briefly, and few references can be found to it in recent literature. The cases that have been described are mostly those of fairly large single hernia, but bilateral herniae of the tibialis anticus have been recorded.

Ihde (1929), in a comprehensive review of the literature, himself reports 12 new cases, but all those mentioned in the review, including his own, were either single or single bilateral herniae. No case of multiple or multiple bilateral herniae of the lower leg was mentioned. Neither have we been able to find any reference to this condition in later literature. We therefore consider the following three cases of multiple herniae of the tibialis anticus worth recording.

All three patients were soldiers and had been engaged in strenuous training in rough hilly country, and it seems possible that both the nature of the training and that of the country were contributing factors in producing the herniae. This is in accordance with the experience of Hesse (1921), who found muscle herniae rare except in mountainous districts, and of Pichon (Ihde, 1929), who found 39 cases in 217 Alpine soldiers, but only 1 in 1,000 Russian recruits. The herniae we have seen were small—about the size of a pea. All were reducible, and they disappeared when the muscle was contracted, leaving no palpable thickening. The splits in the fascia were distinctly felt. The openings were round and had quite sharp defined edges.



Records of Three Recent Cases

Case 1.—An infantryman was referred to hospital because of aching in both legs, which started during an intensive training course and was attributed to small varicose veins. Previously he had had no trouble, and was not a recent recruit. In addition to the varicose veins, three small reducible muscle herniae about the size of peas were present in the left leg, situated over the belly of the tibialis anticus muscle. The herniae were not tender, and disappeared completely on pressure and when the muscle was contracted.

Case 2 (illustrated).—This patient, an infantryman, was referred to hospital because of aching in both legs and both feet, attributed to varicose veins. He had had no previous trouble, was engaged in a course similar to that of Case 1, and was not a recent recruit. He had no varicose veins, but there were 13 small herniae of the right and 4 of the left leg, all situated over the tibialis anticus muscles. All were reducible, and all disappeared when the tibialis anticus muscles were contracted.

Case 3 (illustrated).—This patient was referred to hospital because of varicose veins. He also was an infantryman and not a recent recruit, and he complained of a "heavy feeling" of the right leg when running. This was first noticed two months previously after a football match, and at that time he observed a small swelling on the front of the leg. Recently he had been taking part in cross-country runs for the first time, and after one run noted the appearance of a second swelling. He had no varicose veins, but there were two small muscle herniae over the tibialis anticus, differing in no way from those in the other two cases.

Discussion

The pathology of muscle hernia is discussed at length by Ihde in his article, and there seems to be no reason why the origin of the small multiple herniae we have found should differ from that of the larger ones which he describes as due to severe strain, with hypertrophy of muscle and weakening and splitting of a previously deficient muscle fascia, as distinct from those which follow direct injury. The only condition with which these small herniae might readily be confused at first sight is varicose veins, but on closer examination the diagnosis is fairly obvious.

One reference only has been found to treatment of a small hernia in this region. Schmier (1937) describes the case of a runner with bilateral herniae over the tibialis anticus muscles, but he does not state the size of the swellings. However, as the man was first seen at a varicose veins clinic they were probably small. Both herniae were treated with repeated injections of sodium morrhuate. This allowed return to strenuous activity without discomfort for a year, when further injections were required to relieve the returning pain; it is doubtful, however, if this method would be suitable for multiple herniae. In the cases we have seen, apart from suggesting modification of duty, no treatment was advised, as the men complained of pain only after strenuous cross-country journeys; otherwise they were fit for all ordinary duties.

It may be that on account of their rarity these multiple small muscle herniae of the lower leg are of no great significance. On the other hand, having seen three cases within a few weeks in soldiers undergoing intensive training we considered them of sufficient interest to warrant a brief report.

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Medical Memoranda

Mantoux Test versus Patch Test

Several papers have been published in recent years on the detection of tuberculous allergy by the patch test. In Monrad's (1936) series of positive Mantoux reactors 5% were negative to the patch test; in Wolff and Hurwitz's (1937) series 1.8%; in Vollmer and Goldberger's (1937) less than 1%; Hart's (1938) first series had 3%, and his second (1941) less than 2%, while Court's (1939) series had 2%. Camille Keresztur (1941), however, showed that 15% of his positive Mantoux reactors were negative to the patch test. It is advisable, therefore, to check up on these findings from time to time, and for this reason the results of an investigation seem worth recording.

INVESTIGATION OF 116 CASES

All the children admitted to the medical wards of a base hospital over a certain period were tested by the intradermal (Mantoux) and the percutaneous (patch) methods. The age varied from 6 months to 12 years. In the intradermal test 0.1 c.cm. of 1 : 1000 freshly prepared old tuberculin was injected into the skin of the forearm: this was sufficient to raise a wheal 8 mm. in diameter. The test was read 24 and 48 hours after injection, and was not considered positive if the resulting wheal or flare was less than 10 mm. in diameter. In carrying out the percutaneous test a tuberculin patch was applied to the chest wall between the scapulae and lateral to the spine after cleansing the skin with ether and allowing it to dry. The patch was removed after 48 hours, and the reaction was read 24 and 48 hours after the removal. Papules or a red flare, or any intermediate stage, were regarded as a positive reaction. The patches used were those of Messrs. Evans Sons Lescher and Webb. The following were the results:

Total number tested	116
Number negative to both tests	74
,, positive ,, ,, ,, ...	34
,, ,, to intradermal and negative to patch test ..	8
,, negative ,, ,, ,, positive ,, ,, ,, ..	0

There was one case of plaster dermatitis. In two cases the patch tests were negative after 24 but positive after 48 hours. These were considered positive reactions. Of the Mantoux tests 10 were apparently positive after 24 hours, but had faded to negative after 48 hours. These were recorded as negative reactions.

SUMMARY AND CONCLUSIONS

The intradermal Mantoux test and the tuberculin patch test were performed on 116 children.

The Mantoux test was positive in 8 cases in which the patch test was negative.

Both tests should be read 48 hours after being applied, to avoid false positives thought to be due to the erythema around the needle puncture. It is important to use a preparation of old tuberculin not more than three weeks old.

It seems likely that different observers employing patches of different make may get variable results. The intradermal method is less liable to diversity and is more reliable.

I am grateful to Dr. Wyllie for his interest in this investigation, and for permission to publish the series; also to the nursing staff for their helpful co-operation.

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Convulsive Treatment of Climacteric Depression

Treatment of cases by electrically induced convulsions was begun in this hospital in March, 1942, and for the nine months ending Dec., 1942, we had the following results in female patients:

	Acute	Chronic	Total
No. of patients treated	43	17	60
Total No. of convulsions	945	349	1,294
No. of patients discharged	*30 (69·9%)	0	30

* Of this total 26 (60·6%) were discharged recovered and 4 (9·3%) were discharged relieved.

The average stay in hospital of all discharged cases was 5½ months—in recovered cases 5⅓ months, and in cases of involutional melancholia 4 months. The classification of these patients, the number treated, and the percentage rate of discharge in each class were:

Diagnosis	Number	Percentage Discharge
Involutional melancholia	25	68
Schizophrenia	19	31·5
Mania	3	100
Psychoneurosis	3	100
Other psychoses, including mixed types, puerperal confusion, and paraphrenia	10	30

The results in schizophrenia are poor. The 31.5% discharge rate noted in this group occurred in cases of very recent onset, and their clinical histories suggested the likelihood of remission with or without special treatment. The course of the illness noted under mania, psychoneurosis, and "other psychoses" seemed also to be unaffected by electrically induced convulsions.

As with other workers, our experience suggested that the best results are to be obtained in melancholia, especially of the involutional type. According to Jessner and Ryan (1942), "rather striking results have been reported in involutional melancholia." This is not surprising, since the case records indicate that climacteric depressives have the most favourable prognosis of our female admissions. It seemed important, therefore, to consider whether treatment by electrically induced convulsions shortened the length of stay in hospital.

The length of illness before the use of this method of treatment was approximately six months. In the group noted above the patients were discharged recovered after an average stay of four months. It would thus seem a reasonable inference that treatment by electrically induced convulsions accelerates discharge of mental hospital patients who are admitted suffering from recoverable depression. Whether this recovery is associated with a greater or less degree of permanence it is too early yet to determine. So far, however, the reduction of time lost in illness from six months to four makes a strong case for the value of this form of treatment for this particular type of case. It has, too, the advantage of comparative safety. In 1,300 convulsions there were only two minor accidents: one a dislocation of the jaw, and the other a subluxation of the shoulder-joint.

I wish to thank Dr. George Somerville, medical superintendent, West Ham Mental Hospital, for permission to publish these results.

West Ham Mental Hospital. ELIZABETH P. DODDS, M.B., Ch.B.

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Treatment of Intestinal Carriers of the Enteric Group of Organisms

The following note on the results of the use of sodium iodophthalein in enteric infections may be of interest.

CASE HISTORY

A girl aged 16 was admitted to the local fever hospital on Sept. 24, 1941, after an illness of ten days. She complained of abdominal pain with constipation. The temperature was 98.8° and the pulse 90. Some ten to fifteen typical "rose spots" were present over the chest and abdomen, and there were one or two on the back. The following day blood and faecal specimens were sent for bacteriological examination. The Widal reaction was positive to *Bact. paratyphosum* B infection, while the faecal specimen showed the presence of the same organism. Progress and convalescence were uneventful. Her stools, however, examined at weekly intervals, persisted in giving growths of the organism for 22 weeks despite the use of such drugs as hexamine, salicylates, bismuth c̄ salol, and vegetable carbon.

Reading of Saphir and Howell's (1940) successful treatment of a carrier of *Bact. paratyphosum* A with sodium iodophthalein (opacol), it was decided to try the effect of the drug on this carrier of *Bact. paratyphosum* B. The technique and dosage were identical with those used in *x*-ray examination of the gall-bladder. Two doses were administered, with an interval of a fortnight. The faeces remained positive after the first dose, but after the second dose three specimens taken at five-day intervals were returned negative.

The patient was discharged on March 13, 1942, after spending 24 weeks and 3 days in hospital—i.e., 26 weeks after the onset of the illness.

Since treating the above case I have had an opportunity of watching the effect of sodium iodophthalein in seven cases of *Bact. typhosum* infection. The essential points may be tabulated thus:

Case	Age (years)	Number of Weeks of Infection before Administration of Opacol	Number of Doses Required
1	38	10	2
2	11	14	1
3	13	15	1
4	17	10	2
5	8	10	3
6	23	7	2
7	54	5	2

All the patients were discharged after repeated negative stools.

COMMENT

The above is a method of treating medically intestinal carriers of the enteric group of organisms and should be tried before submitting the patient to any operative procedure.

Two doses of sodium iodophthalein are usually required.

The last two patients were members of the staff and were given the drug early in order that they might return to duty, thus saving man-power.

My thanks are due to Dr. S. K. Young, M.O.H., for permission to publish these cases.

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Reviews

SHOCK

Shock. Its Dynamics, Occurrence and Management. By Virgil H. Moon, M.Sc., M.D. (Pp. 324; illustrated. 21s.) London: Henry Kimpton.

Why the first use of the word "shock" in medicine should be "credited" to this person or that is a mystery: many workers in this field to-day feel that it would be more fittingly debited. Seldom has so much confusion been due to so small a word, and monosyllabic at that: ignorance is usually cloaked in polysyllabic Latin derivations. The ancients from their fleeting glimpses of the unicorn described it with the legs of a buck, the body and head of a horse, and the tail of a lion; but we are still uncertain whether they described one animal or three. Dr. Virgil Moon admits the confusion between "shock" and the effects of haemorrhage, but considers shock to be an entity. In this new book (which supersedes his previous monograph, *Shock and Related Capillary Phenomena*, published in 1938) he believes still that this fabulous concept may be caught in the net of yet another definition. An essential property for catching the unicorn was a virgin, before whom it would lie down and allow itself to be apprehended. The ancients ascribed their notable want of success to the difficulty of finding a virgin. Our own failure with the shock problem, though perhaps partly due to the entertainment of preconceived ideas, can be more properly ascribed to too little of the right kind of experience. Virgil Moon, however, has no lack of experience in this field, and in the space of 324 pages, with the help of 437 references, he tries to tame the animal.

The author discusses at length the role of anoxia, toxaemia, local loss of fluid, nervous stimulation, anaesthesia, and adrenal dysfunction in the genesis of shock, and points out that confusion arises on four main points: lack of knowledge of capillary physiology, failure to pursue pathological inquiries, unrecognized sources of error, and a belief in the identity of shock with the effects of haemorrhage. We would point out a fifth: the application of results obtained by animal experiment directly to man. For instance, he states (p. 262) that "haemodilution occurs *immediately* after haemorrhages," having previously cited two references to animal experiments. If this were so in man, it might be useful in differentiating haemorrhage from some types of "shock," but recent work has shown that it may not occur for several hours. A great deal of stress is laid on capillary pathology—14 out of 19 photographs depict the lung. There is at the moment an unparalleled barrage of investigation directed on the "shock" section of the research front, and many of the views expressed herein will doubtless have to be modified as a result. This in no way, however, detracts from the value of this monograph, which sets out clearly the present point of view of an experimental pathologist, and poses numerous points for energetic argument and examination, together with many useful references.

OPHTHALMIC TREATMENT

The Ophthalmic Prescriber's Codex. By Francis E. Preston, D.O.M.S. (Pp. 176. 10s. 6d.) London: H. K. Lewis and Co. 1943.

In the *Ophthalmic Prescriber's Codex* Dr. F. E. Preston brings together an imposing mass of prescriptions, a guide to treatment, and much pharmacological knowledge. The section dealing with prescriptions covers about one-third of the book and is a full ophthalmic pharmacopoeia interspersed with concise and useful information on dispensing. It is conveniently arranged, and its value is enhanced by the fact that it gives both metric and imperial weights and measures. As this section is probably the fullest ophthalmic pharmacopoeia available, its usefulness can hardly be questioned. Nor can there be any cavil at the concluding 50 pages of the book, which give in readily accessible form such despised but essential things as lists of abbreviations in common use, normal values of various body fluids, posological tables, lists of incompatible drugs, weights and measures equivalents with conversion tables, and much other information besides. There are specially valuable sections on buffered ophthalmic solutions and on the sulphonamides.

It is the middle section, dealing with treatment, that is open to criticism. Those who like tabulated lists of therapeutic measures will find this section exhaustive enough, but the reviewer would have liked more recognition of masterly inactivity and plain confession of therapeutic impotence. It is, however, only right to stress that the treatments suggested show a wide acquaintance with modern methods, and Dr. Preston no doubt meant this section to be a reminder rather than oecumenical.

NURSING IN THE TROPICS

Tropical Nursing. A Handbook for Nurses and Others going Abroad. By A. L. Gregg, M.D., M.Ch., B.A.O. Second edition. (Pp. 185. 6s.) London: Cassell and Co.

This handbook describes the symptoms, signs, and treatment of the commoner and more important tropical diseases from the standpoint of their practical nursing, the diseases being arranged in alphabetical order so that reference is easy. A section also deals with the technique of the simpler diagnostic and therapeutic procedures that a nurse in the Tropics may be called upon to carry out, for in the Tropics a nurse may have to do many things that at home would normally be performed by one of the junior medical officers. There is also a chapter on personal hygiene, which gives many useful hints to the nurse who may be about to take up her first appointment abroad.

The book is of convenient size, well printed, and free from serious errors. It will be of considerable value to those who—for example, now in military service—may be meeting tropical diseases for the first time, and to those whose work takes them to remote areas abroad where they will have to rely largely on their own knowledge, judgment, and initiative. It is moderately priced and should continue to enjoy its already well-deserved popularity among nurses dealing with tropical diseases.

Notes on Books

LANGDON-BROWN and HILTON'S book *Physiological Principles in Treatment* is now 34 years old, and reading it one has much the same impression as in reading *Hamlet*, that one has heard it somewhere else before. But this is really the highest praise one can give, for it shows that, as a result of this book and others of the same kind, the profession is now more physiologically minded than when Dr. Langdon Brown (as he then was) first wrote it. Indeed the very success of such books may diminish the demand for them. To-day the need is for a greater application of psychological ideas in medical treatment and for more applied physiology in the factory, the armed Forces, and in preventive medicine rather than at the bedside. There are one or two changes we should like to see in future editions. The newer alkalis, magnesium trisilicate, aluminium hydroxide, and aluminium phosphate, receive less attention than they deserve, and the biochemical basis of action of the sulphonamide drugs might have been more fully discussed. It is also doubtful whether wartime decreases in diabetes mellitus are due to restriction of carbohydrate, for there is a good deal to suggest that the incidence of diabetes is more closely correlated with the consumption of fat than of carbohydrate. These are minor criticisms, however, and the book is aimed at a worthy target. It does not make the mistake of Macaulay or the Americans of over-estimating the time and capabilities of the average student, and it tells him just as much as he ought to know if he is to preserve the physiological outlook through his first overwhelming clinical years. The publishers are Baillière, Tindall and Cox, and the price is 12s. 6d.

The appearance of the fifteenth edition of *Stedman's Practical Medical Dictionary* (London: Baillière, Tindall and Cox; 42s.) barely three years after its predecessor is clear evidence of the demand for this well-known reference book. In its preparation the editor, Dr. S. T. Garber, must have had a more than usually arduous task. Not only has the dictionary been brought up to date, but it has been entirely reset in a new type, chosen, after much deliberation and exhaustive tests, for its legibility and clearness—and that it possesses these qualities we certainly agree. The section on that ever-expanding subject the vitamins has been revised, and many new biochemical and chemotherapeutic substances are described. The entire terminology of the bacteria, too, has been revised to agree with the type-species concept incorporated in the International Rules of Botanical Nomenclature, and cross-references are made from the older to the newer titles. Fresh illustrations have been included and some old ones replaced. The introductory article on medical etymology will continue to appeal to the more literary-minded; and another useful section that has been retained is the nomenclature in Latin and English adopted by the Anatomical Society of Great Britain and Ireland, with B.N.A. equivalents. Those who do not allow themselves to be unduly disturbed by American spelling will welcome the latest edition of *Stedman's*.

Preparations and Appliances

SOME USEFUL OPHTHALMIC SULPHONAMIDE PREPARATIONS

Dr. I. LLOYD JOHNSTONE (Worcester) writes:

Considerable attention has been given to the subject of local application of sulphonamides in ophthalmology. The early idea that this class of therapeutic agent was without effect when topically administered is no longer tenable. Without going into a review of the literature reference may be made to the work of Robson and Scott (1942), using sulphacetamide on experimentally produced corneal ulcers, and to an earlier clinical study of hypopyon ulcer effectively treated with sulphapyridine or sulphanilamide powder, or with soluseptasine as drops or by subconjunctival injection (Johnstone, 1941).

A need has been felt for a vehicle for these drugs which would keep them in contact with the diseased tissues in sufficient concentration and yet not insulate them. Such vehicles have been found, but, unfortunately, are in short supply. Messrs. May and Baker have made a sulphathiazole ointment (10%) in a soft wax base, and Messrs. Boots (Nottingham) an ointment of sulphacetamide (10%) in a water-miscible base of the appearance and texture of a cold cream. Both of these products are proving useful in various types of blepharitis, from acute abscess of the lid to the extremely chronic blepharitis with slight redness, itching, and scaliness of the lid margins. A case of dermatitis of the face from constant bathing with tears in a child with phlyctenular keratoconjunctivitis cleared up quickly with the sulphathiazole (thiazamide) ointment after being resistant to other forms of treatment.

Burns of the lids can be treated with the sulphacetamide cream, while burns involving the globe need an oily emulsion of the same drug. Unemul (Universal Emulsifiers Ltd.) has been used as an emulsifier, but there is difficulty in getting a stable emulsion unless a homogenizer is employed. A useful prescription is: sulphacetamide solution (from a 30% ampoule) 10%, water 25%, glycerin 30%, unemul 5%, cod-liver oil to 100%. Atropine sulphate (1%) must be added when the cornea is involved.

The dramatic effect of sulphapyridine in ophthalmia neonatorum will bear emphasis here. One-eighth of a tablet given with or after each feed will clear the condition in 48 hours. The treatment should be continued for a further 24 hours after apparent clinical cure. If this treatment is started early there should be no need to send a case to hospital. Local treatment of the eyes is reduced to a minimum. While discharge lasts it should be gently bathed away with cotton-wool pledgets soaked in warm saline. This should be repeated just often enough to prevent the lids from sticking. A drop of liquid paraffin or of 5% argyrol may be instilled each time, but so effective is the sulphapyridine that the drops can generally be omitted except as a memorial tribute to the past.

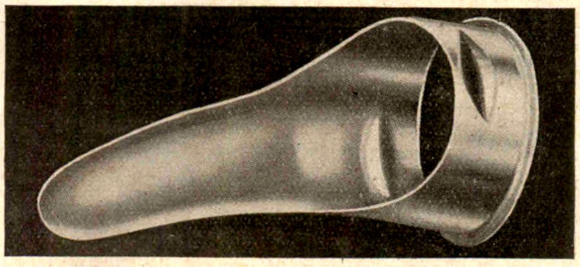
REFERENCES

Johnstone, I. L. (1941). *British Medical Journal*, **1**, 887.
Robson, J. M., and Scott, G. I. (1942). Ibid., **1**, 5.

MOUTH GAG FOR LARYNGOSCOPY

Surgeon Commander H. PARRY-PRICE (Banbury, Oxon) writes:

I enclose an illustration of a mouth gag that has been made at my suggestion by Messrs. A. Charles King as an aid to direct laryngoscopy. Some patients have awkward gaps in the upper front teeth, and some difficulty may be experienced when passing a laryngoscope for direct-vision intubation. There is a gutter into which the teeth fit, and the spatula-like end controls the tongue. I find that with a preliminary spray of 2% percaine, followed by pentothal intravenously, it is perfectly easy to insert this prop and pass the tracheal tube.



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NERVE REGENERATION

In addition to its intrinsic interest, the subject of nerve regeneration becomes increasingly important in time of war, and it is good to know that British workers are to the fore in attempts to solve the numerous theoretical and practical problems that arise in connexion with it. There is an extensive literature on the subject, as many as 928 papers being collected by Rossi and Gestaldi[1] up to 1934. Most of these lay emphasis on regeneration from the point of view of histology or function, but few studies have combined the two. In a recent review Young[2] has pointed out that the functional recovery of a regenerated nerve becomes complete only when the fibres are of a certain diameter and state of medullation, and can carry impulses of appropriate frequency and velocity. On this premise Holmes and Young[3] put forward six factors which may affect the success of secondary nerve sutures: (1) The first is the power of the central stump to send out new fibres. They find that this power is not affected when the axons are cut twice, either within a few days or nearly a year after the original injury. (2) The second is the power of the stumps to unite. This depends upon the outgrowth of Schwann cells from the peripheral stump. This outgrowth is at a maximum about two to three weeks after section of the nerve. There is evidence that union made after this interval is somewhat more successful than after primary suture. From about 100 days onwards the power of union declines, and long delays of union are less likely to succeed than primary suture. (3) The total diameter of the peripheral stump shrinks in the later stages of degeneration, sometimes by as much as a half. This fact makes a good suture difficult to effect and militates against the successful re-entry of fibres into the peripheral stump. (4) The shrinkage of the lumen of the Schwann tubes results in fewer fibres entering each one, and this in turn diminishes the chance of successful re-connexion. (5) After delayed suture, medullation is delayed in the peripheral stump and the fibres remain of small diameter for much longer than after primary suture. (6) The factor of re-innervation of end-organs is of great importance. Holmes and Young conclude that the process of the union of stumps and the regeneration of a new functionally efficient stretch of nerve are less satisfactory after the longer period of degeneration. Postponement of suture for one or two months does not prejudice the chances of recovery and may even improve them. Longer delays, especially those greater than six months, bring about conditions which are likely at least to retard recovery and may permanently prevent it.

Weddell[4] has correlated both the macroscopical and microscopical appearance of regenerating nerve fibres with the diminution of the area of sensory loss following interruption of nerve in the rabbit's ear. He finds that nerve fibres first advance along the original main nerve fasciculi. The first fasciculi to be re-innervated are those lying in closest proximity to normal nerve trunks. He has also found that cutaneous nerve bundles close to the larger blood vessels are more rapidly re-innervated than those further away. This, it should be emphasized, is distinct from the extension of adjacent normal fibres which also occurs towards the area of sensory loss. When the nerve trunks have become re-innervated the fibres pursue a tortuous course through the cutaneous plexus towards the skin surface. The finest visible endings of the nerve fibres are associated with Schwann cell pathways, which retain the pattern of the cutaneous plexus in the normal ear. On no occasion in the rabbit's ear has the tip of a regenerating nerve fibre in the cutaneous nerve plexus been seen pursuing a course independently of a Schwann band.

In a recent publication Weddell[5] observed that cutaneous sensory spots are each innervated by multiple nerve fibres. He suggests, therefore, that during the course of regeneration these will arrive at each separate spot at different times because they approach it from different directions, and the ultimate courses followed by the individual fibres will necessarily be of different lengths. Thus there will be a phase during regeneration in which each sensory spot is innervated by a single fibre instead of by multiple fibres. Such a stage in regeneration has now been found to occur, and hence the physiological findings of Trotter and Davies[6] are seen to have an anatomical basis—that is, if the process of regeneration of cutaneous nerve fibres in the ear of the rabbit can be assumed to be similar to that in man. The more rapid regeneration of nerve fibres along blood vessels is also in accord with the observations of Trotter and Davies, who observed that vasomotor control returned more rapidly than skin sensation. These phenomena evidently play some part in the process of diminution of areas of sensory loss which are observed clinically to take place from the periphery towards the centre of a degenerated area rather than from the centre outwards. In contrast with this mode of innervation the return of skin sensibility in regions not surrounded by areas innervated with normal nerves, such as the digits, is by an advancing wave of sensory recovery along the line of the cutaneous nerves supplying the skin. A similar phenomenon occurs in the rabbit's ear after complete denervation. The more rapid regeneration of cutaneous nerve fibres in the neighbourhood of blood vessels may serve to explain the bridges of cutaneous sensibility which are commonly found, in man, to cross an area of sensory loss during the course of regeneration from the proximal stump of the divided nerve.

The process of nerve regeneration throughout an area of skin involves first the rapid regeneration of nerve fibres along the main subcutaneous nerve trunks, and it is only at a later date that fibres extend from these trunks towards the skin by way of cutaneous nerve plexuses. In other words, regenerating nerve fibres ramify in the subcutaneous tissues some time before they give extensions to the skin itself. This is important from the point of view of nociceptive sensory tests which are used to determine the progress of sensory recovery. For instance, it has been found in clinical cases that " deep pricks " (2 to 3 mm. deep) will arouse pain in an area which is still anaesthetic to lighter pricks (1/2 to 1 mm. deep). This furnishes an explanation for the statement that one of the earliest indications of recovery of skin sensibility is pain caused by pinching the skin, for this manipulation necessarily includes the subcutaneous tissues. The importance of using standard instruments, which will give approximately constant stimuli from day to day in the same patient, cannot be overemphasized if a true picture of the course of sensory recovery (nociceptive) is to be obtained.

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[1] *Rev. Path. Nerv.*, 1943, **43**, 1.
[2] *Physiol. Rev.*, 1942, **22**, 318.
[3] *J. Anat.*, Lond., 1942, **77**, 63.
[4] Ibid., p. 49.
[5] *Proc. roy. Soc. Med.*, 1941, **34**, 776.
[6] *J. Physiol.*, 1909, **38**, 134.

The work reviewed above has demonstrated the process of peripheral nerve regeneration in detail and has accounted in some measure for the clinical observations made on functional recovery. After complete division of a nerve early suture is important. In cases of incomplete division or neurapraxia (Seddon[7]), a most careful assessment of the damage done is essential before operative intervention is decided upon. To this end Guttman[8] has shown the value of the thermoregulatory sweating test, which gives a clear indication of the amount of autonomic damage in the cutaneous nerve. More recently Weddell, Feinstein, and Pattle[9] have shown that an accurate assessment of the injury to a peripheral nerve supplying a voluntary muscle can be made by electromyography. It is to be hoped that by combining these two procedures with a clinical examination the treatment and prognosis of peripheral nerve injuries will advance considerably.

To complete the picture of work in progress on nerve regeneration we will refer briefly to the less familiar problem of fibres in the central nervous system—a matter recently investigated by Le Gros Clark.[10] In 1910 Tello[11] implanted fragments of peripheral nerves in the brain. He claimed that regenerating fibres were seen in the graft, and in some sections could be seen penetrating the perineurium from the tissues of the host brain. Tello concluded that the Schwann cells were a source of a specific neurotropic substance which attracted fibres from cerebral neurones to grow towards them. Le Gros Clark, on the other hand, found a few regenerating fibres within his implanted graft in only 3 out of 13 experimental animals. In two cases regenerating nerve fibres were traced to a fasciculus accompanying newly formed blood vessels which approached the graft from the tissues of the host brain. In one case regenerating fibres within the grafted nerve fragment appeared to have entered the latter from the tissues at the surface of the brain. In no instance could regenerating fibres be traced into continuity with the fibres of the host brain, though the possibility of such a derivation could not be excluded. In some experiments many fibres of the surrounding white matter were disposed in fasciculi orientated towards the graft. This appearance was due partly to traction in the host tissue by the graft and partly to the dislocation of pre-existing fibres by a cellular infiltration. In two experiments spinal ganglia grafted into the brain showed great regenerative activity. Many fibres were found to penetrate into a zone of cellular infiltration separating the graft from the tissues of the host brain. However, no regenerating fibres from the host brain were found to extend into this zone towards the graft. It is concluded from these careful and detailed observations that the intrinsic fibres of the host brain have little if any regenerative capacity compared with peripheral nerves.

Sugar and Gerard[12] reported evidence of regeneration after section of the spinal cord in foetal and newborn rats. However, it is well recognized that the central nervous system of the newborn rat is very immature, and the postoperative growth of nerve fibres may well have been due to the developmental outgrowth of axons which would be proceeding normally at this time. These authors also cut through the spinal cord in young rats aged 3 to 5 weeks and in some cases reported regeneration across the scar. But, as is pointed out by Le Gros Clark, the anatomical evidence for this is not easy to assess; the consistency of the white matter of the central nervous system makes it difficult to produce clean lesions experimentally, and the fibres which appear to cross the scar at the site of lesion may be the frayed ends of the pre-existing fibre bundles pulled out of their normal position and left overlying the line of the knife cut. In addition to this the central nervous system of young rats even a few weeks old is relatively immature. Mitoses in the spinal cord reach their height in white rats about the 7th day after birth. It seems probable, therefore, that axons within the central nervous system do not regenerate once they are mature. It is also clear that the explanation for this is not to be sought in the absence of Schwann cells in the central nervous system but in other factors. Tower[13] has lately shown that the anterior horn cells in the spinal cord, when avulsed, can send out new axons along paths devoid of Schwann cells. There seems to be some factor related to all peripheral nerves which is absent in the intrinsic neurons of the central nervous system.

RESPONSIBILITY OF A PSYCHOPATH

The shortcomings of the "rules in M'Naghten's case" were again demonstrated in a recent trial for murder at the Old Bailey (Rex *v.* Lees-Smith). The defence alleged that the accused's act had been due to mental deficiency. Lengthy medical evidence was given concerning a number of laboratory tests which were applied to the prisoner. The witnesses found, in short, that he suffered from a congenital constitutional defect of development, manifesting itself as emotional immaturity, poor physique, and minor abnormalities of the central nervous system. He did not necessarily suffer from epilepsy, and in their opinion he suffered rather from psychopathic personality. They gave evidence that when his blood sugar was low and he overbreathed a change occurred in his brain whereby his judgment was impaired and his full perception of events was distorted. Before committing the crime of matricide he had drunk four pints of beer. A similar quantity given in the laboratory had the effect of lowering his blood sugar and aggravating his abnormality. The medical witnesses concluded, in terms of the M'Naghten rules, that when he killed his mother he knew what he was doing and that it was wrong, but his brain was functioning abnormally so that he was unable fully to appreciate the nature of his act.

The learned judge explained clearly to the jury the meaning of the M'Naghten rules, but in spite of his direction they found the prisoner guilty but insane. Everyone concerned with the case realized that the prisoner would almost certainly have been reprieved on the advice of the Home Secretary. The defect of the M'Naghten rules, which are now just 100 years old, is that they do not provide for the criminal who knows what he is doing and knows that it is illegal but, owing to a diseased or defective mind, cannot restrain himself from doing it. Many murderers have in fact been hanged in spite of strong evidence that their mental state had deprived them of self-restraint, and perhaps as many have been found guilty but insane in face of the M'Naghten rules. These rules were laid down by the common-law judges in 1843, and knowledge of human psychology has much advanced in the last hundred years. In 1924 Lord Darling introduced into the House of Lords a Bill to provide for the defence of "irresistible impulse," but it was opposed by several Law Lords and its mover withdrew it. The general feeling among lawyers seems to be that many criminals who richly deserve death would be able to persuade a jury that they had acted under an irresistible impulse. Persons who feel in this way perhaps underrate the capacity of juries to assess the medical evidence wisely and to reject a plea of this kind if the accused does not clearly show that his mental abnormality had robbed him of responsibility. They may also forget that the consequence of such a finding would not be acquittal but detention as a criminal lunatic. In the 1924 debate Lord Haldane said he had never heard of the M'Naghten rules embarrassing any judge when justice required an acquittal, and that there need be no fear that anybody who had acted under an impulse he could not resist was likely to be hanged. This *Journal*, commenting on the matter at the time,[1] said there were surely objections to a procedure by which prisoners are sentenced to death when, as Lord Sumner observed, the exercise of the prerogative of mercy is as certain as that the sun will rise the next day. The same comment is equally applicable to the present case. The law contains too many archaisms of this kind, and in too many important respects has fallen out of touch with reality. Doubtless this is an important factor in the ominous shift of power from the courts to the administrative departments which has marked the last two decades.

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[7] *British Medical Journal*, 1942, **2**, 237.
[8] *J. Neurol. Psychiat.*, 1940, **3**, 197.
[9] *Lancet*, 1943, **1**, 236.
[10] *J. Anat.*, Lond., 1942, **77**, 20.
[11] *Trab. Lab. Invest. biol. Univ.*, Madrid, 1911 **9**, 123.
[12] *J. Neurophysiol.*, 1940, **3**, 1.
[13] *Arch. Neurol. Psychiat.*, Chicago, 1943, **49**, 1.

THE CONTAMINATED INJECTION

In 1928 a doctor in Bundaberg, Australia, used diphtheria prophylactic from a rubber-capped bottle of toxin-antitoxin which contained no antiseptic. Each time he wanted some more prophylactic he plunged the syringe needle through the rubber cap and took the required amount from what was left in the bottle. The material thus became contaminated with successive use, and of 21 children who were given injections of prophylactic on one day, 12 died of staphylococcal toxaemia caused by staphylococci which had been accidentally introduced into the bottle and had grown there. Bottles containing remnants of the same batch of prophylactic were then obtained from 33 doctors, and the fluid in 10 of these bottles was found to have become contaminated during use. Inadequate cleansing of the cap, non-sterile needles, or germ-laden air were suggested as possible causes. Every doctor in his daily work uses bottles containing several doses of prophylactic, or local anaesthetic, etc. To withdraw fluid through a rubber cap he must relieve the "vacuum" caused by the previous withdrawals; he therefore injects air with his syringe. The Australian Royal Commission, in its report on the fatalities at Bundaberg in 1928, described some experiments with these multiple-dose bottles. Sterile broth was put into sterile rubber-capped bottles, and a quantity of atmospheric air was forced through the cap with a sterile syringe. When this was done in a quiet room there was no contamination of the broth in the bottles, but when it was done in a dusty room with a ventilating fan running, the broth in 6 out of 11 bottles was found to contain bacteria. Air from a dusty room was next blown into bottles containing broth and 0.5% of phenol, but none of the broth showed any bacterial growth. It seems reasonably safe, therefore, to blow ordinary air into material which contains antiseptic in proper amount. Almost all medicaments in rubber-capped bottles have some antiseptic, but this is not enough to kill any spores that may be introduced through faulty technique. To make the procedure as safe as possible—alike for fluids with little antiseptic or none, and in unusually dust-laden air—some simple method might be devised for filling the syringe with sterile air. The sterile syringe needle might be buried in a tightly rolled sterile plug, or pushed through a rubber diaphragm of a sterile glass tube with a sterile stopper at the other end. This may seem a cumbersome procedure, but may be well worth remembering in special circumstances: the Australian doctors in their ordinary daily work contaminated 30% of the bottles of prophylactic.

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[1] *British Medical Journal*, 1924, **1**, 922.

VITAMIN C AND CARBOHYDRATE METABOLISM

The relation of vitamin C to carbohydrate metabolism has often been investigated in the past few years. The reports so far are rather contradictory, though the majority of them suggest some sort of a relation. The method of investigation usually employed was a measurement of either the fasting blood-sugar level or the sugar-tolerance curve after administration of the vitamin. Most workers reported a fall of blood sugar; some failed to notice any change, while a few even observed a rise. A change of blood-sugar level resulting from the administration of the vitamin can hardly be taken as conclusive evidence of the latter's relation to carbohydrate metabolism, for the change might be the result of a lowering of renal threshold, or be due to the influence of some other mechanism following administration of the vitamin.

Recently from the Bispeljerg Hospital, Copenhagen, have come two more reports indicating a lowering of blood sugar after administration of vitamin C. The first work[1] involved a measurement, after intravenous injections of vitamin C, of the change in fasting blood sugar in hospital patients with normal blood-sugar levels. A control was obtained by giving the same patients injections of plain water. Vitamin C caused a fall of blood sugar in the majority of the cases examined. The magnitude of the lowering, however, bore no relation to the initial vitamin C content of the blood, nor did it correspond with the variation in the concentration of the vitamin in the blood after injection. As pointed out above, these observations by themselves are insufficient proof that the vitamin is directly related to carbohydrate metabolism. The second paper[2] refers to glucose-tolerance tests on patients at varying levels of vitamin C nutrition. Some subjects whose blood vitamin C was very low showed a diabetic type of glucose-tolerance curve with an abnormally high maximum, which was amenable to treatment with the vitamin. These subjects were distinguishable from true diabetics, whose sugar-tolerance curves were not much altered by treatment with the vitamin, though there was sometimes a slight lowering of the maxima. Hyperglycaemia not uncommonly occurs in infectious diseases, and the suggestion is thrown out that it may be caused by the deficiency of vitamin C which often accompanies infection. These observations still need confirmation in view of the small number of cases studied, and their interpretation should be viewed with reserve. Certainly it would be unwarranted to assume that ascorbic-acid deficiency is the sole cause of abnormal sugar tolerance in all cases of "pseudo-diabetes."

NEW LIGHT ON PERIARTERITIS NODOSA

A. R. Rich of the Johns Hopkins Hospital, Baltimore, whose studies of allergy are well known, has produced evidence[3] that periarteritis nodosa may be a manifestation of the anaphylactic type of hypersensitivity. In the first of the cases which led him to this conclusion death had followed shortly after an attack of serum sickness. The opportunity to study the morbid histology of this condition has rarely occurred in the past: when serum was the only form of specific treatment available for pneumonia and meningitis, patients either died before serum sickness was due to develop, or recovered. Sulphonamide treatment now prolongs the lives of desperate cases in which serum has also been used, and serum sickness may have occurred before death. In several such cases vascular lesions indistinguishable from those of periarteritis nodosa were found in various organs post mortem. The naked-eye changes associated with this disease are not mentioned as having been observed, but the microscopical appearances of necrosis of the arterial wall with dense leucocytic infiltration in and around it are characteristic: haemorrhage around the vessel and the presence of eosinophils were sometimes observed and sometimes not. Of the 6 cases in which serum had been given, 5 had also had sulphonamides, but there were good reasons in 2 of them for regarding the rash and other manifestations as due to the serum and not to the drug, while in the sixth case serum alone could have been concerned. But the new argument does not stop here, because two other cases are described in which the same arterial lesions were found, and these patients had been treated with sulphonamides only: one had a typical drug fever with urticaria before death, the other a condition regarded as a febrile reaction to the drug but with no local manifestation other than a conjunctivitis. It therefore appears that sensitization to a sulphonamide compound may result in a vascular reaction of the same nature—that, in fact, serum sickness and drug fever, the clinical manifestations of which are certainly alike, have the same hitherto unrecognized basis. It is suggested that the drug may become linked with one of the plasma proteins, thus acting as a haptene, the body becoming sensitized to this compound; there is, indeed, evidence that this can occur. None of these patients exhibited any signs of periarteritis nodosa before the final illness, and successive biopsies were made in one case which fixed the time of development of the arterial lesions as coinciding with the clinical reaction of hypersensitivity.

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[1] Sylvest, O., *Acta med. scand.*, 1942, **110**, 183.
[2] Secher, K., ibid., p. 255.
[3] *Johns Hopk. Hosp. Bull.*, 1942, **71**, 123, 375.

Whether these findings can wholly bear the rather startling interpretation placed on them depends on whether the vascular lesion described can be considered truly specific. It is not inconceivable that necrotic and inflammatory arterial changes of this nature can arise in more than one way. This question brings strongly to mind the prolonged controversy which has been fought over the identity of the natural rheumatic lesion with those produced by the German school of allergists by means of foreign proteins to which the body had been sensitized. How far histological criteria can be depended upon in deciding aetiology is indeed a much broader question, on which there will be no general agreement. But Rich has performed a valuable service in opening a new line of investigation of an obscure disease. Any case of periarteritis nodosa should now be studied from this standpoint, and when the diagnosis has been made during life every effort should be made to determine whether a state of hypersensitivity exists to any identifiable agent.

INQUIRY INTO GROWING INCIDENCE OF JAUNDICE

The Medical Research Council, acting on a request from the Ministry of Health and in consultation with the War Office, has undertaken a special investigation into the causes of the present increased incidence of different forms of jaundice. The scheme is being generally directed by a committee of the Council under the chairmanship of Prof. L. J. Witts and with Dr. A. M. McFarlan as secretary. The headquarters of the investigation have been established in the Department of Pathology, University of Cambridge, by arrangement with Prof. H. R. Dean. The inquiries will be mainly made within a convenient radius of that centre, and cases occurring in military units as well as among the civilian population will be investigated. The team at Cambridge consists of five whole-time workers. The services of Dr. F. O. MacCallum as senior bacteriologist have been lent by the Wellcome Research Institution; Major Clifford Wilson (physician) and Captain J. A. R. Miles (clinical pathologist) have been seconded from the R.A.M.C.; and Dr. A. M. McFarlan (epidemiologist) and Dr. M. R. Pollock (assistant bacteriologist) have been attached from the Emergency Public Health Laboratory Service. In addition, Prof. S. P. Bedson is acting as general adviser on behalf of the committee. Prof. G. Hadfield has agreed to undertake the examination of histological material, and Prof. M. E. Delafield to collate epidemiological reports from various sources.

A TRACT FOR THE TIMES

The myth of the "machine man" dies hard. In spite of so much that has been discovered on the subject since the great industrial push following Dunkirk, the idea still persists among leaders of production drives and other people that the longer the hours worked the greater will be the output and that it will all be at the same qualitative level. Dr. H. M. Vernon has therefore done another good service by composing a tract entitled *Hours of Work and their Influence on Health and Efficiency*,[1] in which he assembles evidence to show the influence of working periods on the capacity of the worker. The evidence includes the reports of the Health of Munition Workers Committee in the last war, as well as the peacetime investigations of the Industrial Health Research Board, but mostly it consists of the results of inquiries on the industrial front since 1940. All this evidence points conclusively to the fact that excessive hours result in minor sickness, increased accident-proneness, and casual absence, and also in graver injuries to the worker. Readers of the *Journal* will recall the paper published less than a year ago (July 18, 1942) by Laidlaw and Macfarlane, based on observations particularly among women workers in Glasgow, which suggested that hours of work played an important part in the causation of pulmonary tuberculosis. Dr. Vernon is not content to rely solely on statistical argument, abundant as that is, but he points out fundamental psychological causes whereby the human factor will always in the end confound Pharaoh. There is, he says, an unconscious adjustment on the part of the worker to the hours he works. When the hours are long he gets into the habit of working at a slower pace. When these excessive hours are suddenly shortened the pace of the work for a time continues much as before, and production falls almost in direct proportion to the shortening of the hours; but presently, owing to the increase of vigour as a result of lighter work, the worker gradually and unconsciously speeds up—a process which continues for three or four months, and then attains equilibrium at a level substantially higher than that observed when longer hours were worked. Another factor in the present situation sometimes overlooked is that for women workers the toil does not usually cease when they leave the factory; shopping (never so exhausting as now) and household duties lay further exactions upon them. Dr. Vernon does not disguise his dislike of the regulation that women, unless they do 55 hours' work a week on business premises, must undertake fireguard duty. He suggests certain minimum hours for women and for girls and youths, while as for men he says that anything in excess of a 60-hour working week will bring no increase of production, and if the work is heavy, shorter hours than these are advisable.

The next session of the General Medical Council will open on Tuesday, May 24, at 2 o'clock, when the President, Mr. Herbert Lightfoot Eason, will take the chair.

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[1] British Association for Labour Legislation, 21, Clareville Grove, S.W.7

THE ARMY BLOOD TRANSFUSION SERVICE

The Army Blood Transfusion Service is unique. No other army, Allied or Axis, has a distinct transfusion service with its own source of supply and its specially trained mobile resuscitation units. The headquarters of this Service were established six months before the war, and the plasma-drying plant, which was presented to it by the Silver Thimble Fund of the Women of India, was erected in 1941.

Scope of the Service

The Service now operates from Reading to Penzance in some 850 different centres. It has a staff of about 350, of whom more than three-quarters are women (either V.A.D.s or A.T.S.).

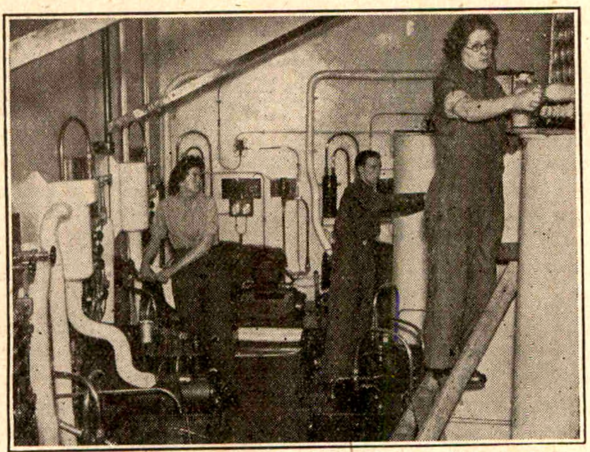

FIG. 1.—Part of the plasma and serum drying plant of the Army Blood Transfusion Service, showing the refrigerating and vacuum pumps. On the right one of the primary desiccators is being unloaded of its dried plasma.

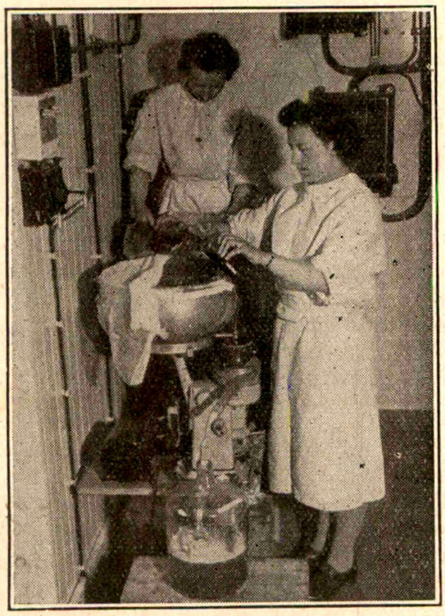

FIG. 2.—Pooling and separation of the plasma and red cells. The nearest operator is pouring donated blood from the standard M.R.C. bottles into the container through the muslin gauze. The Alfa-Laval separator has two outlets—one for plasma (seen nearest the camera and filling the Winchester) and the other for the red cells on the other side.

The original technical staff was drawn largely from the laboratory staff of the Royal College of Surgeons and the Middlesex Hospital. The Service supplies with transfusion fluids and equipment the whole British Army over-seas, from Iceland to the Cape of Good Hope and from Tunis to Burma. It supplies the basic requirements of the Forces at home and the civilian population in a Ministry of Health Region. It trains and equips units for service over-seas, and trains all ranks of the R.A.M.C. in resuscitation work. Since the beginning of the war blood has been taken from more than a quarter of a million donors. The 20 members of the staff of the Donor Registration and Publicity Department have to keep up to date the records of the three to four thousand donors who are bled each week. The bleeding is done by 15 mobile, self-contained, fully equipped teams, each consisting of a medical officer, 4 V.A.D.s, 2 A.T.S. drivers, and an A.T.S. orderly. The teams are detached, and quartered in the large towns, from which they "bleed" the surrounding area for a distance of 25 to 30 miles. Since 1939 two women doctors have between them bled more than 35,000 donors.

Transport of Transfusion Fluids

Whole blood is transported to any theatre of war within air distance of England, and in order to reduce shaking in transit the bottles are, by means of a special apparatus, filled to the top with glucose solution. Large insulated boxes are, by means of ice-inserts, kept at a temperature of 4° C. for a period of 8 hours. But most of the blood taken by the Service is separated, clarified, and filtered to make fluid plasma, which is sent out as such for military use at home and in temperate climates. That sent to the Army in tropical and subtropical regions is dried, and some twelve to fourteen hundred bottles come off the drying plant each week. Distilled water for reconstitution is sent with each bottle of dried plasma. Already some 56,000 pints of fluid plasma have been exported, and getting on for

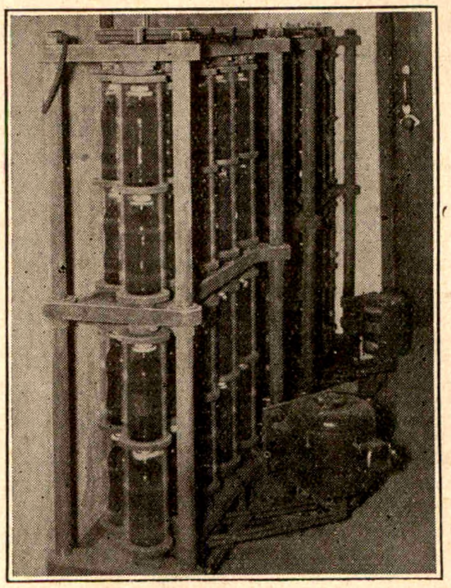

FIG. 3.—Bottles of liquid plasma in the spinning machine. The bottles in the photograph are actually spinning round at 1,000 revolutions per minute and stay so for 2½ hours at a temperature of −17° C. The effect is to form a vortex in each bottle, and when removed from the spinner each bottle contains what is in effect a tube of frozen plasma. Reconstitution with the appropriate quantity of sterile distilled water is complete in under 60 seconds.

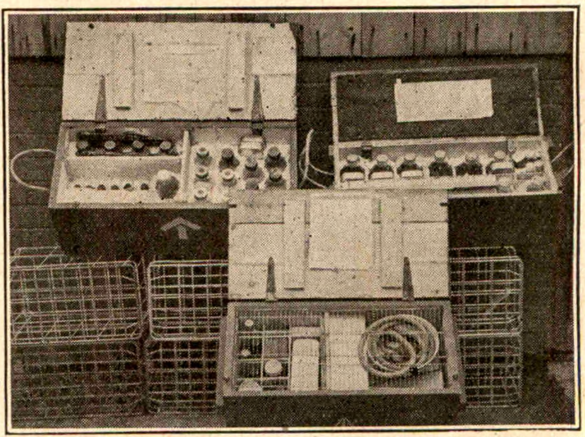

FIG. 4.—Three of the special boxes of the Army Blood Transfusion Service. *Bottom:* The field transfusion box—instruments, dressings, morphine, and drugs, tourniquets, etc., for the use of the medical staff. *Top left:* The field pattern box, containing sets for giving and taking blood; dried plasma and sterile distilled water, and glucose-saline. *Top right:* The specially adapted air-borne box containing instruments, dressings, drugs, wet plasma and dried plasma, and giving sets.

50,000 of dried plasma. Apparatus for administration assembled at the home depot is sent with all transfusion fluids, the apparatus being packed in tins, sterilized and ready for immediate use. The Service has also devised and issued special boxes of equipment to meet the transfusion needs of military hospitals, field ambulances, and troopships, as well as complete apparatus for full resuscitation by mobile field transfusion units and by airborne medical units. Another of the jobs of the depot in the South-West of England is the preparation of crystalloid solutions (glucose and saline) for all units at home and over-seas which are unable to prepare these themselves. The Service also supplies dried grouping serum.

Oversea Units

In every theatre of war over-seas the home service is linked to a base transfusion unit, which obtains from the headquarters at home the supplies required on the spot. These base transfusion units are also equipped for the production of crystalloid solutions, for the assembly of apparatus, for servicing and repair of refrigerators, and for obtaining blood locally. For example, the M.E.F. base unit has been able to maintain a service of whole blood to the 8th Army to supplement the dried plasma sent from home. Serviced by the base unit are mobile field transfusion units, fully equipped for the performance of resuscitation in the field. In North Africa these units have operated mainly in co-operation with field surgical units to form complete advance surgical centres with field ambulances, field dressing stations, and casualty clearing stations.

It has been said that the work of the doctor serving with the armed Forces has in this war been facilitated by three main innovations: (1) intravenous anaesthesia; (2) local application of sulphonamides to wounds; and (3) transfusion of blood and of plasma. Blood transfusion was, of course, used in the last war, but refrigeration and the use of fluid and dried plasma have revolutionized the application of blood transfusion in the field. That the fullest scope has been found for these new blood-transfusion techniques is due to the energy, wisdom, and brilliant organizing abilities of those who have built up this magnificent Service.

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CANCER RESEARCH

WORK IN PROGRESS

The annual meeting of governors of the Imperial Cancer Research Fund was held at the Royal College of Surgeons on April 29. The annual report, which was presented by Prof. H. R. Dean, chairman of the Council, described the continued work in various branches of research which has occupied the seven members of the scientific staff and the three visiting research workers during the last and previous years. The financial statement, presented by the treasurer, Sir Holburt Waring, showed the total receipts of the Fund during the last financial year to amount to £16,319, an increase of £1,561 as compared with the previous year. On the motion of Sir Hugh Lett, Viscount Halifax was re-elected president, and on the motion of Sir Alfred Webb-Johnson, Sir Holburt Waring was re-elected treasurer. Prof. H. M. Turnbull and Sir Hugh Lett were elected as "elected members" of Council for a period of three years, and the four "appointed members"—namely, Profs. H. R. Dean, H. W. Florey, C. A. Lovatt Evans, and John Beattie—were reappointed, also for three years.

In his report of the scientific work of the Fund[1] the director, Dr. W. E. Gye, F.R.S., observes that circumstances have been unfavourable to some kinds of research work—for example, to the study of viruses, for which large numbers of rabbits and fowls are needed. As small animals, such as mice and rats, are more easily reared and fed, work has been directed largely to investigating mammary cancer in mice, chemical carcinogenesis, the action of the hormones on the pituitary and the prostate, and to chemotherapy.

Carcinogenesis

Mr. H. G. Crabtree, M.Sc., has continued his work on the mode of action of chemical carcinogens, especially 3:4-benzpyrene. He has already shown that a series of halogen compounds can retard the development of skin tumours induced by pure chemical substances. The power to check such formation was parallel with the power to check glycolysis. Such compounds were also found to affect other chemical cell mechanisms, in particular those involving the sulphydryl group (—SH). Sulphur metabolism is now believed to play a part in the artificial induction of cancer. Apparently the general growth-inhibiting properties of many carcinogenic and non-carcinogenic hydrocarbons are related to the depletion of sulphur-containing amino-acids which co-operate in their elimination. It was therefore decided to make further investigations into the effect of sulphur metabolism on tumour induction. A brief description is given of experiments on the inhibiting effect of bromobenzene on skin tumours induced in mice by painting with benzpyrene. In one experiment an application of the former to the same area of skin painted by the latter increased the induction time for papilloma formation by about 50%. The organism detoxicates bromobenzene by combination with cysteine and subsequent elimination of the resulting mercapturate. From these and other experiments it is concluded that bromobenzene reacts with sulphydryl-containing tissue components. It appears that localized deficiency of sulphur is the determining factor in inhibition of tumour induction. It is thought that sulphur metabolism is intimately concerned in chemical carcinogenesis.

Dr. B. D. Pullinger's work suggests that trauma has a slight stimulating action in the production of experimental tumours. Trauma alone is, however, not enough, and the intervention of a specific carcinogen is apparently also necessary. This has a bearing upon the rare human instances of association between trauma and tumour.

Hormones

Dr. E. Vasquez-Lopez is working on the reactions of the pituitary body to prolonged treatment with oestrogens, implanted subcutaneously. It is found that under the influence of oestradiol benzoate and diethyl-stilboestrol the pars intermedia—not the anterior lobe—of the hamster becomes enlarged. The cells of the intermedia multiply and invade the posterior lobe, this being regarded as an increase in degree and extension of a normal process. The report points out that the hypophysis-oestrogen relationship has always been referred to the anterior lobe, and that these experiments at least serve as a reminder that the pars intermedia is a pituitary component which is functionally active. Similar overgrowth of the pars intermedia has been found in rabbits treated with thyroxine.

Tissue Culture

Dr. R. J. Ludford and Miss Hilda Barlow have been studying tissue culture of spontaneous tumours or tumours induced experimentally, previous observations having been made largely on the cells of transplanted tumours. It is found that, in general, carcinomas grown *in vitro* form compact sheets of cells, thus resembling normal epithelium. The fibroblastic type of growth is followed by sarcomas. Cultures of primary sarcomas contain many wandering cells as well as the malignant cells. In contrast there were few wandering cells in cultures of mammary carcinomas. No difficulty was experienced in distinguishing the morphology of sarcoma cells from that of fibroblasts, but when mammary gland of pregnant mice and spontaneous mammary carcinomas of high-cancer-strain mice were grown together in culture it was not possible to distinguish which cell was which by examination of the nuclear structure.

Fibroblasts grow prolifically when cultured with spontaneous mammary carcinomas of high-cancer-strain mice. A similar phenomenon was observed when fibroblasts were grown with non-malignant epithelial cells (growing embryonic kidney). In contrast, sarcoma cultures were found to inhibit the growth of fibroblasts. It is concluded that growing epithelial cells stimulate the growth of fibroblasts, and that the biological significance of this may be the need of epithelial cells *en masse* to have connective-tissue support.

In times like these it is much more difficult to carry on the kind of long-term research work which is needed in cancer than to turn attention to *ad hoc* war problems, and the profession will be glad to know that in spite of all these difficulties the Fund is continuing to give its valuable services to research; and medical men, too, will bear in mind that this work cannot be carried out without money.

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[1] Fortieth Annual Report, 1942-1943, of the Imperial Cancer Research Fund, April, 1943.

Correspondence

Is Anaemia Prevalent?

Sir,—The absence of one of us on holiday has delayed this reply to your interesting leader (April 10, p. 449). The writer of that leader is under the impression that we "argue that there has been a general lowering of haemoglobin values in the population." In fact we agree with him that the evidence existing does not at present warrant any such conclusion. Though the haemoglobin level in the groups examined—of children as well as women—for example, by Davidson in Edinburgh and by ourselves in or near London, is, we think, disquieting, yet we hoped we had stressed the limited nature of our material. For example, we examined no men, few school children, and women in one factory only, not "in factories," as stated in the *Journal*, and, to quote our own words, "our investigation covers only a few sample groups, and the incidence of anaemia may well vary widely."

We have no evidence that would warrant the suggestion made in your article that "10% of the female population" have a haemoglobin level below 80%, and we have no means of assessing the number, nor, in spite of the absence of information on the limits of normal for women and children, do we think that many clinicians would accept 80% as the lower limit of normal for women.

We are glad that part of our aim is accomplished, for interest has been aroused in the subject, and (*pace* your leader writer) two official bodies at least—the Ministry of Health and the Medical Research Council—have initiated widespread haemoglobin surveys.

Your leader writer thinks that our town and country groups of students may not have been comparable. Actually, the choice of students for the London or country hospital was made by the medical school authorities on an educational basis, and no selection, such as he suggests, occurred. We had hoped we had made this clear. We owe an apology to the two hospitals concerned. By an oversight certain articles in the nurses' diet, practically pure carbohydrate and fat, were omitted from our computation. In London we were able to get details of these, and they added 240 calories a day to the diet, and it is probable that an addition of the same order should be made to the country diet as given in our article. This was an error on our part, but does not invalidate our argument.

The aetiology of the existing anaemia certainly requires investigation, but that is too large a subject for discussion in this already overlong letter.—I am, etc.,

Royal Free Hospital, W.C.1. Lucy Wills.

The Constitutional Factor

Sir,—I was fascinated to read your leader on the constitutional factor (April 24, p. 510). Prof. Bauer's contention appears to be that particular defects in the chromosomes are reflected in particular diseases in later life, the latter arising from foci of diminished resistance pre-ordained by the defective genes. This concept appears to agree substantially with my own theories, which I have applied particularly to the strain diseases, by which I mean those chronic constitutional diseases of increasing incidence in recent decades, like peptic ulcers, chronic rheumatism, diabetes, hyperthyroidism, arteriosclerosis, etc. Bauer's main conception, to quote your leader, "is that the genes act directly on the effector organ"—i.e., the organ through which the disease is expressed—" or indirectly through either the endocrine system or the nervous system, which can themselves collaborate."

The view expressed in my book, *Disease and the Social System*, is that, at any rate in the strain diseases, the primary factor is an innately vulnerable nervous system. In other words, I believe in a neuropathic aetiology in conditions other than those considered to be neurological or psychological in nature. I believe that this broad neuropathic diathesis is more specifically expressed in different varieties of dysfunction in the autonomic and endocrine systems. The specific pattern of the individual's disease is determined by the particular defect in his autonomic–endocrine liaison. An important observation in relation to the foregoing theory is the frequency with which, given the innate neuropathic diathesis, different members of the same family will produce different types of autonomic endocrine morbidity. One sees so often within the *milieu* of one family different varieties of the strain diseases.

It must be admitted that in some of the commonly associated strain diseases endocrine factors are not obvious according to the current tenets of clinical observation. Duodenal ulcer and chronic articular rheumatism are often found together in the same family. But I firmly believe, for reasons which space precludes me quoting here but which I have adduced in my book, that the endocrine factor in such diseases is of immense importance as well as in the deteriorating "abiotrophic" conditions like paralysis agitans.

But above all, at any rate in the commoner chronic diseases, the neuropathic factor is of first importance. The theory of a growing vulnerability of the nervous system may appear at first sight crude. In the last fifty years of improved hygiene and sanitation the only infective conditions showing a steady increase are the fevers affecting the nervous system. Is not this, perhaps, taken together with the increase in psychopathological conditions, a fact and an omen of great significance?

Apropos your last paragraph, I feel that, with all respect to the public health authorities, the art of preventive medicine is only being born, that it is a form of clinical medicine, and that it can only be elucidated by individual physicians for the benefit of individual patients, because it must consist so essentially in developing the patient's self-knowledge of his own innate and particular defects.—I am, etc.,

Bath. A. Guirdham.

Direct Inguinal Hernia

Sir,—In the *Journal* of Feb. 11, 1939 (p. 263), Mr. W. G. Gill drew attention to a rare type of direct inguinal hernia and described three personal cases. I recently encountered a similar case at operation. Bearing in mind the apparent rarity of this condition, and being impressed by its very real existence as a variety of direct inguinal hernia, it seemed to be worth while to put the following on record.

The patient, a chief petty officer aged 46, presented himself for operation with a right-sided rupture of about 5 years' duration. He had first complained of a lump and of discomfort in the right groin following a strain while lifting a heavy weight when employed in a cordite factory. He consulted his doctor at the time and was fitted with a truss, which appeared to control the rupture adequately.

On examination there was a visible and palpable impulse on coughing and an appreciable enlargement of the right external ring. A pre-operative diagnosis of right inguinal hernia was made, which was thought to be most probably of the direct type. At operation a small hernial sac was encountered lying medial to the inferior epigastric vessels. It had a generous fatty covering almost amounting to an extraperitoneal lipoma, which had to be divided layer by layer before the sac could be completely displayed. (It closely resembled the typical femoral hernial sac.) It was about 1 in. long and had a narrow neck, which was found to be firmly engaged in a very obvious circular defect in the transversalis fascia. This had firm edges and would only admit the tip of the little finger. The opening was enlarged in order adequately to expose the neck of the sac, and on clearing its medial aspect the bladder was encountered and avoided. The neck was then ligated and the sac removed. The opening in the transversalis fascia was readily closed with interrupted sutures of No. 2 catgut. The cord was then replaced and no other repair of the posterior wall of the canal attempted.

He made an uninterrupted recovery, passing urine without difficulty from the beginning.

Although it is unreasonable to hazard a guess as to the causation of such a condition from the observation of a single case, my own feeling is that the sac develops as a direct sequel to an initial weakening of the transversalis fascia by a pro-peritoneal lipoma as in the epigastric type of hernia (as suggested by W. H. Ogilvie in Maingot's *Post-graduate Surgery*, 1937).

My thanks are due to Surgeon Captain H. F. Briggs, R.N., for permission to publish the notes of this case.—I am, etc.,

M. R. Ewing,
Surg. Lieut., R.N.V.R.

Treatment of Malignant Tertian Malaria

SIR,—The case of malignant tertian malaria recorded by Drs. W. L. Anderson and D. B. Bradshaw (April 24, p. 508) is of interest inasmuch as the man was apparently cured by quinine. The patient in the case recorded by Shute and myself in the *Lancet* (1942, **2**, 365) had, in point of fact, been taking regular doses of quinine, which suppressed the severe malarial symptoms without curing the disease, and it was not until quinine was discontinued that the diagnosis of malaria was possible.

In the case reported by Anderson and Bradshaw the small doses of quinine did not prevent the diagnosis of malignant tertian malaria being made, but it did suppress the severe clinical symptoms, and had quinine been stopped there is little doubt that these symptoms would have been much more severe. An important finding was the large number of gametocytes (crescents) present in the peripheral blood. This is evidence that the patient had been suffering from malaria for some considerable time, and that the quinine had failed to destroy the asexual parasites, because, had this been so, gametocytes could not have been so numerous. Mepacrine (atebrin) would have probably benefited the patient more than did the long-continued daily doses of quinine.

As regards the mepacrine treatment, when a severe case of malignant tertian is admitted to hospital it is the practice at Horton to treat the patient as follows: on the 1st day 0.6 g.; on the 2nd day 0.3 g.; on the 3rd and 4th days none; on the 5th, 6th, 7th, and 8th days 0.3 g. The reason for giving a reasonably large dose on the 1st day is that the parasites are subjected to drastic treatment, which will destroy most of the developing forms, either in the peripheral or internal circulation, particularly in the capillaries of the brain. The dose of 0.3 g. on the 2nd day will kill off most of the survivors of the previous day's treatment. The two-days rest followed by 0.3 g. for a further period of four days invariably cures the attack and possibly the disease as well.

Finally, a few small doses of plasmoquin 0.02 g. twice weekly for two or three weeks would have destroyed the sexual parasites (crescents) and so rendered the patient uninfective to anopheles mosquitoes.—I am, etc.,

Epsom. J. ELLIOT MURRAY, M.D.

The Calcium Intake in Pregnancy

SIR,—There seem to be three imperfections in the *Journal* for May 1. First, the "centrifuge tube for collection of leucocytes" described by Dr. M. A. Gohar (p. 542) is merely a copy of the tube introduced by Mindlin and Butler (*J. biol. Chem.*, 1938, **122**, 673) for separating the leucocyte-platelet layer of blood so that vitamin C may be estimated in it. Various workers have been using their method; we have been using tubes that contain about 3.5 ml. blood from which about 10 mg. of leucocyte-platelet layer are obtained, and the tubes are made by a laboratory glass-blower.

Secondly, your annotation on riboflavin and corneal vascularization (p. 545) seems to confuse the latter with circumcorneal injection. The two are obviously not synonymous. One connotes the formation of new vessels, the other the dilatation of existing vessels such as can be produced by rubbing the eyes. You say that the value of corneal vascularization as a sign of deficiency of riboflavin has recently been questioned in this country, quoting Scarborough. He confined his examination of the eye to circumcorneal injection, "but in no case was the slit-lamp used"; his observations therefore neither confirm nor refute the value of corneal vascularization as a sign of deficiency of riboflavin.

Thirdly, Dr. Robertson criticizes me (p. 550) for an alleged statement that "supplementary feeding of calcium . . . might prolong pregnancy and harden the foetal skull." My contribution to the meeting of the Scottish Group of the Nutrition Society was upon the evidence for nutritional deficiencies in pregnancy, and I was careful to state both sides of each question with which I dealt. Therefore, concerning deficiency of calcium in pregnancy, I spent some time on the well-known work on such deficiency, and on the other side included but one sentence upon possible dangers of calcium overdosage. My notes, I find, devoted 292 words to the work (which Dr. Robertson quotes) of Coons and the Toveruds, and on the other side only 15 words to the work of Abel, who observed (*Z. Ernähr.*, 1931, **1**, 366) that administration of a preparation of vitamin D prolonged the average duration of human pregnancies by about ten days, but who suggested that caution in the use of concentrates of vitamin D was necessary in case the bones of the infant's skull became too hard. I thought this work so unimportant that I omitted any reference to it in the written paper submitted for publication in the *Proceedings*. I have also stated in a letter to a colleague last March that I "completely agree with you in emphasizing the great value of a high calcium intake in pregnancy. However much chalk one ate one could not, I imagine, obtain Abel's results." I therefore consider that I anticipated the advice that Dr. Robertson now kindly gives me, in that I "stressed the well-established complications resulting from calcium deprivation rather than the unproven dangers of calcium overdosage."—I am, etc.,

Oxford. H. M. SINCLAIR.

Sulphaguanidine in Neonatal Gastro-enteritis

SIR,—Drs. C. Elaine Field and W. G. Wyllie (April 17, p. 486) say it is unfortunate that my clinical trial of sulphaguanidine in "infantile gastro-enteritis" was inadequately controlled, and apparently disagree with the statement in my paper (April 3, p. 410) that the greatly improved results achieved by its use did not justify this procedure. I would remind them that my paper was concerned only with epidemic gastro-enteritis in the newborn, which differs in some important respects from gastro-enteritis in older infants; also that controlled experiments involving serious risks can be justified only in experimental animals.

Research workers usually suspect the validity of inadequately controlled observations. Such a critical attitude is most necessary. I am not surprised, therefore, that my observations have failed to impress Drs. Field and Wyllie, as the value of sulphaguanidine was not proved in my series of cases by omitting it from the standard therapeutic regime in alternate cases. We all realize that clinical impressions, like inadequate controls, can be most misleading and are scientifically unsound, but I would assure my correspondents that all those with experience of neonatal gastro-enteritis who witnessed the investigation were so much impressed by the beneficial effect of sulphaguanidine that one would have been considered most inhuman to withhold it in any case.

My observations on sulphaguanidine therapy in neonatal gastro-enteritis were based on a relatively small series of cases, but the results were so promising that I thought it desirable to acquaint others, at this stage of the investigation, with its value in this disease, which causes so many deaths in maternity hospitals. I concluded my paper with the remark: "More experience with sulphaguanidine in neonatal gastro-enteritis is needed."

I was much interested in "the standardized plan of treatment" followed by Drs. Elaine Field, MacCarthy, and Wyllie in their careful study of gastro-enteritis in older infants (March 27, p. 371), but I was disappointed that they did not mention sulphaguanidine. I fully agree with their "further recommendations" (5–9) for prevention.—I am, etc.,

Edinburgh. J. L. HENDERSON.

Intolerance to Liver Extract in Pernicious Anaemia

SIR,—The importance of the article on intolerance to liver extract in pernicious anaemia (May 1, p. 539) is underlined by a patient of my own who died after an injection given on April 27. He was aged 83 and had been under treatment for pernicious anaemia for about five years. A year ago he suddenly became intolerant to his injection, and had one bad attack of dyspnoea and cyanosis and partial collapse relieved by adrenaline. After this there was a gap, during which ineffective attempts were made to get him to take sufficient liver extract by the mouth. Recently I decided to try again by injection, and instead of his usual dose of 5 c.cm. I gave a dose of 1 c.cm. Apart from slight skin irritation this was well tolerated, and four weeks later I gave a dose of 2 c.cm. In twenty minutes the patient was dead with acute respiratory failure, against which adrenaline and respiratory stimulants were useless. The article appeared four days too late.—I am, etc.,

Bristol. C. CHRISTOPHER MORGANS.

Treatment of Dysentery at Sea

SIR,—I have read with interest the letter of Flight Lieut. A. G. McManis and Major W. Gordon Rich on the treatment of dysentery at sea in your issue of Jan. 16. I fail to see, however, that treating dysentery on shore and at sea are so very different that injections of emetine hydrochloride have to be tried on the supposition that cases which do not clear up with ol. ric. and mist. bismuthi are due to amoebic infection.

In my experience there have always been a microscope and a few stains on board ship, and iodine and potassium iodide can be obtained from the dispensary for staining amoebae. Granted that cultures cannot be made, but fresh specimens of stools are easily obtained and stained. Bacillary dysentery can then be diagnosed on the typical cellular exudate found in this infection, and amoebic dysentery on the presence of the *Entamoeba histolytica.*

Treatment of bacillary dysentery has been by giving a mixture of sod. sulph. ʒij, mag. sulph. ʒij, aqua ℥j. An ounce was given immediately and ʒj hourly until the stools were watery, and the dosage was then reduced to three- and six-hourly administration until faeces reappeared. For the first 48 hours fluids only were given and then a typhoid diet (200–300 calories) but containing no milk.

I thought that by now bismuth had been proved to have no therapeutic action and have never used it. In cases where other antidiarrhoeic drugs have been given I have noticed that although the diarrhoea cleared up the patients suffered for many days with intense intestinal colic.

Many papers have so far appeared on the treatment of bacillary dysentery with sulphaguanidine. This drug has been advocated because it is only absorbed to a very small extent from the intestines. In this disease, however, the bowel is acutely inflamed, and one would not expect any absorption to occur. On the contrary, the capillary walls are so paralysed by the infection that fluid passes from the intestinal wall into the lumen. In consequence, I have seen no objection to treating severe cases of bacillary dysentery with sulphapyridine for the first 48 hours, especially since the mode of action of all these sulphonamide drugs is the same. Sulphapyridine also has the advantage of being more easily obtainable out here. Large doses have been given—12 g. per 24 hours—and then followed by salines. There have been no adverse effects, and the condition has quickly come under control.—I am, etc.,

Mhow, India. GRENVILLE MATHERS, Lieut., R.A.M.C.

Foot-and-Mouth Disease in Man

SIR,—The case of suspected foot-and-mouth disease described by Dr. K. MacLeod (March 6, p. 300) was also seen by me, and I can assure Dr. Monro (April 24, p. 520) that the condition was not consistent with Vincent's angina, the diagnosis of which is a relatively simple matter once diphtheria has been eliminated, being usually an ulcerative or membranous lesion, not vesicular, as was so marked in this instance. The two conditions are so fundamentally different that Dr. H. Dlugosz (Feb. 13, p. 189) has not considered it necessary to mention specifically Vincent's angina in his differential diagnosis.

The lesions in Dr. MacLeod's case were restricted to the mouth and lips, the tongue condition differing little from what is seen there in the bovine. The peculiar odour and the marked salivation also bore out the possibility of the case being actually a human infection with foot-and-mouth disease, but without laboratory proof one is naturally unwilling to be dogmatic on the matter. Inability to obtain a history of having drunk infected milk does not mean that this did not occur, for a child, acutely ill (who incidentally lives in a crofting community), is not likely to have very accurate recollections of what she ate or drank fourteen to twenty-one days before, and, as Dr. Dlugosz's article illustrates, ingestion of infected food is not absolutely necessary for infection although it is the most likely means.

The high resistance of man is well borne out in the case of the epidemic in this country where a dairy herd supplying approximately 20 gallons of raw milk to a county town did not produce a known case of the disease, in spite of the fact that doctors were on the look-out for such.—I am, etc.,

Dingwall, Ross-shire J. LANDESS HORNE, M.D.

First Aid for Fractured Spine

SIR,—Following my letters on this subject in the *British Medical Journal* (Oct. 31, 1942, p. 529, and Dec. 19, 1942, p. 744) I submitted the matter to the executive committee of the British Orthopaedic Association. It was discussed at the last meeting held at the end of February, and the following considered opinion was given: "The executive committee decided to give authoritative support to the view that patients with suspected spinal fractures should be shifted and moved in such a way as not to be folded either backwards or forwards. The patient should be disturbed as little as possible, being transported 'as he lies.' From the point of view of the spinal injury, we are of the opinion that there is no indication for change of position from face to back or vice versa." I am sure all interested in this important matter will welcome this authoritative opinion on a difficult problem and will feel grateful for a clear and definite ruling. In view of this ruling the modified Clarke-Moir method of first-aid treatment for fractured spine or suspected fractured spine is being submitted to the B.R.C.S. and the Orders of St. John and St. Andrew for their consideration as to whether they can incorporate it in their teaching.—I am, etc.,

J. L. MOIR, M.B., Ch.B.,
Lt.-Col., Zone Medical Adviser, Anglesey Home Guard;
County Medical and County Civil Defence Officer,
Anglesey Branch, B R C S.

Admissions to Mental Wards in Wartime

SIR,—I read with interest Dr. F. Hopkins's account of the decrease in admissions to mental observation wards during the war (March 20, p. 358). Dr. Hopkins's impressions are identical with my own, but I had hoped that he would be able to produce some significant statistics bearing on the subject. It is almost impossible to obtain any such data for the London area, because at various times during the war patients from the same area have necessarily been directed to different observation units, and there is some overlap in the areas served by different units. In the Liverpool area, however, where all cases were received in one unit, it should be possible to obtain population figures from the Ministry of Food authorities and to correlate these with the figures of admissions. If this were done the statistics published by Dr. Hopkins would acquire considerably more value.

At present it is not clear to me that the conclusions drawn from the published data have an adequate basis. Far too many variables are involved. It is, in my opinion, unwise to take the number of certified cases as a reliable guide. The considerations governing certification have altered somewhat owing to war conditions. Thus a patient with early senile dementia who might well have been cared for at home in peacetime may now be impossible to cope with owing to a risk of offences against the black-out regulations, or because he or she is too much of a liability under air-raid conditions, or because all the female relations are now at work and there is nobody at home to be responsible for the patient. Thus a considerably reduced population may be sending to hospital the same number of certifiable patients.

Proof of a reduction in the incidence of neuroses as a result of wartime conditions is of the utmost sociological significance for the reasons which Dr. Hopkins has indicated, and I hope that figures correlated with the population served will be published from his and other such units.—I am, etc.,

St. Mary Cray, Kent. BRIAN H. KIRMAN.

Scientific Freedom and Social Medicine

SIR,—Many of those who work in municipal hospitals will be in agreement with several of Dr. Geoffrey Bourne's general principles, but some of his points would not bear cross-examination. The picture produced of the municipal hospital has unduly sombre colours, while that of the voluntary system is somewhat too rosy, as no drawbacks are mentioned, though admitted by others. Municipal hospital staffs have considerable experience and appreciation of voluntary hospitals, but staffs of voluntary hospitals may only have a nodding acquaintance with municipal hospitals, which may be insufficient to draw definite conclusions.

In his criticism of the municipal hospital Dr. Bourne has focused attention upon the medical superintendent. There may be medical superintendents who sometimes are not sufficiently tactful in carrying out some of their duties, just as there may be consultants who are sometimes forgetful of their hospital commitments. Similarly, examples could be quoted of doctors in any branch of medicine who sometimes interpret their duties inadequately; and cases could be stated, equally easily and fallaciously, to indicate that any particular system is essentially wrong. But all these matters call for adjustment in the individual, and isolated incidents cannot be the basis of a sound judgment.

There is no difficulty with regard to the formation of medical staff meetings in municipal hospitals so far as medical superintendents are concerned, for they are in favour of such a step. Senior staff have complete freedom of clinical action, but useful decisions could be taken at such meetings, and they would help to give consulting staff a closer interest and a more integral part in these hospitals with mutual benefit.

Both municipal and voluntary hospitals have their own advantages and disadvantages. Both exist solely for the care of the sick, and in their individual approach to the problem it is probable that neither has an all-round view, and each can learn something from the other. Voluntary hospitals have performed an inestimable service to the community, sometimes inadequately appreciated, but the rise of an alternative service has shown up certain points, arising from the fact that they have too much work to do. The enormous growth and improvement of municipal hospitals in the last twelve years and the confidence shown in them by practitioners and the public could hardly have been achieved if there were something radically wrong with their internal hospital medical arrangements.

The voluntary hospital system is an old and venerable tree that has borne much good fruit, but after so many years it is natural that there is some dead wood to cut away. In place of this should be grafted some of the vigorous growth of the new system, and together they will form a structure of unequalled service to the community.—I am, etc.,

Derby. R. G. COOKE.

SIR,—Dr. Geoffrey Bourne (April 17, p. 490) asks me three specific questions, to which I gladly reply.

1. I do believe in democracy in science as in everything else—that is, in real unrestricted freedom of speech and criticism.

2. I do not believe in placing autocratic power as regards medical affairs in the hands of any individual, be he medical superintendent or anyone else. Dr. Bourne in the letter just referred to states: "In plain fact the medical superintendent in council and municipal hospitals has absolute power as regards medical affairs as well as administratively." I can find no evidence for this statement. Rule 391 of the Hospitals and Medical Services Committee of the L.C.C. deals with the duties of a medical superintendent. It has twenty-eight sections, and the only one that could possibly be construed in the way Dr. Bourne suggests is Section VI, which reads as follows: "Organize and supervise the work of the medical staff of the hospital and be responsible for the due and punctual attendance upon the patients and for the giving of the requisite directions as to their treatment, nursing, and diet by the medical officers, and for the condition of the wards." It is difficult to understand how Dr. Bourne can say that this gives to the medical superintendent "absolute power as regards medical affairs as well as administratively." Rightly or wrongly it has been our traditional method to evolve from one system to a better by gradual steps and stages. In a sense, therefore, the master of a Poor-Law workhouse may be looked upon as the remote ancestor of the medical superintendent of a council hospital. But the absolute power of the medical superintendent is gone, although he is still administratively in charge of the institution.

3. I believe that medical committees should be instituted in every hospital, and that they should have local freedom to elect their own chairmen and officers, and that machinery should be devised, where it does not already exist, so that these committees may convey their opinions directly to the body in control of the hospitals in which they work.

Dr. Bourne goes on to say, referring to myself: "If his official position makes it impossible for him to reply, I suggest that he ascertains the answers from his lay authority with their permission to make them public." Whether this foolish remark arises from ignorance or prejudice I do not know. I am a member of the honorary staff of a voluntary hospital and a part-time surgeon under the E.M.S. scheme. I have criticized the voluntary hospitals and the E.M.S. scheme freely without let or hindrance and shall continue to do so if necessary. I am also a member of the L.C.C. and chairman of its Hospitals and Medical Services Committee. The L.C.C. is a democratic organization, every member of which is free to express his views, although, obviously, where decisions have to be made it is the view of the majority that prevails. I do not know to which of these three "lay authorities" (or any other) Dr. Bourne refers.—I am, etc.,

Northwood. SOMERVILLE HASTINGS.

A National Medical Service

SIR,—We do not deny that the present medical services are far from perfect, and no member of the profession would impede any alterations calculated to achieve the maximum possible efficiency. It is the stated policy of the present Government (elected in 1935) to institute a unified medical service; but approximately one-seventh of the total population of these islands, selected by medical boards from a selected age group, require the attentions (under a unified medical service) of about a quarter of the total profession (*Lancet*, April 10, 1943, p. 469). The success of any medical service must depend on the active and willing co-operation both of the lay public and of the profession. But at present the most virile section of the public (lay and professional) is disfranchised, and has not been, nor can be effectively, consulted in wartime.

We suggest, therefore, that the present time is inappropriate for the Government to foist a new medical service upon a public, unsuspecting, and gagged by the bureaucratic restrictions necessary to the successful conclusion of the war.—We are, etc.,

DOUGLAS ROBERTSON.
G. O. RICHARDSON.
G. A. SMART.

Kenny Treatment of Poliomyelitis

SIR,—My attention has been drawn to the leading article in the *Journal* of Nov. 28, 1942 (p. 639), entitled, "Kenny Treatment of Poliomyelitis." In reference to this matter I consider it necessary to correct certain statements contained in this article.

In the first instance my contribution to medicine is not a reformed treatment for recognized symptoms but a new concept of the symptoms. With regard to this I would refer you to the bulletin read at the staff meeting of the Mayo Clinic, Aug. 12, 1942, and presented by Dr. Frank Krusen, professor of physical therapy, Mayo Clinic, Rochester. Dr. Krusen admits that when he heard my theory with regard to these symptoms he thought I was unbalanced, but when I invited him to come to Minneapolis and see for himself he, with the heart and mind of the true physician, readily accepted the invitation, and, subsequently, requested to be enrolled in the first physicians' class to be held under the auspices of the Department of Physical Therapy and Orthopaedic Surgery, School of Medicine, University of Minnesota, during which time the concept was presented to him and the treatment for this new concept demonstrated and the results shown. Dr. Krusen's report reads: "Her ideas are original and she should be given full credit for having developed a new and extremely interesting concept of the symptoms of early poliomyelitis and the proper management of these symptoms. The Kenny method merits the close scrutiny of every physician."

Your article makes reference to the main points of my treatment in the acute stage. I would respectfully draw your attention to the fact that patients were not admitted to Queen Mary's Hospital in the acute stage. The patients treated in this institution were transferred from the infectious diseases hospital after the acute stage was over, and in a great many instances were not admitted to Wards A7 and 8, where the work was being carried out, but were hospitalized in E3 and 4 until the London County Council inquired of the parents if they were willing that their child should be submitted to the new type of treatment. This took quite a while. The parents generally waited to consult the parents of the children who were already receiving treatment, after which they would give their consent. By this time in quite a number of the cases the early symptoms had accomplished their deadly work. I attempted to explain this to the committee, and also that spasm was a damaging feature, but the committee were non-receptive. The reply I received was, "Spasm? What do you mean? This is a new one on us." This remark was passed by Mr. Fairbanks, and nothing further materialized. This committee was formed in Nov., 1937, during my absence in Australia.

I returned to England in April, 1938, and met the committee twice—in April, 1938, and May, 1938. The report referred to was presented in June, 1938. I left Queen Mary's Hospital the following month and returned to Australia. The conferences held at Queen Mary's Hospital by the committee during the two afternoons of their visit in April and May and their final conference in June, before the presentation of their report, were held *in camera.* I was not invited to be present.

I would also like to state that you are mistaken if you think that I was well pleased with my reception by the L.C.C. I was well pleased with the earnest endeavours of the technicians to grasp the technique taught them, which prevented deformities despite the abandonment of the paramount principle of orthodox procedures—immobilization. I was bitterly disappointed at the refusal of the L.C.C. to allow the Kodak Company to reproduce the film picture of my work at Carshalton, for which I myself was willing to pay in order that I might take it back to Australia. Sir Earle Page, Minister of Health of the Commonwealth of Australia, had made the request to me. I also noticed that you make reference to a report submitted by Dr. Starr, given to the Minister of Health, New South Wales. I think it is well known that I had dissociated myself from this work with Dr. Starr long before this report was published.

I notice that you have made no mention of the report submitted by Drs. Forster and Price of Melbourne, Australia, in which they state: "(1) Miss Kenny lays great stress on the condition of muscle spasm, its prevention and cure. We think her views on this subject require careful consideration. (2) Stiffness is a troublesome feature in the cases treated by the orthodox methods and entirely absent in the cases treated under Miss Kenny's supervision. The reason why should be earnestly sought. (3) Expected deformities from muscle imbalance did not occur, but did occur in our own splinted patients we ourselves treated or received from other surgeons. This calls for comment."

You also quote: "In December, 1941, the *Journal of the American Medical Association* made this cautious statement: 'Adoption of the Kenny technique represents an elaboration of well-recognized principles,' and, 'If there is any revolutionary element it consists in its abandonment of early rigid splinting and the adoption of continuous and meticulous hydrotherapy and physical therapy to maintain the function of muscles, at the same time producing increased comfort to the patient.'" This statement appeared (like your own) in the editorial, and was presented by one whom I had never met or at that time seen. You omitted to quote the statement made in the issue of this journal for June 7, presented by the professors of physical therapy and orthopaedic surgery, University of Minnesota, who had observed the work and made their report from observation, reading: "According to this concept the cardinal symptoms of infantile paralysis are to use her terms muscle spasm, muscle incoordination, and mental alienation. This is opposed to the usual concept, where the cardinal symptom is flaccid paralysis without muscle spasm or incoordination. The presence of spasm has been demonstrated in 100% of the cases." This report further refers to this matter and states the concept is original and unconventional.

You also state: "In the textbooks it is recognized that in poliomyelitis there is gross disorganization of muscular function with overaction (which is another way of saying spasm) of unparalysed muscles." Again, "That mental alienation is no new idea is well shown by the following sentences from Jones and Lovett: 'Muscle training is fundamentally an attempt to restore a cerebral motor impulse to a muscle, an impulse which has been either impaired or lost during the acute stage of poliomyelitis.'" It is made clear in this presentation that the writer of this article is not familiar with the Kenny concept. He or she refers to overaction of unparalysed muscles. These are in orthodoxy supposed to be normal muscles contracting and pulling the skeleton into deformity. These muscles are in reality the sick muscles, not the non-paralysed one. They are the muscles that require careful nursing. The pain, spasm, and shortening causing the deformities are centred in these muscles, and the alienation of the opponents is caused through this condition, not as stated by the writer in his paper.

The writer further states in reference to Lovett and Jones: "They knew all about incoordination, overaction or spasm of muscles, cerebral impulses, and the scrupulous care required for their protection and re-education." The presentation of the muscle condition as accepted by Lovett and Jones is reproduced in *Public Health Bulletin*, No 242, U.S.A. Public Health Headquarters, by the pupils of Dr. Lovett, and reads: "The muscle itself is never affected by the disease but is comparable to an automobile with its battery stolen. The muscle is loose and flaccid and hangs like a hammock between its points of origin and insertion." This is the Lovett-Jones concept for which splinting was applied to prevent the strong supposedly normal muscles from pulling the weak, flaccid muscles. Nurses were warned that to leave a splint off the part and the supposedly flaccid muscles unsupported even for a short time would mean prolonging treatments for months.

These supposedly flaccid and paralysed muscles were the muscles referred to in the report of Dr. Alfred Deacon, orthopaedic surgeon, Children's Hospital, Winnipeg, Canada, which appeared in the *Canadian Public Health Journal*, August, 1941, reading: "We were astounded to see Miss Kenny restore what we had recorded as completely flaccid and paralysed muscles to full function in the course of a few minutes by restoring mental awareness" This was not done by directing the patient's mind to the part. The motor pattern had to be restored first. The patient is not asked to think. If they could think there would be no necessity to tell them to do so. The procedure reaches further than that. The concept can be best explained in the language of the scientist and research worker, Dr. Hipps, who wrote: "You have found symptoms and visible findings in this disease, infantile paralysis, that we had no idea existed. You have demonstrated to me a disease I did not know existed."

You are very much mistaken if you think the American workers are giving extravagant credit to this presentation or that it is old ideas with new names. There have been upward of 300 doctors attending the classes at the University of Minnesota, all of whom have practising technicians also trained in Minneapolis from the United States of America, Cuba, and Canada. Many have film pictures of the results and that of their orthodox patients, showing 60% more recoveries in the patients treated by the method evolved for the new concept, which has been acknowledged by the observers to be diametrically opposed to the orthodox concept.

The author of the article in your *Journal* refers to Jones and Lovett as the orthodox authorities on this disease. The two physicians referred to in this letter—Drs. Krusen, Mayo Clinic, and Pohl, Minneapolis—were trained in this school, and upon my arrival in Minnesota, U.S.A., were religiously practising their technique. Both thought I was unbalanced mentally when I presented my concept, and both, being true physicians, now acknowledge their mistake. The investigation of my work and theories was carried out at the suggestion and under the direction of Dr. Wallace Cole, professor of orthopaedic surgery, University of Minnesota, and was assisted by Dr. Miland Knapp, professor of physical therapy. I would gladly welcome the author of your article to Minneapolis as representative in the interests of humanity and the well-being of the people of England. I think this would be a laudable undertaking.

I have requested the Bruce Publishing Company to forward to you the book entitled: *The Kenny Concept of Infantile Paralysis and its Treatment.* You will see in the foreword, written by Dr. Frank Ober, professor of orthopaedic surgery, Harvard University, and president of the American Orthopedic Association, that: "Sister Kenny puts great emphasis on muscle spasm in the affected muscles. One does not find mention of muscle spasm in textbooks, but there is no doubt that it is present, and is a great factor in the production of early deformities unless relieved. Mental alienation of muscles is another term used in the book, and does occur even in other conditions in which there is no paralysis." Dr. Ober was a colleague and pupil of the Jones and Lovett you refer to. This evidence, presented from indisputable authority, will go far to explain the reason why deformities did not occur in the patients treated by this method under my supervision at Queen Mary's Hospital, Carshalton, and every other institution that adheres to the method when immobilization, the paramount principle of orthodox procedures, to prevent this condition was abandoned.

You will learn from the above observation and statement that my concept is not a new term for old ideas. It is the muscle affected that is in spasm and the non-affected one that is alienated. Therefore, the explanation given by Drs. Cole and Knapp two years ago is supported to-day by Dr. Frank Ober and the hundreds of others that have come to listen and learn. It is explained in the presentation of Dr. Frank Krusen, Mayo Clinic, Rochester, and already quoted in this letter. I would gladly welcome a doctor and technician from Queen Mary's Hospital to finish their training, also from any of the Australian clinics that are equipped with a partially trained staff. Units are being enrolled from the South American Republics, Cuba, Canada, and China. The University of Minnesota would gladly share this message of healing with the rest of the world.—I am, etc,

Minneapolis. ELIZABETH KENNY.

Staffing of Miniature Mass Radiography Units

SIR,—With reference to Dr. Norman Henderson's letter (April 17, p. 488), reduction in radiographic exposure time when employing mobile power unit is due to a variety of reasons. A specific input voltage at a high frequency permits precise calculation of iron and copper, and, more particularly, allows reduction of core and windings in the design and construction of the high-tension *x*-ray transformer. Portability of transformer, therefore, is the logical reason I have specified, in certain instances, a high cycle input in self-contained mobile *x*-ray units (*Brit. J. Radiol.*, 1934, **7**, No. 79).

I would not advocate the adoption of non-standard frequency in any contemplated wide use of mobile miniature radiographic units. Standardization must be preserved throughout the scheme whether the apparatus be used on the public supply mains or the mobile generator. Improvement in radiographic exposure time is due primarily to distortion of wave-form in the alternator on load, resulting in a "peaky" rather than true sine wave. Under certain conditions an induction coil effect is produced which varies according to the regulation of the transformer.

I apologize for dogmatizing on a technical subject through the columns of a medical journal.—I am, etc.,

London, S.W.1. H. T. Ferrier.

Maintenance of the Dependants of Tuberculous Patients

Sir,—The Committee on Tuberculosis in Wartime in their report (M.R.C. Special Report Series 246, 1942) made the suggestion, now adopted by the Minister of Health (Memo. 266T, April, 1943), that financial aid from public funds should be afforded to the dependants of tuberculous patients during the period of the breadwinner's invalidity. It is now more than 40 years since this suggestion was made to the Corporation of the City of Manchester by their then medical officer of health, the late Dr. James Niven. A passing reference to the incident is recorded in his *Observations on the History of Public Health Effort in Manchester* (Jno. Heywood, 1923).—I am, etc.,

Ministry of Health, Whitehall, S.W.1. J. R. Hutchinson.

Obituary

C. LAMBRINUDI, F.R.C.S.

Orthopaedic Surgeon to Guy's Hospital

We regret to announce the sudden death on April 21, at Mayfield, of Mr. C. Lambrinudi, orthopaedic surgeon to Guy's Hospital and consulting orthopaedic surgeon to Queen Mary's Hospital, Carshalton, who had made many valuable contributions to his branch of practice.

Constantine Lambrinudi was born in 1890 and entered Guy's from Christ's College, Cambridge, in 1910. His medical studies were interrupted in 1912-13 by two periods of service during the war in the Balkans. He qualified M.R.C.S., L.R.C.P. in 1914, and was in turn assistant house-surgeon to Mr. C. H. Fagge, out-patient officer, and house-surgeon to Sir Alfred Fripp. During the last war he served again with the Greek Army and later as a medical officer in the Royal Flying Corps. After working for a year as part-time demonstrator of physiology at Guy's and surgical registrar at the Royal Free Hospital he took the F.R.C.S. in 1921, and was chief clinical assistant and registrar in the orthopaedic department at Guys from 1923 to 1928, when he was appointed assistant orthopaedic surgeon; on the death of Mr. Trethowan in 1934 he became orthopaedic surgeon in charge of the department. Lambrinudi was honorary secretary of the Orthopaedic Section of the Royal Society of Medicine in 1933-5, and served on the Council of the British Orthopaedic Association. He described a new operation for the correction of drop-foot in the *British Journal of Surgery* in 1927, and wrote on the "Use and Abuse of Toes" in the *Clinical Journal*. At the Annual Meeting of the British Medical Association in 1934 he opened a discussion in the Section of Orthopaedics on adolescent and senile kyphosis, and this paper appeared in the *British Medical Journal* of Nov. 3, 1934.

A tribute published in *Guy's Hospital Gazette* recalls the fresh and unbiased outlook which Lambrinudi brought to every problem that he tackled.

> "The result was not only the gift to orthopaedics of a considerable number and variety of real advances, which have already been generally accepted, but also original and stimulating thought on nearly every subject which he touched. He had also that other quality of greatness—simplicity in ideas. . . . He held that the chief function of the specialist was to explore the uncharted, or only partially understood, regions of medicine, to elucidate and simplify them, and return the knowledge so obtained to medicine as a whole. He held that there were no principles of orthopaedics as opposed to principles of medicine. There were only principles of medicine, which in orthopaedics should be applied to the restoration and maintenance of the function of locomotion, using the term in its widest sense. Always he laid stress on function as the only true guide in treatment, and not only function of the body as a whole, but also its proper functioning in relation to its social environment. It was for this reason that he attached so much importance to the almoner's department, and it was for the same reason that he instituted the employment of the visiting masseuse in connexion with hospital practice—an innovation in which Guy's has led the field."

Mr. Frank St. J. Steadman, senior dental surgeon to the Royal Dental Hospital, London, died suddenly on April 11, aged 63. He was a student at Charing Cross Hospital and took the L.D.S. in 1902, following this with the M.R.C.S., L.R.C.P. in 1907, and the D.P.H. in 1911. Devoting himself to the practice and teaching of dental surgery, he was appointed to the staff of the Metropolitan Hospital and the Belgrave Hospital for Children, and lectured in histology and practical dentistry at the National Dental Hospital. During the last war Mr. Steadman served over-seas in the R.A.M.C.(T.A.), and reached the rank of major when holding the administrative post of D.A.D.M.S., 20th Corps. After returning to civilian life he became lecturer in dental diseases in childhood, on local anaesthesia, on bacteriology, and on oral surgery, at the Royal Dental Hospital. He also examined in dental surgery for the Universities of London and Bristol. In 1937 he was president of the British Society for the Study of Orthodontics, and in 1939 president of the Odontological Section of the Royal Society of Medicine.

Dr. Ernest Charles Jennings died at Newton Abbot on March 13 as the result of a motor accident. He was 65 years of age. He studied medicine in Dublin, and qualified at the Royal College of Surgeons in 1904. He held resident appointments in England, and went to Australia in 1911, where he did much pioneer work in establishing medical services in the remote districts. He practised in Queensland and New South Wales. In 1928 he returned to England, and took up practice at Bracknell. Two years ago he retired and went to Devonshire. Dr. Jennings was a member of the B.M.A., and always took an interest in all medical work until the time of his death. His cheerful and lively personality endeared him to all with whom he came in contact, and he will be much missed by his colleagues and friends. His wife survives him.

The Services

Capt. (temp. Major) G. H. G. Hope, R.A.M.C., has been awarded the M.C. in recognition of gallant and distinguished services in the Middle East; and Capts. (temp. Majors) L. E. C. Davies and J. R. Kellett, R.A.M.C., have been appointed M.B.E. (Military Division) in recognition of gallant and distinguished services in the South-West Pacific.

CASUALTIES IN THE MEDICAL SERVICES

Wounded.—Capt. N. J. H. Davidson, R.A.M.C.

Missing since the Fall of Singapore, now Officially Reported Interned in Malaya.—Dr. M. A. X. Cocheme, Colonial Medical Service.

Missing, Presumed Killed.—Surg. Lieut. Philip Alan Rees, R.N.V.R.

DEATHS IN THE SERVICES

Surg. Rear-Admiral Herbert Reginald Harry Denny, C.B., R.N. (ret.), died on April 20 as the result of a motor accident at Plymouth, aged 66. He was educated at Guy's Hospital, and, having obtained the Conjoint Board medical qualification in 1899, joined the Royal Navy in the following year. He served throughout the war of 1914-18 in the Grand Fleet and subsequently became S.M.O. of the Royal Naval Hospital, Cape of Good Hope. In 1931 he was promoted to be rear-admiral and in 1935 he was appointed honorary surgeon to the King. He received the C.B. (Mil.) in 1932 for his long and distinguished services. After his retirement in 1935 he resided at Plymouth, and he was engaged in war work at the time of his fatal accident.

Lieut.-Col. Walter Rothney Battye, D.S.O., I.M.S. (ret.), died, aged 69, at Parkstone on April 27 after a long illness. He was a highly qualified and able officer who had a varied career. He obtained an entrance exhibition and gained medals at University College, London, and took the B.Sc.Lond. in 1898, with honours in zoology, the M.B., B.S. in 1897, the M.S. in 1908, and the F.R.C.S. in 1909. He entered the I.M.S. in 1898, gaining the second place, and won the Parkes Memorial Medal at Netley. After serving with Indian cavalry regiments in India he saw active service in China during the Boxer rebellion in 1900. Three years later he entered the civil branch of the I.M.S. in the coveted political department, served during the next ten years in Persia and in Rajputana, and became chief medical officer, Central India, residency surgeon, Indore, and superintendent of the King Edward Hospital and Medical School, where his exceptional qualifications found scope. During the war of 1914-18 he served in Egypt, and in the Dardanelles until the evacuation, and was mentioned in dispatches four times, awarded the D.S.O., and made a Chevalier of the Legion of Honour. After duty in France he was promoted to be D.A.D.M.S. at Baghdad, and subsequently became Secretary for Health and Director of Civil Medical Services, Mesopotamia, in 1919. After this varied and distinguished career he retired in 1929, but served further as medical superintendent of King George V Merchant Seamen's Memorial Hospital, Malta. He was the author of papers on plague, spinal anaesthesia, the treatment of Anzac wounded, and on the climate and health of Meshed, Persia. His life's work well illustrates the great opportunities the Indian Medical Service in its palmiest days offered to men of his ability and energy, of which he took the fullest advantage.

Lieut.-Col. ALEXANDER CLIFTON CRAIGHEAD, I.M.S., died at sea through enemy action in March, 1943, aged 54. He studied medicine at St. Andrews University and passed the final M.B., Ch.B. examination in 1914. He became a temporary lieutenant, R.A.M.C., during the last war in 1916 and obtained a permanent commission as captain in the I.M.S. in 1919. In 1925 he took the D.T.M.&H. with distinction, and gained the Duncan medal. He served in the Indian Research Department and became assistant director, Central Research Institute, Kasauli, and was joint author of an investigation into the value of an etherized vaccine.

Universities and Colleges

UNIVERSITY OF OXFORD

In Congregation on May 6 the honorary degree of D.Sc. was conferred on Dr. Joseph Trueta, formerly Director of Surgery in the University of Catalonia, who came to England in 1939 and in 1940 was appointed by the Minister of Health to an advisory post at the Wingfield-Morris Orthopaedic Hospital, Headingley.

UNIVERSITY OF CAMBRIDGE

Albert Charles Chibnall, Sc.D., F.R.S., of Clare College has been elected Dunn Professor of Biochemistry from Oct. 1, 1943, in succession to Sir Frederick Gowland Hopkins. Dr. Chibnall has held the chair of biochemistry at the Imperial College of Science and Technology, London, since 1936.

At a Congregation held on April 30 the following medical degrees were conferred:

M.D—(by proxy) J. W. Parks, T. E. Jones-Davies, (in person) H J Wallace.
M.B, B CHIR.—(by proxy) L. G Kingdom, B Pownall, J Lomas

Titles of the degrees of M B., B Chir. were conferred by diploma in March on E. Tylden of Girton College, and in April on H. C. Mason of Newnham College.

The Professor of Anatomy gives notice that applications for the Marmaduke Sheild scholarship in human anatomy are to be sent to the Registry by May 20 in the present term.

UNIVERSITY OF LONDON

The membership of the following medical representatives of Convocation has been continued until May, 1944: *Medicine*, Sir E. Graham-Little and Major-General P. H. Mitchiner; *Science*, Prof. M. Greenwood, D.Sc., F.R.S.

The following candidates have been approved at the examination indicated:

POSTGRADUATE DIPLOMA IN PSYCHOLOGICAL MEDICINE—[1]G H. H Benham. *Part I*: A. H D. Hunter, A. W. MacLeod

[1] With Mental Diseases (Psychiatry)

UNIVERSITY OF GLASGOW

The degree of Doctor of Medicine (M.D.) with commendation was conferred by diploma upon James Stewart, M.B., Ch.B., on April 17.

ROYAL COLLEGE OF PHYSICIANS OF LONDON

At a meeting of the College, held on April 29, with Lord Moran, President, in the chair, the following were elected Fellows:

C. R. Burns, M D. (New Zealand); B. Maclean, M.D. (Newcastle, Staffs); Janet K. Aitken, M.D. (London); H. L. Wilson, M.D. (London); H. Joules, M D. (London); L. Minski, M.D. (Sutton, Surrey); A. G. Watkins, M.D. (Cardiff); Brig F. M. Lipscomb; Major-Gen. Sir P. S. Tomlinson, C B., D.S.O.; C. T. Andrews, M.D (Truro); G. A. Elliott, M.D. (Capetown); Reginald Ellis, M.D. (Manchester); M Kremer, M D (London); G. D Kersley, M.D. (Bath); D. U. Owen, M.D. (Liverpool); R. Bodley Scott, D.M. (London); W. E. Snell, M.D. (London); F. S. Fowweather, M.D. (Leeds); R. H. Parry, M.D. (Bristol); K. Robson, M.B. (London); J. L. Lovibond, M.B. (London); P. J. Kerley, M.D. (London); Denis J. Williams, M.D. (London); W. Ritchie Russell, M.D. (Edinburgh); J. W. Bigger, M.D. (Dublin); Noah Morris, M.D. (Glasgow); J. E. Gordon, M.D. (Harvard); James M. Mackintosh, M.D. (Glasgow); Charles McNeil, M.D. (Edinburgh); L. C. Montgomery, M.D. (Montreal).

Dr. J. L. Livingstone was elected an Examiner in Pathology.

The following candidates, having satisfied the Censors' Board, were admitted Members:

J. L. Bates, M B., J. L. D'Silva, M.B, T. S. Eddie, M.B., L. A. Hawkins, M B, J C Herapath, M.B., A. W. J. Houghton, M.B, Major R. P. Howard, M.D, R.C A.M.C., J. S Lawrence, M.D., R. Marshall, M.D., Surg Lieut.-Cmdr. G. J. Murray, M D., R.N.V.R., Sheila M. Newstead, M.B, Capt. O. R. L. L. Plunkett, L.R.C P., R.A.M.C., K. O Rawlings, M B, F. Ridehalgh, M B, Sheila P. V. Sherlock, M B., J. V. Sparks, L.R.C.P., J. R Tasker, M.B, W. G Tillmann, M B., A. W W. B Woods, B M.

Licences to practise were conferred upon the following 238 candidates (including 30 women) who had passed the Final Examination in Medicine, Surgery, and Midwifery of the Conjoint Board, and have complied with the necessary by-laws:

D. G. Abrahams, N. Ambache, I. B. Amin, R. E. Arango, E. L. Arnold, D. C Artingstall, Janet F Atkins, D. R. F Atkinson, J. Attenborough, G. B. Badock, R. A J. Baily, Ursula M Baines, E H. D'A Bannister, E A. Barker, G D. G. Barnes, Kathleen B Bentley, D. H B Bevan-Jones, A. I Black, Katherine M. Blacklock, W. R. Bodenham, G. L. W. Bonney, Margaret E. M. Boulton, B. T. Bowen, J. C. Brace, W. Brand, A. R. Brandreth, E. Brenman, M. Bresler, D. L. Bridgewater, J G Brown, M. M. Brown, P. F. E Brown, E A Burkitt, J. D. Burton, R. J. Bush, R J. Cairns, R. W. L. Calderwood, Janet Cameron, E. F. Carr, S Chakravorti, G. I. Clarke, Peggy C Cole, E. Consterdine, M. Conway, M. A. Cooke, J. C. Cooper, G N. C. Crawford, D. G. Crawshaw, Alexandrina Currie, Vera J. Cutler, A. G Davies, T. D. L Davies, P. R. H. Davis, M. V. Doherty, G. H. P. Drake, P. D A Durham, W. H. Dyson, J. R. Elliott, J. W. Ellis, Norah C. Elphinstone, A. Elton, D W. Evans, E. P. Evans, J W. Evans, D. A. T. Farrar, L. Feldman, T. R. Fink, H. H Firth, H. J. W Fisher, C J Foord, Edith V. Foyle, R. S. Francis, H. J. Furstenheim, Sylvia B Gadsden, M. B Garnett, H. N. H Genese, G H. Gilford, T. H. B. Gladstone, S. R. S. Godkin, N G. Graham, R. Greenwood, D. B Griffiths, G H. Gunson, W. Haigh, W. J. Hanbury, B. H. Hand, J. E. Hargreaves, T. H. Hargreaves, R. D Harland, Elizabeth M. Harper, N. Harris, H. Hassall, R K Hayden, Margaret I Hendrie, Joyce M Hierons, D E H. Hoffman, M Holborow, R F. Hollick, J. P. Hopewell, B. E C. Hopwood, N. H. Howes, Mary W. P. Huddart, W. G. H Hunt, J. K. Irving, R G Isaac, M O Jenks, Elizabeth M. Jenman, A. I. Joffe, D. W. Johnson, M. W Johnson, E N. M. Johnston, A. Jolleys, D. J. Jones, H. R. Jones, J L. Jones, Mary P. L. Karney, G. E. Keen, D. Kennedy, M. C. S. Kennedy, P R. N. Kerr, C. H. R Knowles, M Knowles, R. G. Law, Kathleen M. Lawrence, H. L. Leaming, T. Lee, M. Lewis, T O. Lewis, J. Lister, P. Lister, B. R. Little, R. Loveless, R. S. McDonald, K. B. McKay, W. Mackenzie, J. D. M McLaren, P G. Mann, M. G. Marks, Helen G. T. Maycock, Helen M Mellor, Alexa Mitchell, Elizabeth R. Mitchell, J. N Mitchinson, D A. Mitchison, D B. Moffat, H. E. A. Moody, L. J. Morgan, J. L. Morris, N F. Morris, P. G Mundy, Diana J. Myott, F. A Nash, W. J. Naunton, Edith F. Newling, J. A. Nissim, J. K. Ogden, A J. P. Oldham, J K. O'Malley, F T. Page, G. B. Parker, T. M. Parry, J. R. Partridge, B. D. Patel, J C R. Payne, P. R. Peters, M. G Philpott, H. L Pierce, D. R. L. M. Poirier, J. McE. Potter, K. C. Precope, J R. Preston, M. Prosser, S. G. W. Ramsbury, D. H Randall, R. L. Ray, T L. Reeves, P. P. Reichenheim, J. H. Rey, J. K Roberts, M. J Robertson, G. H. A. Robinson, P. J. L. Roche, P. M Rooze, W. D. Rowe, P. H. Schurr, S. J. Smith, T B. Smith, W. K. Somerton, E. R. O E. Spearing, Joan E. Spencer, A. Stafford Steen, F. M. G. Stammers, S Stecher, D A Stickland, D. F. Street, A L. G. Stuart, W. F. Styles, H. Syed, Hedwig Symonds, Zahra Taki, R G. Tasker, G Taylor, H. N Taylor, N. B Thadani, D W. Thomas, J. B Thomas, K. D. W. Thomas, P. J. B. Thomas, P. A. Thorpe, J. M. Titcombe, A. K. Toufeeq, J. D. Trethowan, M. Trosser, H. Turner, W. J Turney, S M. Vine, H. N. Waller, D Waxman, B. J. Webb, J D. Whitby, D. Whitfield, W N Wild, J R. F. Williams, Marion Williams, T B. Willis, B H. Wilshere, J. N Wilson, J. R. Wilson, K L. Wilson, R. E Wilson, O H Wolff, C. R. Woodard, R. G. Woodsend, Barbara D Wright J. A. H Wylie, H Zaloudek, C. J. Zerny, J Zimmermann

Diplomas in Medical Radiology were granted, jointly with the Royal College of Surgeons of England, to the five persons whose names were published in the *Journal* of March 20 (p. 368), as were the names of the eleven persons who were granted Diplomas in Ophthalmic Medicine and Surgery. Diplomas in Child Health were granted to the fifteen persons whose names were published in the report of the meeting of the Royal College of Surgeons of England in the *Journal* of April 24 (p. 524).

ROYAL COLLEGE OF OBSTETRICIANS AND GYNAECOLOGISTS

At a meeting of Council held on May 1, with the President, Sir W Fletcher Shaw, in the chair, the Honorary Fellowship of the College was conferred on Sir Wilson Jameson, Chief Medical Officer of the Ministry of Health, in recognition of his services to obstetrics and gynaecology

Gladys Hill and N. L. White have been admitted to the Fellowship, and the following were admitted to the Membership: Janet E. Bottomley, Phillis Dingle, Marjorie O. Dunster, L. Resnick, G. S. Sturtridge, K. G. P. Worner.

At the annual general meeting of the College, held on May 1, with the President in the chair, the following were elected to Council in place of those retiring by statutory rotation: *Representatives of the Fellows*: A. J. McNair, A. A. Gemmell, J. Chassar Moir, R. H. J M. Corbet. *Representatives of the Members*: B. L. Jeaffreson, J. S Quin

Medico-Legal

CRIMINAL NEGLIGENCE: A CONVICTION QUASHED

A recent judgment of the Privy Council re-emphasized the distinction between the negligence which gives grounds for a civil action and that which exposes a person to criminal penalty. A West African medical practitioner, Dr. J. O. Akerele, was touring the Owerri Province of Nigeria and treated at two villages a large number of patients for yaws. He used injections of sobita, a preparation of bismuth sodium tartrate extensively used for this purpose. Of the 57 children he treated at one of the villages 10 died.

The Trial in West Africa

He was charged before an assistant judge with the manslaughter of one of the children, Kalu Ibe; with reckless and negligent acts in giving medical treatment to the child in a manner so rash or negligent as to endanger human life or to be likely to cause harm; and with reckless and negligent acts in dispensing or administering medicine or poisonous or dangerous matter to the child. Another medical practitioner who had treated the child ten days after the inoculation, and a district mission worker, gave evidence that the boy had suffered from stomatitis induced by bismuth poisoning, and this medical witness and another doctor inferred that the death was due to an overdose. Dr. Akerele maintained in his defence that Kalu Ibe had been peculiarly susceptible to a dose which would have been harmless to a normal child. He said he had dissolved the powder in sterile water and carried a 20-oz. bottle made up for the day's work. After the illness had shown itself he returned, provided mouth-wash and milk at his own expense, and tried unsuccessfully to enlist an assistant to continue the treatment.

The judge found that the doctor had negligently prepared too strong a mixture and that his negligence was criminal. Summing up, he said that the dissolving of sobita in water to a certain strength evidently involved no particular technical finesse, but the accused in giving these injections had managed to make at least 11 persons gravely ill with the most revolting symptoms. One would have thought (he said) that in the circumstances he would at least make as certain as was humanly possible that he injected the correct dose. The judge concluded that the doctor had acted with a degree of negligence that could only be described as criminal. He found him guilty of manslaughter and sentenced him to three years' hard labour; not guilty of the second charge (negligent medical treatment), but guilty of the third charge (negligence in administering medicine), for which he imposed a fine of £100. The West African Court of Appeal quashed the sentence on the third charge, affirmed the conviction for manslaughter, but varied the sentence to a fine of £500. The Board of Examiners for Nigeria erased the doctor's name from the local medical register.

Appeal to Privy Council

Dr. Akerele appealed to the Privy Council, and the Board found unanimously that he had been wrongly convicted.[1] They referred to the leading cases on criminal negligence, and emphasized that criminal negligence must be gross, and that neither a jury nor a court can transform negligence of a lesser degree into gross negligence merely by giving it that appellation. There is a difference in kind as well as of degree. In *R. v. Crick*,[2] Chief Baron Pollock said it would be most fatal to the efficiency of the medical profession if no one could administer medicine without a halter round his neck; and the Board stressed the care which should be taken before imputing criminal negligence to a professional man acting in the course of his profession. They regarded it as unfortunate that the two doctors called for the Crown were accustomed to use N.A.B. and had little, if any, practical experience of sobita, with the result that the court had no evidence on the excess of strength in the mixture which would produce the observed consequences in a normal patient, nor of how widespread among the medical profession is or ought to be the knowledge of the danger of an overdose. The known margin of error was nowhere referred to.

The only negligence on which the Crown could rely was the single act of dissolving the powder in water. It was immaterial that the symptoms were revolting and that many people were made ill; the act had already taken place and its consequences could not add to its criminality. The negligence to be imputed depended upon the probable, not the actual, result. The judge had nowhere stated in what he found the negligence to consist unless in its fatal consequences in so many persons. He had imputed to the accused repeated acts of negligence as if the doctor were to be blamed for want of care in each injection instead of for the one act of carelessness in preparing the mixture. The Board could not accept the view that criminal negligence is proved merely because a number of persons have been made gravely ill and a high degree of care has not been exercised. In their view the distinction between civil and criminal liability had been inexactly drawn, the ground of the criminal charge ill defined, and the instances of negligence increased from one to many by imputing a fresh act of negligence in the case of each death. They therefore advised the King to allow the appeal and quash the conviction.

The scanty records of criminal prosecution of doctors for negligence show how rare criminal negligence is in medical practice, and how grave a degree of recklessness has to be committed to bring a doctor within reach of the law.

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[1] (1943) 2 All E R.

[2] (1859) 1 F. & F. 519

THE CHURCH CELLAR MURDER

At a meeting of the Medico-Legal Society on March 25 Dr. C. Keith Simpson gave an account of the means taken to identify the victim in what was known as the Baptist church cellar murder, for which Harry Dobkin was tried recently at the Central Criminal Court before Mr. Justice Wrottesley, and was convicted and executed. Dr. Simpson said that a woman disappeared after making an appointment to meet her husband, who was in arrears of maintenance. Fifteen months later some remains were found underneath a chapel in Kennington, on premises to which the husband had access as a fire watcher. Even after such a lapse of time it was possible to decide the cause of death, which was strangling, and eventually to identify the body, although it had been dismembered, partially burned, and eventually buried in lime under the floor of the cellar. The remains were discovered by chance during demolition work and were thought at first to be those of an air-raid victim.

Identification of Victim

When the remains were discovered, said Dr. Simpson, the head was away from the trunk, and scalp, hair, face, lower jaw, and hands and feet were missing. It was at once seen that the remains were those of a woman, for the uterus was visible, and eventually was proved to have a fibroid tumour, which turned out to be an important point in identification, for it was found that the missing woman had attended at two hospitals for an internal complaint, which was diagnosed as uterine fibroid, and had refused operation. The murderer, after having tried unavailingly to dispose of the trunk by burning, had sprinkled powdered slaked lime over it and buried it under a large slab, but the lime, instead of accelerating the destruction, had preserved the soft parts from decomposition. The stature of the victim was estimated by two methods. The body was reassembled, and after making due allowance for missing bones and soft tissues, the height was estimated as 5 ft. 0½ in., control estimations being made by Pearson's formulae and Rollet's tables, taking the length of the left humerus, the only long bone available. Examination was made by *x* rays of certain bones in order to determine age. The state of fusion between the plates of the vault of the skull, confirmed by the palate, suggested an age of 40 or 50, and the missing woman was said to have been 5 ft. 1 in. in height and to have been aged 47. The teeth of the upper jaw clinched the examination. A dental surgeon was found who was able to produce the most detailed record cards of the treatment he had given to the woman, and from his records a picture of the upper jaw was reconstructed, which proved to be a perfect reproduction of the jaw which was discovered. Further, a full-face portrait of the missing woman was found, and as the major part of the skull could also be reproduced full face, two *x*-ray photographs were standardized and superimposed, the negative of the skull and the positive of the portrait, and by giving them exactly the same width between the orbits, the portrait fitted the skull like a mask. In the general contours of vault, cheeks, and upper jaw, and in the width and breadth of the sockets and position and shape of the nose openings, there was no dissimilarity whatever.

The Cause of Death

It remained to determine the cause of death. When the voice box was dissected out it was found that there was some deep crimson clot penetrating between the tissues surrounding the upper horn of the right wing of the thyroid cartilage. Under the bruise lay a fracture of the horn, and it was reasonable to infer that the throat of the victim had been gripped with sufficient strength to break that small bone. It was a strictly confined injury commonly seen only in manual strangulation. Dr. Keith Simpson concluded by saying that the case illustrated in a classical manner the striking results which might follow even in the most hopeless-looking cases by the patient application of simple medico-legal principles of study.

No. 16

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended April 24.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	83	10	29	3	4	170	12	32	4	8
Deaths		—	2				1	—		
Diphtheria	710	42	181	90	33	750	47	162	41	33
Deaths	15	—	2	2	2	25	—	2	—	—
Dysentery	69	7	26		—	185	18	58		3
Deaths		—		—	—		—		—	—
Encephalitis lethargica, acute	—	—	—	—	2	3	—	—	—	—
Deaths		—	—				—	—		
Erysipelas			47	7	1			50	9	2
Deaths		—	—				—	—		
Infective enteritis or diarrhoea under 2 years				5		—			31	
Deaths	47	15	3	18	4	35	3	9	7	4
Measles	13,490	860	505	36	102	3,502	297	616	138	75
Deaths	11	1	2	1	1	2	—	1	1	1
Ophthalmia neonatorum	101	7	24	—	—	83	5	17	—	—
Deaths										
Paratyphoid fever ..	5	—	2		1	18	—	2		—
Deaths	—	—	—		—	—	—	—		—
Pneumonia, influenzal*	866	67	13	3	17	951	56	11	9	—
Deaths (from influenza)	30	1	1	1	1	20	1	—	—	—
Pneumonia, primary ..		—	212	20			—	296	19	
Deaths		—		6	8		—		16	10
Polio-encephalitis, acute	—	—				4	1			
Deaths		—					—			
Poliomyelitis, acute ..	7	—	2	4	—	2	—	1	1	—
Deaths		—					—			
Puerperal fever		—	11	2	—	—	—	16	—	—
Deaths		—					—			
Puerperal pyrexia ..	156	8	9		—	186	15	16		1
Deaths						—	—			
Relapsing fever ..	—	—			—	—	—			—
Deaths		—					—			
Scarlet fever	1,770	164	211	39	57	1,031	46	172	37	27
Deaths	1	—	—	1	1	—	—	—	—	—
Small-pox	—	—	—		—	—	—	—		—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever†	3	—	6	8	—	8	—	3	10	—
Deaths	—	—	—	—	—	1	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths			—	—	—			—	—	—
Whooping-cough ..	1,827	153	152	28	36	1,672	202	100	55	12
Deaths	9	1	5	3	—	15	6	1	3	—
Deaths (0–1 year) ..	371	53	64	36	25	352	37	74	38	18
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	4,401	631	610	193	157	4,565	650	637	217	130
Annual death rate (per 1,000 persons living)			13·7	12·7	‡			14·3	14·5	‡
Live births	6,105	724	913	372	296	6,089	592	951	316	294
Annual rate per 1,000 persons living ..			18·6	24·5	‡			19·7	21·1	‡
Stillbirths	228	22	35			258	33	46		
Rate per 1,000 total births (including stillborn)			37					41		

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes paratyphoid A and B for Northern Ireland.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* the incidence of infectious diseases continues to fall—measles by 3,242, scarlet fever 288, acute pneumonia 273, whooping-cough 117, dysentery 38, cerebrospinal fever 20, and diphtheria by 13—in the week under review.

The sharpest drops in the notifications of measles were: Hertfordshire 301, Glamorganshire 282, Middlesex 240, Surrey 183, Warwickshire 182, London 181, Staffordshire 180, Lancashire 145, Carmarthen 133, Durham 130, Yorks West Riding 124, Bedfordshire 122, Kent 113, Yorks North Riding 103. A few counties reported a higher incidence: Cornwall by 86, Leicestershire by 79, Derbyshire by 53.

Although there were 117 fewer cases of whooping-cough, fluctuations among the counties were considerable. The combined totals of the divisions of London, South-East, West Midlands, North Midlands, and Northern Counties showed an increase of 108. The only large variations in the county totals were decreases in Lancashire of 59, and in Cheshire of 46.

Scarlet fever and acute pneumonia declined in incidence throughout the country, whilst the trend of diphtheria underwent little change.

The 69 notified cases of dysentery were distributed over nineteen counties, the largest returns being those of Surrey 9 and Gloucestershire 9.

In *Scotland* the principal decreases were: measles by 182, whooping-cough 125, scarlet fever 49, acute pneumonia 38, and dysentery by 19. In Glasgow the notifications of measles and whooping-cough were 109 and 95 fewer than in the preceding week, and in Edinburgh there were 22 and 23 fewer cases respectively of measles and scarlet fever.

In *Northern Ireland* the slight rise in the measles figure was due to the experience of the city of Belfast, where all the cases notified were.

Tuberculosis

The numbers of cases of tuberculosis notified in England and Wales together, and in Wales alone, in 1938, 1941, and 1942, and the percentage increases or decreases in age groups, are as follows:

Number of Cases Notified

Year	ENGLAND AND WALES			WALES		
	Pulmonary	Non-pulmonary	Total	Pulmonary	Non-pulmonary	Total
1938 ..	43 205	14,888	58,093	3,096	1,129	4,225
1941 ..	46,256	13,720	59,976	3,286	1,107	4,393
1942 ..	46,734	13,998	60,732	3,262	1,025	4,287

Notifications in Age Groups

ENGLAND AND WALES

Ages	0–	1–	5–	10–	15–	20–	25–	35–	45–	55–	65–	Total
1938	439	2,852	4,434	3,543	6,823	7,715	12,417	8,022	5,997	4,092	1,759	58,093
1941	452	2,921	3,553	2,918	7,132	8,197	13,240	8,932	6,301	4,378	1,952	59,976
1942	372	2,783	3,729	3,032	7,129	9,133	12,944	9,179	6,160	4,336	1,935	60,732
% increase or decrease in 1942 compared with:												
1938	−15	−24	−16	−14	+4	+18	+4	+14	+3	+6	+10	+5
1941	−18	− 5	+ 5	+ 4	—	+11	−2	+3	−2	−1	− 1	+1

WALES

Ages	0–	1–	5–	10–	15–	20–	25–	35–	45–	55–	65–	Total
1938	20	208	254	293	581	631	903	535	406	266	128	4,225
1941	18	205	259	253	645	684	1,006	625	357	237	104	4,393
1942	19	186	248	206	589	706	950	629	355	289	110	4,287
% increase or decrease in 1942 compared with:												
1938	−5	−10	−2	−30	+1	+12	+5	+18	−12	+ 9	−14	+1
1941	+6	− 9	−4	−18	−9	+ 3	−5	+ 1	—	+22	+ 6	−2

The increased incidence in 1941 and 1942 affected the adult population, while the notifications at ages under 15 were less than in 1938. In England and Wales an increase occurred in each age group above age 15 during 1941 compared with 1938. The largest increases were in the age groups 20–25 and 35–45, and in 1942 a further increase was recorded in these age groups while a slight decline occurred at all other ages, but the incidence remained during 1942 above the 1938 level for all ages over 15.

The Week Ending May 1

The notifications of infectious diseases in England and Wales during the week included the following: scarlet fever 1,683, whooping-cough 1,640, diphtheria 667, measles 13,104, acute pneumonia 906, cerebrospinal fever 86, dysentery 135, paratyphoid 2, typhoid 16.

Medical News

The annual meeting of the Royal Medical Benevolent Fund will be held at 3 p.m. on Tuesday, May 25, at the Royal Society of Medicine, 1, Wimpole Street, W., when the financial statement for the year 1942 will be presented and the officers, committee, and honorary auditors elected for the current year.

A meeting of the Tuberculosis Association will be held at Manson House, 26, Portland Place, W., on Friday, May 21, at 4 p.m., for a discussion on "Wartime Diet and the Tuberculous Patient."

A lecture arranged by the British Institute of Philosophy, entitled "Freewill, Determinism, and Rational Choice," will be given by Mr. D. G. C. Macnabb of Oxford at University Hall, 14, Gordon Square, W.C.1, on May 21 at 5 p.m. Cards of admission may be obtained free of charge from the Director of Studies at University Hall.

A meeting of the Council of the Medical Superintendents' Society will be held at the Midland Hotel, Derby, on Sunday, May 23, at 2 p.m.

The London Association of the Medical Women's Federation will hold a clinical meeting at the Royal Free Hospital on Saturday, May 22, when diseases of children will be demonstrated.

A week-end course on factory medical services and industrial diseases will be held in the medical school of Manchester University on May 22 and 23. "Nutrition of the Industrial Worker in War-time," speaker Dr. E. H. Capel, is the subject for the Saturday afternoon. On Sunday morning Prof. Daniel Dougal and Dr. Joan Harwood will speak on "Gynaecological Conditions affecting Industry," and in the afternoon Mr. W. Sayle Creer will discuss "Food Faults related to Form and Function." The fee for the course is one guinea.

At a meeting held in London on May 4, sixty practitioners being present with Lord Horder in the chair, the British Association of Physical Medicine was formally constituted. The members of the inquiry committee were elected as the nucleus of the council of the association. Practitioners interested in the new association are invited to nominate a name or names of registered medical men or women to serve as additional members of the council. These names should be sent to the acting Secretary, Sir Frank Fox, 106, Finchley Road, N.W.3, before May 20. They will be submitted to a ballot at the next meeting of the association, to be held at 11, Chandos Street, W., at 2.30 p.m. on Tuesday, May 25.

A Women's Advisory Council of the Nuffield Provincial Hospitals Trust has been formed, the members of which are associated with almoning, domestic science, the general public, health visiting and district nursing, industrial psychology, local authorities, mental health, nutrition, recruitment, rehabilitation, and social service. The terms of reference include assisting the Trustees in the organization and development of medical nursing, welfare and health services, especially in relation to the co-ordination of hospital services, of social medicine, and of such other matters as will further the interests of women. Mrs. Montagu Norman is to be chairman and Miss Frances Goodall, S.R.N., General Secretary of the Royal College of Nursing, honorary secretary.

The Capetown Postgraduate Medical Association, whose headquarters are at the University of Capetown Medical School, Mowbray, C.P., South Africa, now publishes ten times a year a journal bearing the title *Clinical Proceedings* (price 2s. 6d.).

On May 8 Dr. F. Parkes Weber celebrated a double anniversary: the half-centenary of his election to the honorary staff of the German Hospital, of which he is still senior physician, and his eightieth birthday.

On May 3 President Roosevelt appointed Brigadier-General Norman T. Kirk to be Surgeon-General of the U.S. Army in succession to Major-General James C. Magee.

Over eighty local authorities have passed resolutions supporting proposals for the prevention of smoke in post-war building that have been made by the National Smoke Abatement Society (94, Manor Green Road, Epsom, Surrey). The list, published in the current number of *Smokeless Air*, includes most of the larger cities and boroughs and represents over ten millions of the urban population.

A hundred men are now carrying out the most intensive mosquito control and eradication campaign ever launched by the Brisbane City Council. They are spraying creeks and watercourses, draining low land, and seeking particularly the haunts of mosquitoes carrying dengue.

The Marie Denny Memorial Trustees have made a gift of the value of £37,000 to the Queen Elizabeth Hospital for Children, Hackney Road.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

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ANY QUESTIONS?

Precautions in Haemophilia

Q.—*What is the modern treatment for haemophilia? What precautions should a general practitioner take before performing a minor operation or advising, for example, tooth extraction?*

A.—There is no generally accepted maintenance treatment for haemophilia. Claims for the value of extracts of egg white or plant extracts must be regarded as unconfirmed. The patient's blood group should be determined before operation, and if he is anaemic a pint or more of fresh blood should be given shortly before or during operation. After operation it is best to wait and see, for bleeding is neither inevitable nor predictable. If the patient bleeds after operation, apply Russell-viper venom (Boots or B.W. & Co.) or thrombin (Maw) locally, taking care to avoid undue pressure or trauma, and transfuse as often as necessary to relieve anaemia and reduce the coagulation time.

Position of the Grey Matter

Q.—*Why is the grey matter on the outside of the cerebrum and on the inside in the spinal cord?*

A.—In primitive animals the grey matter of the central nervous system was inside and the white matter outside, as it is in the spinal cord of man to-day. Such an arrangement, however, did not allow for an expansion of the nervous system to any great degree. Attempts have been made during the course of evolution to expand the central nervous system by increasing the amount of central grey matter—e.g., the corpus striatum in birds. But there is clearly a limit to expansion by this means. It is for this reason that the grey matter is developed on the outside of the cerebrum. In order to reduce the length and volume of nerve fibres to a minimum, the cerebral cortex, by virtue of the vast number of connexions which it makes, must remain a thin layer. In order that the cortex may nevertheless expand, convolutions have appeared and thus made it possible for the grey matter to expand to an enormous extent without a corresponding increase in the volume of the brain.

Counting Spermatozoa

Q.—*I have been wanting to perform my own spermatozoa counts when investigating cases of sterility. I have been unable to find among my books of reference any satisfactory account of the manner in which one should conduct an examination of a condom specimen. Would you be kind enough to give me the name of a book which gives the details of this examination?*

A.—The most complete account of modern semen analysis will be found in *Human Sterility and Impaired Fertility*, by Lane-Roberts, Sharman, Kenneth Walker, and Wiesner. Some of the methods employed require special equipment, but the counting of spermatozoa and the examination of their morphology can be carried out without this.

Lingual Ulcers

Q.—*I have a female patient, aged 33 years, who has been troubled with ulcers on the tongue and on the mucous membrane of the mouth. She has had these for four years. They vary from very small ones about 1/8 of an inch in diameter to deep, ugly, excavating ones half an inch in diameter. They are very painful. She has four artificial teeth and wears a small dental plate. The teeth have been checked by a dentist and by x-ray examination. The Wassermann reaction is negative. Urine is normal. In fact everything appears normal. I have given her the following treatment: (1) small doses of novarsenobillon intravenously; (2) courses of sulphapyridine and sulphanilamide; (3) courses of stock staph. and strep. vaccine;*

(4) courses of calcium both intravenously and intramuscularly; (5) the usual local treatment. All have failed miserably. Any suggestions will be welcomed.

A.—The diagnosis of persistent ulcers of the tongue in the absence of evidence of neoplasm or syphilis is often difficult. In the present case the duration excludes the former and the Wassermann reaction the latter. There are three possibilities, however, which require further investigation—tuberculosis, vitamin deficiency, and electrolytic effect from dissimilar metals in the denture and any tooth stoppings. Tuberculosis is best confirmed by biopsy, but search of the stools (or stomach washings) for the organism may be of help. The distribution of the ulcers outside as well as on the tongue would agree with a vitamin deficiency, particularly, of course, the B factors, while the dentist should be able to express an opinion as to the likelihood of electrolytic action

Immunization against Pertussis

Q.—*In your review of "Preventive Inoculation," by W. Powell Phillips and C. Woodroffe Anderson (March 20, p. 353), you say, "It is pleasing to note this advocacy of immunization against pertussis; unfortunately the recent work of Bell on the efficacy of two doses of pertussis vaccine at a month's interval instead of 4 to 5 weekly injections came too late for inclusion in the text" There seems to be a good deal of controversy about the best method to adopt. I should be greatly helped if you could kindly tell me which is the work of Bell in which I can see his conclusions on this subject.*

A.—Most of the field trials on the prophylaxis of pertussis by specific vaccines have been done in the U.S.A., where the usual practice is to give 3, 4, or 5 weekly injections of smooth-phase vaccine (10,000–20,000 million organisms per c.cm.) totalling 80,000–100,000 million organisms. To avoid frequent injections of such big doses, which for large-scale immunization introduce difficulties in both production and administration, Bell[1] carried out a well-planned and well-controlled experiment in Norfolk, Virginia, using two 1-c.cm. doses (10,000 million organisms per c.cm.) of alum-precipitated vaccine at one month's interval. Very few children had any systematic reaction. There was some local tenderness and stiffness, but if the vaccine was not injected too superficially the firm nodule which usually developed was not noticed by the parents. The results were similar to those obtained with more frequent and larger doses. In the period of 34 months after vaccination 11.2% and 9.4% of two different age groups developed pertussis, compared with 39.1% and 29.7% among control uninoculated children. As usually happens, pertussis in a vaccinated child was milder and of shorter duration than the attack in uninoculated children. Since then Kendrick[2] has carried out comparative tests with plain and alum-precipitated vaccines, giving three 10,000-million doses of each at intervals of one week between the first and second doses and four weeks between the second and third doses, and she found no significant difference in the protective value of the two vaccines.

Diphtheria toxoid and pertussis vaccine may be combined without any inhibitory effect on the immunizing property of either antigen. It must be remembered, however, that pertussis has an earlier age incidence than diphtheria; in fact, about half the deaths from pertussis occur in the first year of life, so that specific prophylaxis should be begun at three to six months of age.

LETTERS, NOTES, ETC.

The Imperial Institute's Jubilee

On May 10, 1893, one of the least publicized but most useful national institutions in Britain was opened. It was the Imperial Institute in South Kensington, and ever since Queen Victoria performed the ceremony the Institute has carried on with the work for which it was founded. Designed as a shop window and show room in which could be exhibited all the wealth of raw materials that the British Empire can provide, the Institute also had two other functions which it has admirably performed during its 50 years of life. In the laboratories a scientific staff examines samples of minerals and plant and animal products which are submitted from all over the Empire with a view to their being put to commercial use. Not long ago the Colonial Office was anxious to have an assessment made of the nutritional properties of several native foodstuffs grown in Nyasaland; the experts in South Kensington were able to provide the answer. In the plant and animal products department oils, oil seeds, gums, fibres, insecticides, and other materials from all over the Empire can be scientifically examined and their use decided; and the same type of work is being carried out on the Empire's mineral resources in the minerals department. For example, wild rubbers found in Africa are being tested for elasticity and durability—it is hoped that they may help to replace the supplies of cultivated rubber lost in Malaya. Further, the Institute sends films and lecturers to schools and discussion groups all over Britain.

Malignant Tertian Malaria

Dr. RICHARD FAWCITT (Ulverston) writes: I have read with interest an account of a case of malignant tertian malaria by Drs. W. L. Anderson and D. B. Bradshaw (April 24, p. 508). I should like to draw attention to the fact that a number of cases were treated at the Albert Dock Hospital in the summer and early autumn of 1940. These cases came from a ship travelling to England by the West African route. My son, Fl. Lieut. J. B. Fawcitt, now serving abroad, was at that time acting as house-physician at the hospital, and, by the kind permission of Sir Philip Manson-Bahr, published an article recording some of the cases in the *London Hospital Gazette* (1940, **44**, No. 1, 9) under the heading of "Subtertian Malaria at the Albert Dock Hospital." Furthermore, he recorded a case in conjunction with A. H. Walters under the title of "Acute Malignant Tertian Malaria: Treatment aided by Reconstituted Serum" in the *British Medical Journal* of Jan. 4, 1941 (p. 14). I trust that these references may be helpful.

Cramp in Arteriosclerosis: A Cure

Dr. J. W. J. WILLCOX (Glastonbury) writes: The one treatment which will cure most cases of cramp at night associated with arteriosclerosis is 3 gr. of quinine sulphate at bedtime. I have not known it fail in any case during the past 3 years, and I can produce 4 patients at the present time who find it infallible. Its use for this purpose is supported by the literature on the subject, to which I am indebted for its introduction, but I confess that my search for a cure extended over 25 years.

⁂ Under an order, which came into force on Jan. 5 last, quinine and its salts may not be prescribed except as antimalarial drugs.—ED., *B M J.*

Supply of Occupational Therapists

Dr. ELIZABETH CASSON writes: May I be allowed to correct an error in the article on rehabilitation in civilian hospitals (April 10, p. 454). It is stated that the sources of supply of masseuses and occupational therapists are the Chartered Society and Dorset House School respectively. "Dorset House School" should read "The Association of Occupational Therapists." The profession is young and therefore small, but it has organized itself well, and though the Dorset House School has been privileged to supply a considerable number of the personnel required for the E.M.S. hospitals, it is only one of several schools whose pupils take the Association examination.

External Application of Opium

Dr. D. PRIESTLEY SMITH (Birmingham) writes: There must be many who can confirm Dr. J. McLaren's observations (March 20, p. 370) that opium and its derivatives do take effect through the skin. It was common knowledge to our medical forefathers. Here is a striking example which anyone can verify: Dissolve two grains of morphine in a drachm of oleic acid, and, with the finger-tip, dab it lightly on the painful area in a case of herpes zoster ophthalmicus. In ten minutes you will find the patient's pain relieved and your finger-tip numb. I do not know of any other treatment that gives the patient so much relief in this condition. Those who say that opium preparations applied externally are useless state what is simply not true. The men of former generations knew better.

"Scientific" or "Unlimited" Freedom ?

Dr. DONALD M. O'CONNOR (Brenchley, Kent) writes: The spiritual descendants of the courtiers of King Canute who belittle all existing public medical services and attempt to denigrate any which are suggested for the future exhibit an amazing complacency with the present state of our affairs. Their latest war-cry is a demand for "scientific freedom." During recent years a great part of the profession has exercised its scientific freedom to abstain from learning the indications for the use of sulphapyridine, and to refrain from ascertaining whether these existed in any given case, so that this potently toxic drug has been lavishly administered for any and every febrile condition, and we have arrived at a state of affairs when nearly every mother of a pyrexial child asks on one's first visit, "Aren't you going to give M & B, doctor?" Unlimited freedom, whether it can be dubbed "scientific" or not, has its dangers.

Disclaimer

Dr. EUSTACE AKWEI of Accra, Gold Coast, West Africa, wishes to state that he has no connexion of any kind with Lieut. Eustace Alar Akwei, R.A.M.C., who was referred to in the London *Evening News* of Nov. 25, 1942, under the heading "African posed as Bachelor of Surgery."

Corrigendum

In the leading article on "Medical Applications of the Cyclotron" (May 1) the identity of the Lawrence brothers was confused. The work referred to in column 1 of page 543 is that of E. O. Lawrence (Nobel prizeman) and not J. H. as mentioned in line 11. J. H. Lawrence's work is that described in the middle of column 1 of page 544.

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[1] *Publ Hlth. Rep.*, Wash., 1941, **56**, 1535.

[2] *Amer. J. publ. Hlth.*, 1942, **32**, 615.

BRITISH MEDICAL JOURNAL

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INVESTIGATIONS DURING AN OUTBREAK OF BULLOUS IMPETIGO NEONATORUM

BY

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WITH THE TECHNICAL ASSISTANCE OF

J. WEBSTER and A. G. NEWMAN

Outbreaks of impetigo neonatorum apparently due to staphylococcal infection were undoubtedly much more frequent than usual during the autumn and winter of 1941, more especially in maternity hospitals and homes. It is possible that staphylococcal infections in general were increased, as is shown in the following comparative figures of in-patients operated on in a large general hospital in London.

	Oct., 1940, to March, 1941	Oct., 1941, to March, 1942
Carbuncle	6	15
Mammary abscess	11	19

The outbreak affected three maternity wards, and the main inquiry covers the four months Nov., 1941, to Feb., 1942. The three wards are on different floors of the same block, each with its own nursery, labour ward, accommodation, and staff complete. The nursing staff mix in a general way when off duty, and more closely at lectures twice weekly. Cases affected during this period number 162, though this figure includes many very mild cases. There were no deaths.

Course of the Epidemic

For many years there have been occasional cases of staphylococcal conjunctivitis in the maternity wards and rarer isolated cases of mild impetigo. In October cases of impetigo increased, and in November there was an acute outbreak. The case rate was highest during November and December, and the severity of the condition at this time was marked clinically by many cases showing large areas of small bullae which rapidly suppurated and which were associated with a papulo-pustular rash. Occasional cases of conjunctivitis continued to occur, but they showed no obvious increase of severity. After December the case rate fell, with occasional increases, and the type became as a rule much milder, consisting of a scattered papulo-pustular rash, often of only a few red spots, though a few bullous cases still occurred.

During the following 12 months the record of infections was continued, and it was found that after the disappearance of the bullous cases the mild papular type of infection continued to occur in considerable numbers, ranging from 5 to 15% of all infants; the condition might in fact be described as endemic. In the records of the epidemic period no attempt had been made to differentiate between the papular and the bullous infection, all being sent to the septic ward as cases of impetigo of varying degrees of severity, although previous to this time mild impetigos and conjunctivitis cases had not been segregated. In the light of these later observations it seems possible that the bullous type was an entirely new epidemic infection superimposed on the endemic condition.

Particulars of the Outbreak

Clinical Appearances.—The general health did not seem to be affected in the least. In both severe and mild types the rash appeared suddenly, though in a few cases a preliminary erythema had been reported; then red papules, and clear blisters which rapidly became opaque and suppurated. In severer cases the bullae were close-packed. Sometimes strikingly bilateral groups on the cheeks, neck, or inner sides of the thighs were seen. The bullous lesions were very superficial; they dried up, exfoliated, and left a smooth epithelial surface. No scarring resulted. Almost the whole of the rash "came out" at once, and there was very seldom any continuation of the process after the first two or three days, though during that time spots might continue to come out under the gentian violet paint. Recurrence while the baby remained in the "septic" nursery was not seen, though an exception to this will be referred to later. In the case of the bullae the actual site of infection was not clear, but the papular type of rash appeared to be a follicular infection; only one case was seen in which the palmar surface of the hands was affected. There were no deaths and no opportunity for a biopsy. At the height of the epidemic the bulk of the lesions were of bullous type; as the case rate fell the lesions became almost entirely papular and much more sparse, many cases having only an occasional papule.

Site of Lesions.—An analysis of 40 cases showed the favourite sites of the lesions to be: face and neck, 14; conjunctivae, 8, abdomen, 5; scalp, 4; thighs (inner sides), 4. Chest and back were rarely affected, and eyelids, nose, ears, feet, and hands not at all. Several cases affecting the eyelids (blepharitis), one in the temporal region, one on the palmar surface of the hands, and several on the margins of the axilla have since been noted. In spite of the fact that practically all of these infants were carriers of *Staph. aureus* in the nares, no instance of real infection of this area or the adjacent upper lip was seen.

The *incubation period*, or rather the average age at onset, was 9 days (estimated from a series of 30 cases). The oldest patient was 22 days, and the youngest in which a real infection was seen was 2 days. Many cases, of course, were discharged about the 10th to 14th day, and may have developed a rash later, though inquiries in the casualty department did not suggest this.

Infection by Direct Contact.—Skin infection of the *mothers* either before or after onset in the baby was not noted, at any rate not with a similar type of lesion. There was one exception. The mother of an infected child had a breast abscess (subsequently bilateral). Within a day or two after incision a sharp belt of small superficial purulent bullae appeared below the breast from the axillary fold to the midline. The condition did not suggest herpes, and it cleared up quickly. The other breast was subsequently opened and drained, but, except for a single spot, the rash did not recur. A vertical band of skin below the breast had been painted prophylactically with gentian violet; the spot occurred in the middle of this. Of the *nursing staff* who handled the infected babies one sister early in the epidemic developed a perionychia. She left hospital before it was opened. It was presumably a staphylococcal infection, though not necessarily derived from her charges. Contact infection of nurses in the maternity or septic nursery was not observed. Among *infants* the direct infection of a healthy child from an infected one would appear to be an unusual event even given the most

4298

favourable circumstances. The infected infants were isolated in a "septic" nursery, and their mothers were removed to the adjacent ward. Into this ward were also taken mothers who themselves had infective lesions, such as mammary abscess, and when this happened their infants, though quite healthy, went into the septic nursery. In five instances during the epidemic healthy infants were kept in this nursery mostly for several weeks. None of these infants developed an impetigo, although one of them had a single papule which rapidly cleared up. The nurses did not wash between cases, and each infant took its turn for changing with the rest on the same ward table. The infective agent must have been easily available, and we can only suppose that its infectivity was not high or that the appropriate susceptibility was not present in these five cases. In one instance pus containing an abundance of staphylococci was taken from a fresh lesion of the trunk and painted on an area of clean skin two inches below the infected patch; no infection resulted.

The Infective Agent.—In the early severe bullous types of infection a streptococcus was suspected, but this organism was not found in careful culture on specific media. Diplococci were present scantily in films from the clear fluid of the early bullae: later, frank pus and staphylococci were seen. In cultures, whether from infected eyes, bullae, or pustules, the only organism obtained was the *Staph. aureus*, and we have assumed this to be the infective agent. (In a few of the later mild papular cases a white staphylococcus was grown.) An organism with the morphological and cultural characters of *Staph. aureus* can be obtained from many sources, and though many harmless varieties or strains may be presumed to exist there is at present no certain way of identifying a pathogenic strain apart from isolating it from a lesion.

Virulence and Infectivity.—It is a well-established fact in both experimental and epidemiological research that an organism passed from case to case increases for a time in pathogenicity and in infectivity corresponding with an increase in the case rate and the severity of the disease. An epidemic fades out in part by a loss of these characters in the infective agent, partly by a development of immunity in the population (many of whom may become carriers), and partly for lack of suitable material to infect. In this epidemic or outbreak the case rate and virulence (judged by appearances, for there was no mortality) were certainly high at the same time and declined together. We know that the epidemic did not abate for lack of suitable pabulum, since this was renewed daily in the form of newborn babies. We might attribute an increased case rate alone to some sudden access of infected fomites such as insanitary laundering, but where the severity rises and then falls with the case rate on a constant basis of infectable population we must assume some change in the attributes of the infecting organism, probably by passage. This does not necessarily mean that the infants were infected directly from each other—there is, as already shown, little evidence in support of such a direct transfer. Although the simple carrying of an organism on a moist mucous membrane is not likely to exalt its virulence, it is possible that this change was taking place as a result of actual infection, probably in the nares of a carrier or carriers. Since three separate wards were affected at once we should have to assume at least one basic source of infection and a number of other persons carrying the virulent organism.

Another explanation of the apparent exaltation of virulence, as pointed out earlier here, is that an entirely new infection was superimposed and led to the bullous lesions. In favour of this view is the fact that the bullous cases seemed to occur quite suddenly, although they faded out more slowly and with a decreasing severity.

An attempt was made during the epidemic to differentiate between the infecting agent of the bullous and the papular types, but by such means as we used no characteristic difference was found. Serological typing was not available.

Where the Organism is Harboured

Nasal Carriers.—In the anterior inch of the nares where the skin is squamous, moist, and slightly alkaline, a carrier condition is apt to develop. In our series, judging from a few cases in which additional cultures were taken from inside the nasal passages with a speculum, the organisms were limited to the anterior part. Carriers of *Staph. aureus* in this position were common among the doctors and maternity nurses; as many as 85% of the latter were carriers at one time. The carrier rate among the nursing staff was followed at approximately fortnightly intervals for some 6 months. It was a somewhat uncertain procedure, depending on the development of a golden colour in the colonies after 24 hours in the incubator and a further 24 hours on the bench. As every infection cultured at this time produced a bright golden colony we accepted this as the criterion. The correlation between the case rate and the carrier rate was not a very close one. The latter reached its highest point (85%) towards the end of the most severe part of the outbreak—i.e., the beginning of January—but it was still at 70% at the end of February, when the severe bullous cases had practically ceased; it stood at 50% in April, and was down to 25% in June.

Several heavy carriers of *Staph. aureus* were present in each of the wards throughout the whole period of observation. It seems probable that this wholesale carrier state was related to deficient ventilation during the long periods of black-out. The strains isolated from carriers were in all cases coagulase-positive, and though it is not to be supposed that all were capable of causing infection it is reasonable to suppose that some were. During April and May, when the numbers were declining, some *Staph. aureus* carriers began to show colonies of *Staph. albus*; these were coagulase-negative, while the associated *Staph. aureus* remained positive.

During the winter months the carrier condition was obviously widespread; about 30% of the women admitted for labour, and nearly 100% of babies 10 days old in our nurseries, were carriers. A children's ward at the other end of the hospital showed at this time that 50% of the nurses were carriers, as were 30% of the children under 5 years.

The presence of cocci in very large numbers in the nares of a carrier is not usually associated with any obvious sign of inflammation; but a few cases of sore nares with folliculitis are found, and it is possible that these are the originators of the infection. The organisms carried are in most cases presumably derived from the air; they must, however, have a special affinity for such a locus, since cultures from the air of the wards showed that various forms of *Staph. albus* and pale staphylococci were the predominant organisms, and that *Staph. aureus* is relatively rare even in rooms inhabited by carrier nurses and infected babies. *Staph. aureus* may also be present in the throat, though much more rarely than in the nose (in our series, 5 to 15%); from these latter cases droplet infection might of course take place. Cultures from the nasopharynx were not carried out.

Dissemination.—Droplet-spread from the nose must be rare: even in sneezing almost all the droplets come through the mouth. Tests taken by shaking the used but apparently clean and dry handkerchief of a carrier over a culture plate, however, showed the dissemination of hundreds of viable organisms similar to those present in the carrier's nares, and it seems more than probable that it is mainly in this way that the bacteria get into the air and spread from one person to another. Yet cultures from the air of the wards during the epidemic did not show *Staph. aureus* in large numbers. On 3-in. culture plates exposed for half an hour during bed-making, among hundreds of colonies—mostly skin saprophytes such as *Staph. albus*, skin diphtheroids, and sarcinae—six colonies of *Staph. aureus* were the maximum found. Again, on fomites such as door-handles, light switches, and so on, a real *Staph. aureus* was hardly ever found, though paler yellow varieties and *Staph. albus* occurred.

On the other hand, finger-prints after handling a carrier's handkerchief showed a considerable number of the infecting organisms. When gloves were worn and the handkerchief was handled, organisms in the finger-prints were far fewer, and when the gloves had been lightly powdered with french chalk the growth derived from handling the handkerchief was practically negligible. Ward dust as such was not investigated. A good deal of work has been done on this subject by various people, and if the bacteria are present in the air it may be taken for granted that the floors, window-ledges, and black-out blinds have not escaped. Quite early in the epidemic *Staph.*

aureus was found in small numbers in the ward soap used for washing the babies, and from then on soap was completely interdicted and the infants rubbed with oil of arachis.

Implantation of Infection

The Skin of the Newborn.—The skin of the newborn does not show very marked differences from that of the adult. In a section from the neck the patulous funnel-shaped hair follicles appear to be wider than those of the adult in the same area and more closely crowded. There are fewer layers of epithelium, and at the base of the funnel, where the sebaceous glands open, the epithelium in infants may consist of only one layer of flattened cells. The sweat-gland orifices also show in the infant's skin as definite pits leading down to the sweat ducts, and may equally well be the seat of infection. In the one case of purulent bullae observed on the hands no doubt infection did take place by this route. These are definitely weak spots in the body covering, as well as ones likely from their shape to harbour infective organisms. It might well be that the implantation of bacteria of quite low infectivity and virulence in such sites would set up an infection.

Time of Implantation.—An investigation was carried out to try to discover the time of implantation of the infection.

1. Swabbings were taken from the vagina and thighs of ten mothers—*Staph. aureus* was not obtained from any of these. Implantation from the vagina may be regarded as rare, though it probably does occur, and two cases are described below.

2. Swabbings were made from the skin of the babies in the nursery, on the cheeks and inner parts of the thighs. Only 5 babies were tested—on the first, third, and sixth days after birth. Cultures were also made from the nares on each occasion. *Staph. aureus* was present in the nares in two cases on the first day and in four out of the five in great abundance by the sixth day. This organism was found on the cheeks in small numbers in three cases on the first day, one case on the third day, and three cases on the sixth day. On the thighs it was found only once, and that on the third day; none of these cases was or became infected up to the time of discharge. These figures are small, but they show that *Staph. aureus* may be present, on and off, on the skin of a healthy baby almost as soon as it is put into the nursery. They also show a great preponderance of implantation on the exposed areas; and that the presence of a staphylococcus on the skin does not necessarily lead to infection. Staphylococci on the cheeks may of course well come from the infant's own nose, which harbours them from an early date, and such a strain might or might not be pathogenic; but it is a striking fact that an actual infection of the nares or adjacent upper lip has not so far been encountered.

3. An obvious point of contact for the baby's face is the mother's breast and probably hands.

In an investigation to show whether the infant was likely to be infected from the mother's milk 9 cases were examined. Cultures were made from the milk on the first, third, and sixth days of the puerperium. The milk was expressed into a tube by the nurse, after cleaning the nipple, before suckling began. The milk contained *Staph. aureus* in five cases on the first day and a further two by the sixth day. In only two was the milk found uninfected on the sixth day. One of these nine infants later developed impetigo, but it belonged to a mother whose milk had remained negative throughout the investigation. These figures again are scanty, but they tend to show that the presence of *Staph. aureus* in the milk does not usually lead to infection of the baby; nor, of course, does the presence of these organisms usually lead to an infection of the breast. Even when the mother has developed an acute mastitis, thereby showing the presence of a pathogenic strain of cocci, the infant is most unlikely to contract an impetigo, though perhaps as a rule by that time it is past the usual age for infection.

Factors aiding Infection

Abrasion.—Babies are laid usually on one side or the other, and it is likely that movement of the head on rough woollen fabrics may cause irritation. There is no proof of this beyond the fact that the sides of the face were most frequently the sites of infection. We have already seen that they are a common site of implantation, and the turning of the child might lead to the common bilateral infection. On the other hand, a child had a forceps bruise on the cheek, breaking the skin in two long lines. It later developed a severe blister rash all round the neck and occipital regions; the area with the broken skin did not become infected, though the opportunities for implantation of bacteria must have been legion. This suggests an affinity of the infecting agent for epithelial rather than the deeper dermic tissues. We see the same point in the shallow bullous lesions and absence of scarring.

Heat, Moisture, and Alkalis.—The napkin area, especially the inner sides of the thighs, while not a very common site of infection, is subject to heat, moisture, and alkalinity. This region is apt to show circumscribed areas of closely massed papules or bullae, sometimes bilateral, suggesting perhaps special facilities for a rapid local spread of infection from a small unnoticed papule. Excessive *warmth* alone does not seem to favour infection. Thus three premature babies were kept at high temperatures with hot bottles in a nursery in which infected cases occurred from time to time. Only one of these developed a single papule at the end of the third week. This would be about the ordinary incidence of infection at that time. The destructive effects of alkalis on the amino-acids of the squamous epithelium is well known, and ammonia quickly develops in a wet napkin. Such lesions as occur in the napkin area are usually on the inner side of the thighs and pubic region; they were not seen actually on the genitalia. The question has also been raised whether the alkalinity of soap did not weaken the epithelium and lead to infection, but in the cases here reviewed soap had never been used.

Identification of Types or Strains of Staphylococci

In this research we might have two aims: (1) To identify a particular organism in whatever circumstances we may find it—for instance, to trace a carrier's strain in the lesions of an infected case. In one instance we believe we have been able to do this. (2) To identify a staphylococcus as pathogenic by some other criterion than taking it from an infection. The problem lies in the similarity of strains of *Staph. aureus* from the most varied sources in their reactions with the usual biochemical tests. Some 40 cultures, including those from air, nasal carriers, impetigo lesions, and known staphylococcal infections from other sources, were compared. The tests used were coagulase, haemolysis, and the hyaluronidase (diffusion factor) reaction (McClean). Of the cultures 39 were coagulase-positive. In the case of the other tests the results were very variable.

It could be said that in our hands none of these tests bore any definite relation to proved pathogenicity in any particular culture. They were used here only with the object of correlating and identifying strains from different sources. Serological typing was not available, but even if it had been it does not follow that the antigenic structure of an organism of this sort would be a guide to its infectivity.

Some Unusual Cases

1. An infant 14 days old developed small purulent blisters in a line across the front of the proximal phalanges of both hands and on the adjacent palm and inner aspect of the thumbs. These contained a very pale staphylococcus. They were probably due to direct contact with the mother's breast or fingers. This was not confirmed.

2. Two cases became infected on the second day and showed very similar lesions. The rash was of a fine papulo-pustular type with a red base, and was spread diffusely, mainly on back and shoulders. Cultures grew a nearly white staphylococcus. In both cases vaginal swabbings from the mother produced a similarly pale staphylococcus. The maternal and infant strains in both cases were similar in appearance, and all four were coagulase-positive. No further investigations were made. It seems probable that both of these cases were vaginal infections, especially bearing in mind that these infants had not been washed since birth. Both cases cleared up entirely in a few days. One of the mothers had an unexplained puerperal pyrexia.

3. An infant developed on the third day a closely packed rash of small clear blisters limited to, and more or less covering, the area supplied by the posterior roots of the second, third, and fourth cervical nerves—that is to say, the occipital and temporal regions, including the auricles, the neck, and the upper part of chest and shoulders. Later one eyelid developed a fringe of small styes and some spots on the same cheek. The face and main part of the scalp were unaffected. Cytological examination of the blister contents in the early stage showed the presence of 75% lymphocytes and 25% polymorphonuclear leucocytes. Cocci were present in the early stages and *Staph. aureus* grew scantily. Later the bullae became frankly purulent. Scrapings of the epithelium from inside the bullae in the early stages were examined for inclusion bodies, but without success. It was thought from the disposition and cytology that a neurotropic virus might have been concerned in this case.

The very short incubation period would, however, make this improbable unless the infection had been an ante-natal one

4. The fact that infants seldom or never seem to have a recurrence of the infection after removal to the "septic" nursery has been referred to. On one occasion this did occur, and four infants cured and ready to go out showed a fresh infection simultaneously, two with conjunctivitis and two with a rash on the face. A nurse known to be a carrier of *Staph. aureus* and to suffer occasionally from folliculitis of the nares had been transferred three days previously to this ward. A comparison of her cultures with those of the strains isolated from the infants' lesions showed three of them to be closely similar, and it seems probable that the new infection was derived from her. The table below shows the similarity of the cultures of Nurse A to those from the two cases of conjunctivitis and one pustule.

Cultures from Nurse and Babies of D 1 Ward

No.	Source	Coagulase	Gelatin	Litmus Milk	Diffusing Subst., up to Dilution of	Haemolysis
1A	Nose (Nurse A)	+	Liquefied	Acid clot	1·10	+
7A	Eye (baby)	+	„	„ „	1:10	Slight +
11A	Face pustule (baby)	+	„	„ „	1.10	+
12A	Eye (baby)	+	„	„ „	Nil	Slight +

Treatment of the Epidemic

Almost inevitably in the first place the organism is derived from a human source and, by-passing the various secondary modes of distribution such as dust, air, and so on, it is at the origin we should deal with it. The infection in its milder aspects might be regarded as not dissimilar to follicular acne in the young adult, and perhaps almost any strain of staphylococcus might cause it; but the severer lesions are almost certainly derived from an active cutaneous infection, most likely a folliculitis. Such a folliculitis occurring in the anterior nares and leading to a damp nose and frequent use of the handkerchief would give rise to rapid dissemination of an organism with increased infectivity. We have so far succeeded in implicating only the one case of this sort described above, from which we think we have definitely traced some infantile infections. It may be that this not very obvious type of lesion is a frequent source of infection, and such infected carriers should be sought for carefully and excluded from the maternity wards. More obvious forms of sepsis are of course excluded as a matter of routine.

Various general measures were carried out, including closing and cleaning of wards, the use of masks by all medical and nursing staff entering the wards, the use of gloves in handling the infants, and the replacement of handkerchiefs by oiled medicated gauze for both staff and mothers. The effect of these measures, if they have had any, is by no means clear. The closure of the wards for cleaning and a few days' airing can certainly be said to have had no value in stopping the infection, which began again in a bullous form within two or three days of reopening. The use of masks for nasal carriers is probably of no value: the removal of both masks and gloves led to no increase in the number of infections. The use of gloves was replaced by dipping the "socially clean" hands in a box of french chalk before handling the uninfected infant, with the object of keeping the hands dry and interposing a barrier of powder between the hand and the infant. The medicated handkerchiefs did not come into use until the epidemic was abating, and it is not possible to say whether they have played a useful part or not. They were prepared as follows: An emulsified oil having properties similar to that suggested by Van den Ende and Thomas (1941) was prepared from the following:

Sulphonated castor oil	.. .. ..	50.0 parts
Lanette wax S.X.	.. ..	5.0 „
Cresantol-3	.. ..	2.5 „
Paraffin liq. leve	.. .. .. to	100.0 „

One part of the above was diluted to 5 parts with water before use and tinted with eosin q.s.

Six-yard rolls of absorbent gauze were immersed in the emulsion until saturated and the excess of liquid was removed by wringing; the gauze was then put in a warm place until dry. Portions of gauze about 8 in. square cut to form handkerchiefs were issued twice daily.

In the event of a really serious epidemic which could not be controlled by other methods of hygiene it might be worth while to consider approaching the problem from the other end and attempting to prevent the organism obtaining lodgment in the hair follicles of the infant. This might be possible by occluding them with a natural fatty substance, say a lanolin preparation, containing a sufficient amount of a harmless bacteriostatic substance.

The treatment of carriers with a view to sterilizing the anterior nares is not a very promising field of action so far as permanent cure is concerned. One method, bearing in mind the gradual substitution of yellow by white cocci, would be an implantation of the area with a definitely non-pathogenic staphylococcus—e.g., *Staph. epidermidis albus*. Another possible method might be the use of a suitable bacteriophage.

Summary

An epidemic of bullous impetigo neonatorum due to staphylococcus infection and extending over some months was observed in three maternity wards, and the observations continued for a further 12 months. The outbreak occurred at a period when staphylococcal infections in the district were more frequent and severe than usual There was, moreover, at this time a considerable increase in the number of cases of acute mastitis. The epidemic was preceded, accompanied, and followed by mild cases of papular impetigo and staphylococcal conjunctivitis. There were no deaths.

Nasal carriers of *Staph. aureus* among the doctors and nurses, infants, and mothers were numerous and continued so after the abatement of the epidemic. It remained uncertain whether the more severe bullous cases were due to an increase of virulence in the endemic infection or to a new infecting agent. It was thought that a folliculitis of the nares was a likely source of infection and that the organism was shaken into the air from the handkerchief. Handkerchiefs were replaced by squares of oiled medicated gauze changed twice daily for all adults in the wards.

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BLOOD TRANSFUSION IN NOCTURNAL HAEMOGLOBINURIA

BY

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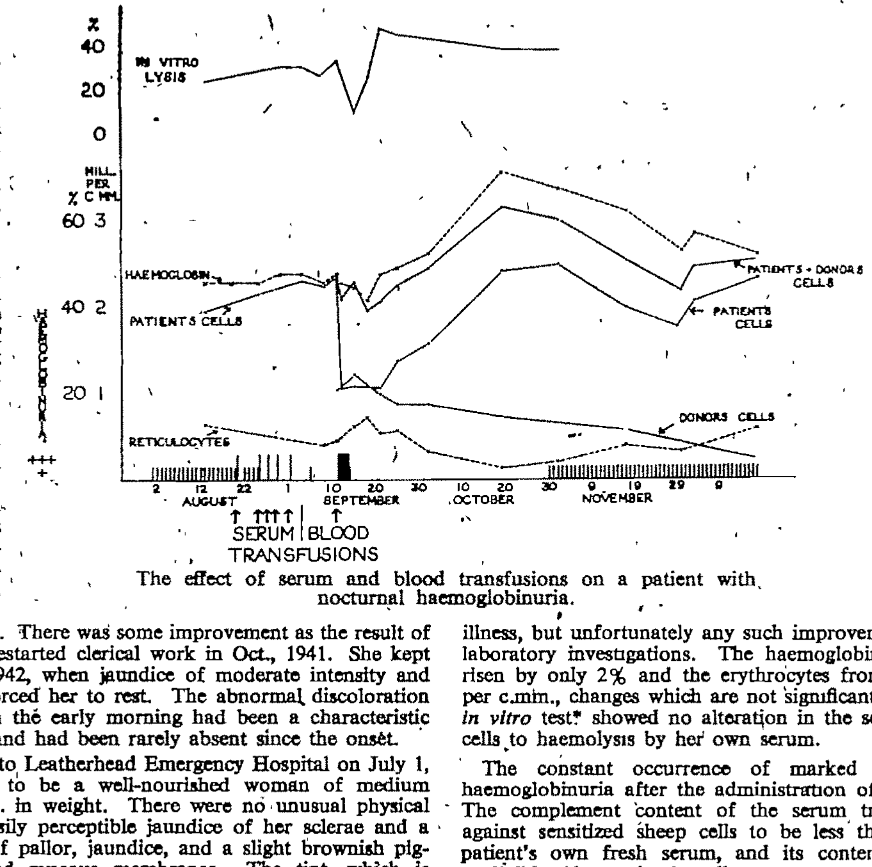
Chronic haemolytic anaemia with nocturnal haemoglobinuria (the Marchiafava-Micheli disease, or "nocturnal haemoglobinuria") is an uncommon type of haemolytic anaemia. Its clinical manifestations have been fairly well established, and accounts of about 40 cases are now available. Although the ultimate cause is unknown the mechanism of haemolysis has recently received considerable attention, and the early observations of van den Bergh (1911), Ham (1937), Dacie, Israëls, and Wilkinson (1938), and Jordan (1938) have been followed by comprehensive clinico-pathological and immunological studies by Ham (1939) and Ham and Dingle (1939). Unfortunately, this work has been as yet of little benefit to the patients. There is no specific treatment, and this disorder, although variable in course and severity, ultimately proves fatal. The known haemopoietic substances are useless, and splenectomy is ineffective and dangerous (Hamburger and Bernstein, 1936).

Transfusion has been resorted to on many occasions, and has often resulted in a severe haemolytic episode (Hamburger and Bernstein, 1936; Ham, 1939). Nevertheless, remissions after transfusion have been reported: for instance, a severe reaction in Ham's first case was followed by two weeks' freedom from haemoglobinuria, with only slight nocturnal amounts in the succeeding two weeks; and the same sequence of events followed four more transfusions in this patient. Similar observations were made on his third case. Three transfusions, each of

500 c.cm. of citrated blood, were given on alternate days to this fourth patient, who was in a severe haemolytic crisis at the time. The level of free haemoglobin in the plasma remained extremely high until 24 hours after the third transfusion. The amount of haemoglobinaemia and haemoglobinuria then fell during the next five days to the lowest levels observed in two months' observations, and the erythrocyte count eventually rose from 1,710,000 to 3,550,000 per c.mm.

It seemed possible from these observations that blood transfusion, despite its initial deleterious action, might have a more prolonged inhibitory effect upon haemolysis, perhaps owing to the presence of a naturally occurring antihaemolytic substance in the transfused blood (Josephs, 1938). It was hoped that this inhibitory effect, if substantiated, might prove to be a basis for an effective line of treatment, and with this in mind we have administered a substantial amount (2,000 c.cm. over 12 days) of stored (6-weeks-old) filtered human serum to our patient. The object of this paper is to record the results of this experiment and also of an analysis of the effects of a blood transfusion which is as detailed as wartime circumstances allow. The latter experiment was undertaken in collaboration with Dr. P. L. Mollison, who studied the survival of the transfused blood and has kindly allowed us to quote his results.

Clinical History of Case



The effect of serum and blood transfusions on a patient with nocturnal haemoglobinuria.

The patient is a woman aged 38. Her illness dates from Nov., 1940, when she noticed that the urine she passed in the mornings had become dark red in colour. At other periods during the day no abnormality of the urine was noticeable, but there was a slight but gradual deterioration in her general health; lack of energy, fatigability, and breathlessness increased imperceptibly. In April, 1941, her strength was still more impaired, and she was kept in bed at home for five weeks. The onset of pains in her legs along the distribution of the sciatic nerve resulted in her admission into another hospital, where she received treatment for sciatica. Anaemia was recognized and iron was given as treatment, but the significance of the intermittent dark urine was not appreciated and no diagnosis was made. There was some improvement as the result of rest in bed, and she restarted clerical work in Oct., 1941. She kept at work until June, 1942, when jaundice of moderate intensity and increasing weakness forced her to rest. The abnormal discoloration of the urine passed in the early morning had been a characteristic feature of her illness and had been rarely absent since the onset.

She was admitted into Leatherhead Emergency Hospital on July 1, 1942. She was seen to be a well-nourished woman of medium height and 8 st. 12 lb. in weight. There were no unusual physical stigmata except an easily perceptible jaundice of her sclerae and a curious combination of pallor, jaundice, and a slight brownish pigmentation of skin and mucous membranes. The tint, which is striking, appears to be a characteristic of the disease. Physical examination revealed no abnormalities except that the tip of the spleen was just palpable. The liver was not felt and the superficial lymph nodes showed no gross enlargement. *X*-ray examination of the kidneys did not reveal any deposits of haemosiderin.

Inspection of samples of urine showed the presence of haemoglobin at certain times of the day, characteristically in the samples passed between the early hours of the morning and 9 a.m. The urine was usually quite free at other times. The amount of blood pigment present varied; there was often enough to produce a deep port-wine discoloration.

Laboratory Investigations

Blood count on admission: erythrocytes, 2,180,000 per c.mm.; haemoglobin, 46%; C.I., 1.06; cell volume, 24.5%; m.c.v., 113 μ^3; reticulocytes, 10%; total leucocytes, 5,500 per c.mm.—polymorphs 59%, myelocytes 0.5%, metamyelocytes 3%, lymphocytes 36%, monocytes 1%, eosinophils 0.5%. Van den Bergh test, prompt reaction negative; total bilirubin, 1.4 mg. per 100 c.cm. Blood group A. Gastric residuum, achlorhydria with a moderate secretion of free acid after an alcohol meal. Bone-marrow biopsy (sternal puncture) showed active erythroblastic hyperplasia, the nucleated erythrocyte–leucocyte ratio being 1 : 2. Primary erythroblasts of all states of maturity were present, early types being relatively uncommon and haemocytoblasts still less frequent (less than 5% of total nucleated erythrocytes); normoblasts were also scarce, and there was no premature ripening of the cytoplasm of the primary erythroblasts. The leucocytes showed no noteworthy change.

Serological tests confirmed the tentative clinical diagnosis. It was demonstrated: (i) that a proportion of the patient's cells were lysed *in vitro* after 1 hour's incubation at 37° C. in autogenous fresh serum or that of normal subjects of the same group; (ii) that lysis was sensitive to changes in *p*H, and was increased by the addition of fresh guinea-pig serum from which all anti-human heterolysin had been absorbed; (iii) that the patient's cells were not lysed by guinea-pig serum in the absence of human serum; and (iv) that normal cells were not lysed by the patient's serum under any conditions. These observations are characteristic of nocturnal haemoglobinuria, and for this reason will not be elaborated further in this paper.

Transfusion of Stored Serum

After three weeks' observation 400 c.cm. of six-weeks-old filtered human serum was given intravenously in 90 minutes on the morning of Aug. 20. The patient felt none the worse, but the urine specimens during the afternoon contained much free haemoglobin. A specimen passed at 11.45 p.m. was, however, free from pigment, as were all specimens passed the following day. The regular nocturnal rhythm restarted, however, on the morning of Aug. 22, and persisted until the 25th, when a further bottle of serum was given. The immediate onset of gross haemoglobinaemia and haemoglobinuria was again followed by a period of freedom, only interrupted when further bottles of serum were given on Aug. 27 and 29 and Sept. 1. The urine remained clear until Sept. 10, except for a trace of pigment on Sept. 6. This remission was longer than any the patient could remember since the beginning of her illness, but unfortunately any such improvement was not reflected in laboratory investigations. The haemoglobin was observed to have risen by only 2% and the erythrocytes from 2,170,000 to 2,370,000 per c.mm., changes which are not significant. Moreover, a standard *in vitro* test[*] showed no alteration in the sensitivity of the patient's cells to haemolysis by her own serum.

The constant occurrence of marked haemoglobinaemia and haemoglobinuria after the administration of serum was unexpected. The complement content of the serum transfused was estimated against sensitized sheep cells to be less than 1/32 of that of the patient's own fresh serum, and its content of anti-A agglutinins negligible (the patient's cells were not agglutinated *in vitro* at a serum dilution of 1 : 2). Moreover, the transfused serum had no haemolytic activity *in vitro* on the patient's own cells in the absence of fresh serum. The reaction of the serum, which had been estimated to be slightly more acid than that of blood, was on the last two transfusions deliberately made more alkaline (*p*H 7.9) by bubbling oxygen through the serum for 10 minutes before administration. Haemolysis was not inhibited by this procedure, and it was tentatively concluded that lysis was most likely caused by the presence within the transfused serum of relatively stable components of complement (not lytic by themselves) in sufficient concentration to increase the haemolytic power of the patient's own serum.

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[*] *In Vitro Test.*—0.1 c.cm. of a 6% suspension of washed patient's erythrocytes in 0.9% NaCl was added to 0.5 c.cm. of acidified patient's serum (serum 0.3 c.cm., N/20 HCl in 0.9% NaCl 0.15 c.cm., 0.9% NaCl 0.05 c.cm.; *p*H approximately 7.2). The amount of haemolysis produced by one hour's incubation at 37° C was estimated visually against standards.

Transfusion of Whole Blood

On the morning of Sept. 11, after the administration during the previous day and night of enough alkali to make the urine alkaline, the patient was given 500 c.cm. of a concentrated cell suspension of Group O citrate-glucose blood within 90 minutes. Before the transfusion had been quite completed symptoms suggestive of a haemolytic episode began to make their presence felt. The patient complained of a slight dizziness and backache, and a little later felt sick. These symptoms slowly progressed but never became really severe, although there was some diarrhoea and sickness during the following night. Her temperature was slightly raised, the maximum being 100.2° F. Within 24 hours of the transfusion the feeling of sickness abated and it seemed clear that the constitutional symptoms were subsiding. The patient had, however, by then become strikingly brownish-yellow in colour; the brownish tinge disappeared within a few days, but the jaundice persisted longer. Soon after the termination of the transfusion intense black urine was passed, and it continued in this state for the next 48 hours; but by the morning of Sept. 14 only a small amount of pigment was present, and the specimens passed on the 15th were clear. The urine then remained clear until Oct. 30.

The effect upon her blood is illustrated in the accompanying chart. This records (*a*) the total erythrocyte level, (*b*) the number of donor cells present, and (*c*) the level of the patient's own cells after the transfusion (*a* less *b*). The haemoglobin and reticulocyte percentages are also recorded and the presence or absence of haemoglobinuria and the results of the *in vitro* haemolysis test indicated. Study of the chart reveals several points of interest. The number of normal (donor) cells present after transfusion agreed well with expectations, there being a little more than 1 million per c.mm. This figure slowly and gradually fell, and approximately 18% of the transfused cells were still surviving 95 days after transfusion. This is essentially a normal rate of elimination (Mollison and Young, 1942). Despite the presence of 1 million per c.mm. or more of normal cells the total erythrocyte count had fallen slightly at the end of 24 hours, indicating great destruction of the patient's own cells—i.e., a fall from 2,370,000 to 1,060,000 per c.mm. The count remained at about the level of 1 million per c.mm. for 10 days or so and then rose fairly steadily, just reaching 2,500,000 per c.mm. in six weeks. The total erythrocyte count, after falling about 300,000 per c.mm., reached its pre-transfusion level in 14 days and then steadily rose to 3,180,000 per c.mm. four weeks later. The total count then slowly fell back to its pre-transfusion level of about 2,250,000 per c.mm. The reticulocyte percentage followed the erythrocyte count in an inverse manner.

The percentage lysis observed in the standard *in vitro* tests was not significantly altered by the serum transfusions; after the blood transfusion there was a period of at least a week in which the sensitivity of the cells to lysis *in vitro* was clearly diminished even after making allowance for the presence of many normal cells. This may be due to the removal from the circulation of the most sensitive cells during the haemolytic crisis precipitated by the transfusion. It is interesting to note that sensitivity to the *in vitro* tests had been fully restored, and even appeared to be slightly increased, before the onset of haemoglobinuria, and that the latter did not reappear until the erythrocyte count had regained its pre-transfusion level. No doubt the presence of haemoglobinuria depends upon the renal threshold and the amount of haemoglobin liberated into the circulation per unit time, and is therefore more likely to be found at high rather than low levels of erythrocyte counts if the proportion of cells destroyed is a constant one.

Discussion

It is generally agreed that the basis of this strange disease is an undefined abnormality of the patient's erythrocytes which causes them to haemolyse in the presence of human serum both *in vivo* and *in vitro* (see Ham and Dingle, 1939). Our observations are consistent with this hypothesis and do not support any alternative theory; in particular the possibility that the patient's erythrocytes were sensitized by the presence of an immune body or other haemolytic agent would appear to be negatived by the unimpaired survival of the transfused normal cells, unless it were assumed (without any evidence) that the hypothetical haemolytic agent was strictly autospecific.

Similarly, no evidence was forthcoming in support of the further possibility that lack of an antihaemolytic factor was responsible for the excessive breakdown of the patient's cells. Serum transfusions were without significant effect, and the ultimate rise in blood count following the blood transfusion appeared to be due to the good survival of the transfused cells. The patient's own cells did not increase significantly in numbers

Summary

A short clinical description is given of a case of chronic haemolytic anaemia with nocturnal haemoglobinuria (Marchiafava-Micheli disease).

Two litres of stored normal serum was given intravenously within 12 days; no appreciable effect on *in vivo* or *in vitro* haemolysis resulted.

A blood transfusion was followed by a severe haemolytic episode in which rather more than one-half of the patient's own erythrocytes were destroyed. The survival of the transfused blood was, however, unimpaired. The transfusion was followed by a remission from haemoglobinuria lasting 6 weeks.

The bearing of these observations on the pathogenesis of the disease is briefly discussed.

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TREATMENT OF PSYCHIATRIC PATIENTS IN GENERAL HOSPITALS

A SOCIAL EXPERIMENT

BY

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For centuries the peculiar symptoms of nervous and mental disorder have caused segregation to remain paramount over other aspects of treatment. This policy has been accepted, though with suspicion, by the main body of public opinion, but strongly resisted by individual patients and relatives. In Britain several thousands of patients are annually permitted to become chronic cases before specialized treatment is sought in a hospital for mental or nervous disorders because so many people, with or without good education, still regard these illnesses either as irrecoverable or to be treated conservatively at home as long as possible. Many a patient suffering from early psychosis could have avoided prolongation of illness, subsequent certification, and economic loss if either he or his relatives had not had the mistaken conception that on admission to hospital there was risk of being made worse by association with chronic patients, that active treatment scarcely existed, or that he would never be discharged. These ideas have their roots in the past, when the chief form of treatment known was to minister to the well-being of the patient on general lines as efficiently as overcrowding would allow. Under these conditions the better the quality of the personality the more likely was the individual to defer accepting hospital care, except in the most acute disorders.

Some idea of the cost of this policy may be gained from the estimation (Ebaugh, 1940) that, in the U.S.A., hospital beds are required for 100,000 patients becoming chronic annually, and in 1940 chronic psychiatric patients occupied half the total number of hospital beds. Many more are maintained in their own homes or in private nursing homes. The problem is little different in this country; for example, the London County Council in accommodating their own share of the burden require, out of a total of 72,000 beds for all types of illness, 34,000 for psychiatric patients, a large majority of the beds being for chronic cases. Another aspect is shown by Sargant and Cook (1942), who reported that 20% of the cases admitted to the medical wards of a general hospital were found to present conditions and problems primarily neuropsychiatric, regardless of the patient's initial complaint or the preliminary diagnostic impression. Heldt (1940) also places the percentage at 20 or 30, and remarks that if mention be made as well of all patients showing minor and secondary disturbances of nervous disorganization, then the figures rise still higher. Yet, with few exceptions, general hospitals refuse to admit, let alone attempt to treat, a nervous or mental patient if they know he has already been so diagnosed. In view of the incidence noted, the term "general hospital" seems scarcely a suitable one.

Hitherto the only widely organized in-patient treatment has been that afforded by the mental hospitals. In these there are six to eight doctors for 2,000 to 3,000 patients, a sufficiently high proportion if the patients are mostly chronic and in the days when the main treatment was custodial. In accommodation and classification there has been slow but steady improvement, and by legalizing voluntary admission, advocating special treatment villas for early patients, and establishing out-patient clinics, the Mental Treatment Act, 1930, brought many under treatment at an earlier stage, after the success of the Maudsley Hospital, London, and Jordanburn Hospital, Edinburgh, had emphasized the need for early voluntary accommodation. But even these hospitals have tended with time to become stigmatized as "mental," with its old-time implications, so that patients wait too long before accepting admission. Recently I have had opportunity to test the treatment of psychiatric patients in a general hospital neuropsychiatric ward, using modern methods already developed by psychiatrists, and I believe the results of this experiment allow some hope of easing this undesirable situation.

Methods

In discussing the results of a year's admissions (Table I) and the methods of this experiment, it must be stated that the 281 patients were all female, nearly all civilian, and of a selected type in that their personalities were relatively good and likely to react favourably to modern treatment. A few were admitted in attempts to influence illness of long duration by recent methods, and in others considerable investigation, involving several departments of medicine, was necessary to elucidate the complicated problems presented. The unit consisted of two adjoining wards of 30 and 16 beds housed in a block of general wards. During a minor part of the time only the small ward was available. For administrative reasons the number of beds occupied was not allowed to exceed 40, and the remaining space was used as dining accommodation for those convalescent. The wards had no side rooms, and differed in no way as regards restrictions from a general medical ward. The patients mixed with others from the medical and surgical wards at social functions and in the grounds. The medical staff consisted of two psychiatrists and very occasionally a third, all of whom had part-time duties in other parts of the hospital, including the special neurological unit. Nursing staff comprised a sister with general and psychiatric training and five nurses on each of the two daytime shifts.

TABLE I.—*Results (All Patients)*

Grade	On Discharge		Follow-up (2 to 12 Months)	
	No.	%	No.	%
Recovered	98	34·8	100	40·5
Much improved ..	41	14·5	22	8·9
Improved	93	33·3	79	32·0
No change	49	17·4	30	12·1
Relapsed	—	—	13	5·3
Died	—	—	3	1·2
Total	281	100·0	247	100·0
Total number at work ..			189	76·5

The application of treatment facilities to selected patients on exactly the same basis as for medical and surgical patients showed clearly that (*a*) many recoverable patients were failing to avail themselves of voluntary status in mental hospitals; (*b*) many were unnecessarily losing jobs and suffering economic hardship while their illness drifted into chronic invalidism or delayed recovery; (*c*) with active treatment, comparable to that afforded to medical or surgical patients in general hospitals, our patients were discharged with a combined recovered-and-improved rate of 82%, maintained with a relapse rate on follow-up of only 5.3%; and (*d*) having been so treated for an average in-patient period of six weeks, over three-quarters of them were able to return to work soon after discharge.

In particular, 70 depressive patients of various types treated by electro-convulsion therapy showed a discharge rate of 61.4% recovered, 35.6% improved or much improved, and 3% unchanged. Of 64 such patients followed up for an average of six months, 58% recovered, 33% improved or were much improved, and 9% relapsed; 85.9% were at work. There were a number of milder cases of depression in which non-specific hospital treatment was sufficient to promote recovery. Results in the small group of 28 schizophrenics treated by insulin and/or electro-convulsion therapy were in accord with the encouraging figures for larger series of patients treated by modern methods, both on discharge and follow-up. Three-quarters of these patients are now employed outside hospital. On this subject Ross *et al.* (1941) state that insulin produces an improvement significantly in excess of that obtained by any other means, and that after two years 75% of patients who were benefited had retained their improved state.

Our results (see Table I) were due to the following general scheme of treatment: Insulin comas* in early schizophrenia, electro-convulsions for depressions and some obsessional states, continuous sleep in acute anxiety neurosis, modified courses of insulin in anxiety hysteria with loss of weight, and prefrontal leucotomy for severe persistent obsessional states (which failed to react to other treatments). Psychotherapy in general or specialized form was used whenever it seemed indicated, coupled with psychological investigations under sodium amytal. Combined methods were most useful: physical methods and psychotherapy and sometimes two different physical methods have been used concurrently or successively on the same patient. (Reference has already been made to the application of these treatments in the male neurological unit of this hospital: Sargant, 1942.) In our series 9 courses of insulin coma were given, 115 of electrically induced convulsions, 28 of continuous sleep, and 94 of modified insulin; on 2 patients prefrontal leucotomy was performed, and 97 relatively specialized courses of psychotherapy were given. It has been necessary to support these measures by prompt examination of the patient, speed in instituting active treatment on the day of admission whenever possible, organized occupational therapy, and remedial exercises. By these practices such risks as those of suicide, which are inherent in treating acuter forms of psychiatric illness in an open ward, are greatly diminished, the patient becomes amenable to the efforts of the nursing staff at an early stage, and the morale of those more advanced in treatment is unimpaired. To obtain the best results one must be prepared to modify the technique and routine of treatment to suit the individual, and on discharge to give such medical recommendation as will assist resettlement in work. With the co-operation of the Ministry of Labour employment was modified in many instances to suit individual needs. In fact, general hospital psychiatric treatment has become possible because in the last three years treatment has developed sufficiently to achieve good clinical results and early control of symptoms in nearly all the numerous patients of the type reported here, without blocking beds for an unduly long period.

In all patients, duration of illness varied from one week to seventeen years, averaging one year and eleven months. In actuality, nearly three-quarters of the patients had been ill for a year or less. The average duration was somewhat distorted on account of a small group of patients admitted partly by reason of the very length of illness. Half the patients were classified as psychoses, including 111 depressives of various types and 28 schizophrenics; 38% suffered from neuroses; and other organic conditions comprised the remainder. Thirty-one psychotic and six neurotic cases were relatively acute; in only six of these was it impossible to control symptoms by treatment, and with the co-operation of the relatives they were discharged for admission to observation wards. It will therefore be noted that the most extremely disturbed patients were not nursed in our ward. The proportion discharged against advice—under 7%—seems reasonably low considering how often these patients are indecisive, suspicious, and liable to take an unreasonable course of action.

The fact that psychoses often drift on into chronicity has led to a tradition that the prognosis generally is gloomy. This view is certainly unjustified, when modern methods are employed for suitable patients. In our material the psychotics did better than the neurotics, both in their reaction to treatment and in the maintenance of improvement gained (Table II), with a negligible difference in time required in hospital. The view expressed in the *British Medical Journal* leader of Oct. 3, 1942, (p. 397) concerning the favourable outlook in the recent acute psychotics compared with the neurotics has been fully confirmed. The reason for these findings partly lies in the fairly good pre-psychotic personalities of many patients selected for admission to this ward, in their comparative youth (average age 33 years), and in the fact that they were under specialized hospital care at an earlier stage in their illness than is usually possible in mental hospitals. If it were generally realized how effective can be the speedy treatment of an early patient by the skilled use of modern methods individually applied, years of illness and invalidism could often be averted. For instance, Rivers and Bond (1941) showed that a skilled insulin therapist can raise the recovered-much-improved rate on discharge in schizophrenics as high as 79% for patients treated within the first year of illness. If insulin is given by inexperienced therapists they show that the figure only reaches 46% in the same type of patient. They state also that, irrespective of duration of illness, 63% of the more skilfully treated patients recovered or greatly improved, as compared with less than 10% in pre-insulin days. If left untreated some of our patients would undoubtedly have had to enter mental hospitals at a later date. In others the personality was sufficiently adjusted for them to stay at home at the price of long invalidism and economic dependence.

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* Since the period under review the use of insulin therapy has increased.

Table II.—*Comparison of Results in Neurotics and Psychotics*

Diagnosis	On Discharge					Follow-up (2 to 12 Months)						
	R	MI	I	NC	Total	R	MI	I	NC	Rel	Total	At Work
*Neuroses:												
No.	26	18	42	14	100	29	8	41	14	3	95	68
%	26	18	42	14		30·5	8·4	43·2	14·2	3·2		71·5
*Psychoses:												
No.	63	20	31	11	125	58	17	22	10	8	115	89
%	50·4	16	24·8	8·8		50·4	14·8	19·1	8·7	7		77·4

R=Recovered; MI=Much improved; I=Improved; NC=No change; Rel=Relapsed.
*Average stay: Neuroses, 45·7 days; Psychoses, 47·1 days.

Commentary

This experiment in hospital procedure offers advantages for patients, the medical profession, and the administrative services. Patients and relatives appreciated active treatment in a general hospital instead of the unfamiliar mental hospital. On discharge their social readjustment and employment presented less difficulty than if associates or employers were aware of recent mental hospital care. Even the large depressive and smaller schizophrenic groups, the very nature of whose illness has sometimes precluded acceptance of early in-patient mental-hospital treatment even under voluntary status, often sought and nearly always accepted active treatment in a general hospital neuropsychiatric ward. The patients have shown that this type of ward is a most promising weapon for combating the so-called stigma of mental illness, and I believe it can hasten public acceptance of sufferers from nervous or mental disorder as sick yet frequently recoverable people as nothing has hitherto. Provision of this form of treatment offers hope of diminishing the suicide rate in early sufferers from mental disorder. In a U.S. hospital psychiatric ward there were but two suicides in nearly four years, as opposed to three in other wards. Another psychiatric ward had none in six years.

For the profession, and especially for students, these patients are a valuable source of teaching material, contrasting strongly with the standardized display of end-results, vivid in symptoms but poor in prognosis. Their study and investigation can provide a very necessary increase of research workers and clinicians skilled in both physical and psychotherapeutic methods, and can equip the young general practitioner with the psychiatric understanding required by 30 to 60% of the symptoms shown by his patients. Similar improvements can be obtained in the quality and status of the nursing staff. Psychiatry demands expert and intelligent nursing, because the safety and success of such physical methods as insulin comas or continuous narcosis depend on the efficiency of the nurse in charge.

Most general practitioners dislike certifying any of their patients or having to send them to observation wards against their wishes. Occasionally there is the threat of legal action by resentful patients or relatives. Timely use of the general hospital psychiatric ward can solve many of these problems.

The advantage of ready access to specialist opinion for securing early neuropsychiatric diagnosis has been shown by Sargant and Cook (1942), particularly with regard to shortening the patient's time in hospital and saving innumerable laboratory investigations and much maintenance expense. In this hospital such assistance has been part of the service rendered to the general medical and surgical wards in return for their advice on our patients, obtained on 94 occasions.

For administrative services there have been two main advantages: (1) At least 16 hospitals in the London area have used the psychiatric facilities afforded. Had more accommodation been possible it could easily have been filled. (2) In financial economy, compare the treatment of any early case of schizophrenia by insulin shock in an eight-weeks period at the L.C.C. peacetime general hospital rate of £3 10s. a week with the frequent care of the chronic patient at the mental hospital rate averaging £1 9s. for five years—i.e., £28 to £377. If total chronicity occurs from lack of early treatment the cost rises to £2,600 for 25 years. The potential financial saving inherent in our own and Rivers and Bond's results, noted above, is therefore particularly impressive. These economies have occurred with the use of unpretentious temporary wartime accommodation, and apart from minor adjustments no unusual or elaborate structures are required.

In a small-scale test this experiment has shown many definite advantages, but it certainly raises its own problems. For instance, to what extent can mental hospital services, at present largely organized to meet the maintenance needs of an abundance of chronic patients, be adjusted to secure the confidence of the early-recoverable patient, so that this confidence would lead to their early treatment and lessen the incidence of chronicity? In common with some mental hospitals we find modern therapeutic methods to be of much assistance in this respect.

There is no doubt that extensive reorganization of mental health facilities, already under discussion, can disperse many of the present objections. Its full realization is likely to be a matter of several years. Meanwhile, the combination of out-patient clinic, mental hospital, and general hospital neuropsychiatric unit suggests a practical basis for a more comprehensive mental health service, calculated to supply early treatment in a form acceptable to many potentially recoverable patients as well as relief to the more chronic types of illness.

Summary

Investigation has been made of 281 patients selected for psychiatric treatment in a general hospital during a year. After an average in-patient period of six weeks, over three-quarters were able to return to work, the usual length of illness having been greatly shortened and chronicity avoided in many cases. Clinical recovery and improvement on discharge (82%) was maintained on follow-up, with loss of 5% relapsed. The scheme of modern psychiatric treatment used is described.

The experiment has been discussed in relation to therapeutic, professional, financial, and other fields.

I wish to express my sincere thanks to Dr. Louis Minski, medical superintendent; and to Dr. E. T. O. Slater for most helpful criticism and advice; also to Dr. W. Sargant for advice on physical methods of treatment, and to Dr. H. J. Shorvon, Sister E. A. Gaunt Murphie, and Miss J. M. Moore for their valuable assistance.

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F. W. Taylor (*J. Amer. med. Ass.*, 1942, **118,** 1196) observes that chronic ulcers of the limbs, predominantly of the legs, due to infection with a haemolytic streptococcus have received little attention. The lesion is chronic and similar to that of varicose ulceration, and is usually seen in children and young adults with no apparent vascular abnormality. The 19 cases he describes responded well to sulphanilamide by mouth.

ATROPINE GLAUCOMA

BY

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This tragic condition continues to blind many eyes. Among the most valuable of drugs used in the successful treatment of eye conditions is atropine. Yet, when contra-indicated, this drug is one of the most dangerous that can be instilled into the eye.

Before its use diagnosis is essential. A spot differential diagnosis between the more frequent conditions, such as conjunctivitis, keratitis, iritis, primary congestive glaucoma, and secondary glaucoma, can at times exercise the most experienced, and so can the differentiation between "simple" glaucoma, the eye predisposed to glaucoma, and a normal eye.

I refer to the necessity for recognizing the normal eye because "simple" glaucoma is a most insidious progressively damaging condition, simulating the normal by absence of pain or visible outward signs. It is far from being simple. When in doubt, and a dilated pupil is required, homatropine can be used with greater safety, because eserine will contract the resultant mydriasis if necessary. The action of atropine on the intra-ocular muscles is clinically irreversible (Duke-Elder, 1932-7; Parsons, 1942), and in its presence eserine is ineffective. An eye is atropinized or not, and the use of weak solutions does not give a margin of safety. Once atropinized, a period of several days may have to elapse for the effect to pass off after the use of atropine has been stopped. Much mischief may happen in this interval if a dilated pupil has been contraindicated.

It may not be out of place to revise briefly the main mechanical conditions involved.

Conditions leading to Glaucoma

The eye is a closed chamber into which aqueous is constantly being secreted by the ciliary body, and from which an equal amount of aqueous must therefore escape through the drainage system of the canal of Schlemm. This venous canal runs concentrically round and close to the apex of the drainage angle in the junction of cornea and sclera. It is separated from the aqueous of the anterior chamber by a fine filter meshwork—the ligamentum pectinatum. In drawing the accompanying sagittal diagrams irrelevant details and labelling of structures have been omitted so as to preserve clarity. These illustrations represent the normal eye with the pupil of average size. It will be seen that the lens is supported posteriorly by the more solid vitreous (Fig. 1), and that any swelling of the lens will tend to displace forward the iris as a whole. Also, if the pupil is dilated the consequent thickening of the iris bulk will encroach upon the filtration angle. The iris, ciliary body, and choroid (shown in solid black) are related developmentally and clinically. These highly vascular pigmented structures form the uvea: thus iritis, iridocyclitis, uveitis. The canal of Schlemm appears as an elongated O lying on its side, and the retina is seen on the inner surface of the choroid. The arrows (Fig. 2) indicate the main flow of aqueous from the ciliary body into the posterior chamber, then between the lens and iris and forward through the pupil into the anterior chamber to the canal of Schlemm. Posteriorly is shown the funnel-shaped scleral aperture for the optic nerve, with its anterior acute rim. It is on this sharp rim that the impact of an increased intra-ocular pressure first makes itself felt on the retinal nerve fibres as they converge, streaming in to form the optic nerve—rather like barking one's shins on a sharp-edged object.

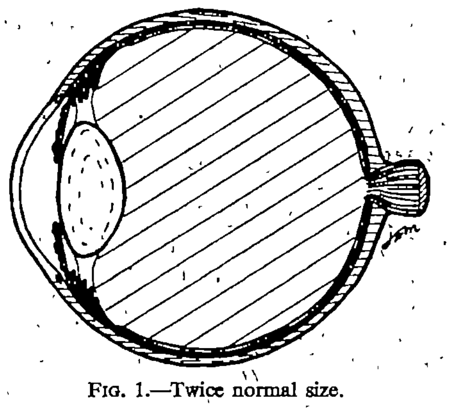

FIG. 1.—Twice normal size.

A watch-face serves well to illustrate the front view and relationship of the main structures of the anterior part of the eye. The glass cover represents the cornea, the dial the iris, and the central spindle-hole for the hands the pupil. The space between the glass and the dial is the anterior chamber. The flow of aqueous would be forward through the spindle-hole, over the dial-plate towards the numerals, and beyond these to the angle where the glass rim meets the peripheral edge of the dial. In a normal eye the balance of this flow is delicately kept and the resultant pressure within the eye, with small variations, is about 25 mm. of mercury. If, however, the drainage system is defective or becomes partially blocked, the outflow is impeded and diminished till the hydraulic-pressure head is raised above normal to overcome the resistance. This state is glaucoma.

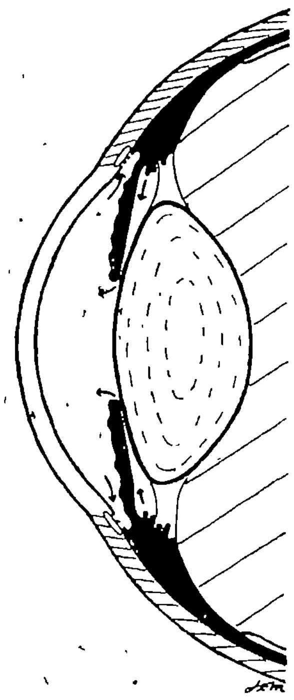

FIG. 2.—Four times normal size.

Atropine and the Drainage Outflow

Atropine paralyses the ciliary muscle and so abolishes the power of accommodation. It also prevents the sphincter muscle of the iris from receiving impulses from the third nerve, with the result that the muscle is ineffective. The pupil therefore dilates (except where synechiae prevent this).

Eserine accentuates stimuli from the third nerve to the sphincter iridis and the ciliary muscle. Under its influence the pupil contracts, the iris is stretched, and the ciliary muscle pulls on its insertion and on the root of the iris, thus tending to open the drainage angle and thereby improve the outflow of aqueous.

In mydriasis the pupil is much dilated and the iris structure is "bunched up" together and therefore thicker. In miosis the pupil is much reduced in size by the overaction of the sphincter muscle, and the iris itself is stretched fully and is at its thinnest.

For purposes of comparison let a room represent an eye. The window is the cornea, a pair of heavy curtains the iris, and the wall-paper opposite, the retina. If the curtains are drawn nearly together the small space between their edges will represent the pupil in miosis (as in the slit-like pupil of the cat). If now the curtains are pulled aside fully the "pupil" will be large; but the curtain bulk has had to go somewhere, and we find that it has "bunched up" or folded upon itself so that on the whole it has become thicker.

In the human eye the iridic curtain is circular; the iris root and the aperture edge are approximately concentric. It is this thickening or "bunching up" of the iris in mydriasis that can play the dangerous part by plugging the drainage outflow.

The lens of the eye is an epithelial structure which, within its capsule like a pea in its thin jacket, continues to grow in size throughout life. It is unable to shed its older cells, as is the case with the nails and skin. The gradually enlarging lens tends to push the root of the iris forwards, narrowing the small drainage angle between the iris and the cornea. This may be sufficiently advanced at the age of 45 to be an important factor. Also, in people with relatively small corneae the disproportion between the lens and the cornea is mechanically disadvantageous. In addition, early incipient cataract is of more frequent occurrence than might be supposed. These lens changes are associated with varying degrees of water absorption and swelling of the lens. The swelling of the lens gives rise to the important clinical sign, when noted, of progressively increasing myopia, actual or relative.

Should the pupil of an eye in which these conditions prevail individually or in concert be dilated, the "bunching up" and thickening of the iris at its root may, and probably will, sufficiently plug up the drainage outflow to induce the onset of "simple" or of acute glaucoma. If atropine was the mydriatic used the situation would be difficult even if recognized early.

When to Use Atropine

It must not be assumed that advancing age contraindicates the use of atropine. It is the condition of the eye itself, irrespective of age, that may contraindicate the drug, and special difficulties arise when more than one clinical intra-ocular condition coexist, as in the secondary glaucomas. One of my patients who has double iridocyclitis is aged 90, and I have instilled atropine into both his eyes, but not before I had amply satisfied myself that there was no predisposition to glaucoma.

It may be impossible even for those in constant practice to decide by digital means that an intra-ocular pressure is not slightly raised, and other methods and data should be relied on in the important finer variations. The digital method of judging the state of intra-ocular pressure requires special technique, and to attempt to do this with the tarsal plate of the lid interposed between the finger-tips and the eye is fatuous.

For ophthalmoscopic examination euphthalmine lamellae and B.W. euphthalmine ophthalmic "Tabloid" are efficient and safest, while for the more simple conditions requiring rest of the eye by mydriasis and cycloplegia homatropine (not homatropine and cocaine, in repeated instillations) may be sufficient. Where full mydriasis and cycloplegia are indicated atropine should be employed boldly by instillation of the solution, the solid form, or if necessary by the subconjunctival route, but not before efficient drainage of the aqueous has been proved, and never indiscriminately.

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A *Supplement* to the *London Gazette*, dated May 7, announces the appointment as M.B.E. (Civil Division) of Burgess Barnett, M.R.C.S., and Capt. S. D. Sawyer, M.B., Army in Burma Reserve of Officers. The announcements state that Dr. Burgess Barnett was a member of the party which evacuated from Burma via the Chaukan Pass and was one of the last dozen men to be rescued from Tilung Hka. He elected to remain with the remnants of the party until the end, and thus secured to them the medical attention they all so sorely needed. Dr. Barnett's conduct throughout this long and difficult march over uninhabited country, in the most trying conditions of the monsoon, was worthy of the best traditions of the medical Service. Capt. Sawyer, after retreating into Manipur with the Burma Army, volunteered to remain behind in the Naga Hills in an endeavour to extricate the many thousands of refugees who were still coming out. He served during June and July with great distinction and helped many hundreds of refugees on the Tonhe–Yaripok–Imphal route. Early in September he volunteered to go out again in a final attempt to rescue those unfortunate evacuees who had been forced to spend the rains at Shinbwiyang. No other doctor was available for this duty, and he remained there until the 1,600 survivors had been brought out safely to Margherita by Dec. 5, 1942. Capt. Sawyer showed an outstanding sense of duty and self-sacrifice and saved many lives.

SPECIFICATIONS FOR DARK-ADAPTATION TESTS

BY

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As the question of the exact specification of the light used in adaptometers has been raised by Mr. Bishop Harman (1943), it seems opportune to emphasize that there are two aspects to this problem. The first is *standardization*, or agreement as to the size of field, form, or figure used, colour temperature of light, duration of exposure, retinal area to be tested, presence or absence of a fixation point, etc., irrespective of the physical method of obtaining these things; while the second is *calibration*, or exact measurement of the physical properties of the instrument and their accurate reproduction in copies of it.

Standardization

Regarding the first, there is as yet insufficient information on the relation between rate of adaptation, cone threshold, final rod threshold, and acuity or form sense at low illuminations to show what is the best presentation or type of test to use, either as a selection test (for picking out people with dangerously poor or strikingly good night vision) or as a vitamin-A-deficiency test. However, much work with different kinds of tests is proceeding in many parts of the country, and some work directly intended to show the relation between the results of different tests and to indicate what differences between tests are important and what are unimportant.

Calibration of Instruments

Regarding calibration, the most important characteristics to be measured are the size of field, the size of the form or figure used, if any, the colour of the light, the retinal area to be tested, and the duration of the exposure (if this is a flash, as in the Steven-Wald apparatus, or the time given to the subject for his decision in other tests). These characteristics have been accurately measured and described in most of the best work on dark adaptation—e.g., that of Hecht and his collaborators. In the Army pentagon test (Rycroft, 1942) it is specified that the translucent screens in any one instrument must all be made from the same sheet of material, and the brightness of the outside surface of the screens is measured directly with a photometer in calibrating the instruments, so that variations between one batch of sheets and another do not matter. The dark-filters used in the goggles worn by the subject are individually measured for density and are all of the same material. The brightness and angular size of the surface of the screen, as seen by the subject, are the main features on which the threshold depends. As pointed out by Dr. Yudkin (p. 633), the illumination falling on the eye does not really determine the threshold, since the same illumination may be visible (if it comes from a small bright field) or invisible (if it comes from a much larger but dimmer one). In the pentagon test arrangements are being made to check the surface brightness of the screens periodically by sending round a portable photometer. There is as yet no agreement even among photometrists as to the colour temperature of the light, which should be standardized for brightness and illumination measurements, and this introduces a serious difficulty in adaptometry, as a bluish-white and a yellow light having the same brightness at high intensities may differ threefold or more in apparent brightness when very dim. For this reason it was decided to specify the brightness of the pentagon test in terms of the brightness of the screens, the type of bulb, and the "neutral" material used for the filters; it is easier to obtain a uniform batch of a material than to get special materials made to a known spectral transmission curve and density; but as these properties are measurable it would be possible to specify the equivalent colour temperature and the brightness of the screens as seen by the subject in equivalent foot-candles or candles per square foot. It is admittedly not easy to ensure that many instruments are identical within certain limits; for instance, the small bulbs so desirable on account of their low current consumption can sometimes change a little, and instrument-making firms do not usually possess suitable equipment for calibrating such instruments. Yet it appears that such bulbs, with a good voltmeter or ammeter, provide the best light source.

I have measured the candle-power of two of the standard candles provided for the Bishop Harman test in their draught-proof lamphouse, and found that during the first 40 minutes of burning there was a gradual increase from 0.75 to 2.0 c.p., and after that a decline to 0.6 c.p. without there being evidence of anything wrong with the candle. After this the candle failed in each case to move up in its spring socket, though there was about 1¼ in. unburnt; if this escaped notice the light dropped further to 0.2 c.p. Thus the light varies over a threefold range when the instrument appears to be functioning properly, and if one does not watch the behaviour of the candle carefully a tenfold change can occur. The literature indicates twofold or threefold threshold changes as significant in vitamin A deficiency, and suggests that the individual variation in thresholds among a large population, excluding cases of retinitis pigmentosa and other pathological conditions, is about sixteenfold. Thus a twofold or threefold variation in light can be very serious for clinical purposes, and a variation as great as tenfold would invalidate the test even for rough personnel-selection purposes. An endeavour should be made to achieve about ±15% in the accuracy of night-vision tests for such work.

Conclusion

I should like to add two remarks to Major Rycroft's paper on Army night-vision testing. First, it may not have been clear that the reason for using goggles with dark filters during the test was to exclude stray light in the hut—for a blacked-out Nissen hut is by no means totally dark. Secondly, the pentagon was originally designed as a multiple or group test for examining five men simultaneously, but individual testing proved superior in practice. The attempt to make a multiple test had, however, introduced instrumental difficulties in obtaining even illumination on several panels, which need not arise in an individual test. A neutral wedge seems an almost ideal method of light control, giving a continuous logarithmic scale without appreciable change in the colour of the light, and permitting calibration of the wedge at high intensities.

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A CRITIQUE OF THE BISHOP HARMAN TEST FOR NIGHT VISION

BY

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A new apparatus for the measurement of night vision has recently been described by Bishop Harman (1941a, 1941b, 1943). It consists of 4 groups of white disks, each half an inch in diameter, mounted on a black background. Each group comprises 4, 5, 6, or 7 disks, and only one group is uncovered at a time. The illumination is provided by a standard candle 5 metres away. The subject, after 15 minutes in the dark room, is required to stand at such a distance from the disks that they can just be distinguished and counted. It was found by Bishop Harman that " the average person can count these . . . at a distance of 5 metres." A shorter distance (down to 1.5 metres) is taken to indicate poorer night vision, and a greater distance (up to 8 metres) to indicate exceptionally good night vision.

It is clear from the description of the instrument and its mode of use that the measurements which are recorded involve factors other than dark adapation. The following considerations in particular show this (see also Godding, 1941).

1. The test objects are small and close to each other, so that they are perceived mainly by the cones of the macular region. Dark adaptation, on the other hand, is much greater in the rods of the peripheral field. It might be argued that it is macular vision which is concerned with accurate vision, by night as well as by day; in fact, however, vision by night is not accurate, and is to a great extent peripheral. In using this apparatus we found that the test objects are perceived better if the observer is looking a few degrees away from them. It would appear, therefore, that to some extent rods as well as cones are used; it seems that a compromise is established between the clarity given by the cones and the better dark adaptation of the rods.

2. Subjects are tested after they have been in the dark room for 15 minutes or longer. As Bishop Harman tested many subjects at a time, some were in the dark for longer than 15 minutes. Now, dark adaptation, particularly after exposures to light of high intensity such as outdoor sunshine, continues for 30 or 35 minutes. It is the rods which are mainly concerned in this prolonged improvement, and, as we have seen in the previous section, rods are to some extent used in this test. Adaptation therefore may not be complete in 15 minutes if there has been a long exposure to bright light before the test. In view of these facts, it seems likely that subjects tested after just 15 minutes might appear to be worse than others tested later, simply because the former had not yet attained their best possible adaptation.

3. The small size and the proximity of the disks suggest that the ease with which they are seen may be greatly affected by minor errors of refraction. Bishop Harman examined all his subjects for visual acuity and confined the test to those whose acuity was normal according to his " rotary E " test. It is quite likely, however, that differences in acuity, even among these " normals," might affect the ease with which the disks are seen. In other words, the E test might not eliminate sufficiently those whose visual acuity is slightly imperfect and whose ability to see the disks is consequently limited by this factor. The statement of Bishop Harman that only one of 427 Canadian soldiers failed to pass the E test lends support to this suggestion.

4. The use of a candle as a standard of illumination has been obsolete for 40 years or more. As Walsh (1926) says, " Although once officially adopted in several countries and by various testing bodies, candles have now been entirely superseded as practical standards of light. For instance, the British Parliamentary candle, defined in the Metropolitan Gas Act of 1860, was discarded in favour of the pentane lamp by the Metropolitan Gas Referees in the *Notification* for 1898."

5. The principle of varying the amount of light entering the eye by varying the distance between the test object and the observer is highly undesirable. In the first place, it is difficult to calculate the illumination entering the eye. Bishop Harman gives the following values: at 1 metre=1/393; 2 m.=1/527; 3 m.=1/688; 4 m.=1/871; 5 m.=1/1075; 6 m.=1/1302; 7 m.=1/1550; 8 m.=1/1816 f.c. These values appear to have been derived by assuming that the disks act as mirrors, reflecting the incident light in one direction only. This is manifestly incorrect, and the disks must be taken as themselves acting as new light sources. In other words, the illumination on the eye is inversely proportional to the square of the distance of the disks from the subject, whereas Bishop Harman takes it as inversely proportional to the square of the distance of the source of light from the disks *plus* the distance of the disks from the subject. The actual illumination at the eye may be calculated thus: The intensity of light at the disk is given by the formula:

$$\text{reflection factor} \times \frac{(\text{angular size of disk})^2}{\pi} \times \text{candle-power of source.}$$

The illumination at the eye is then: $\dfrac{\text{intensity at disk}}{(\text{distance of eye from disk})^2}$.

Assuming a reflection factor at the disk of 80%, the illumination at 1 metre from the disk is 158×10^{-9} equivalent foot-candles; the illuminations at other distances are shown in the table.

Table showing Illumination at Eye at Different Distances from a Disk 1/2 in. in Diameter, illuminated by Standard Candle at 5 metres from Disk

Distance of Eye from Disk (metres)	Illumination at Eye, c.p. × 10^{-9}	
	According to Bishop Harman	Recalculated
1	2,540,000	158
2	1,900,000	39·4
3	1,450,000	17·5
4	1,150,000	9·9
5	930,000	6·3
6	770,000	4·4
7	645,000	3·2
8	550,000	2·45

The two methods of calculation give very different values, so that the illumination according to Bishop Harman varies from 16,100 times the recalculated value at 1 metre to 224,000 times at 8 metres. The value at 8 metres according to Bishop Harman is 22% of that at 1 metre, whereas it is really 1.6%.

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* Sir Halley Stewart Fellow.

But even these data do not accurately indicate the visual effect produced on the retina. Increasing the distance of the subject from the disks not only reduces the illumination reaching him but also reduces the apparent size of the disks and the apparent distance between them. Both of these factors alter the visual effect of the illuminated test objects, and it is impossible to assess these factors. The data on illumination thus give only an approximate idea of the effect of distance in altering the visibility of the test object. All the satisfactory types of apparatus in current use are provided with a test object of constant and known angular size and an illumination of variable and known physical brightness.

The Bishop Harman Apparatus in Use

The apparatus was tested in two ways. First, since the test is performed by Bishop Harman sometimes after just 15 minutes in the dark and sometimes after a longer period, an attempt was made to determine whether, as we have suggested, improvement in response occurred subsequent to the first 15 minutes in the dark. Secondly, a comparison was made of the Bishop Harman apparatus with the Haines apparatus by testing a number of subjects on both instruments. The tests were carried out in March, 1942, on workers in a factory at Sheffield as part of a more elaborate study of dark adaptation. Only subjects whose visual acuity was 6/6 or better (Snellen cards) were examined.

Preliminary observations showed that there were several possible sources of error, the avoidance of which required careful attention. They were mainly concerned with the source of light. It was found, for example, that the standard candle occasionally burned unevenly, so that the wick became too long, with consequently a considerable increase of light. The candle is mounted in a holder with a spring to push the candle up as it burns and so keep the wick in a constant position. In practice, however, the spring may fail to do this after about one or one and a half hours, so that for the remaining 30 minutes or more the illumination decreases as the flame becomes lower in the holder. By frequent examination of the candle these errors were avoided so far as was possible.

1. Improvement of Night Vision with Time

The test was carried out on 17 subjects at intervals of 5 or 10 minutes for a total of 30 or 40 minutes after entering the dark room. During the first 15 minutes there was always considerable improvement, as shown by an increase in the distance at which the disks could be counted. In three of the subjects there was no further improvement after 15 minutes. In 10 there was a slight but definite further improvement, ranging from 0.5 to 1 metre (Fig. 1, curve A). In two individuals the improvement after the first 15 minutes was 1.5 metres, while in two further individuals it was 2 metres (Fig. 1, curve B). Quite one-third of the subjects would have been graded as "poor" by Bishop Harman at 15 minutes and as "moderate" or "good" at 30 minutes. These tests were carried out in conditions in which the previous light exposure was not very great; the men came straight from their work to be tested, and they waited in an ante-room for 5 or 10 minutes before the test was begun. The improvement after 15 minutes in the dark would presumably be greater if the test were done on subjects coming into the dark room after some time outdoors on a sunny day in summer.

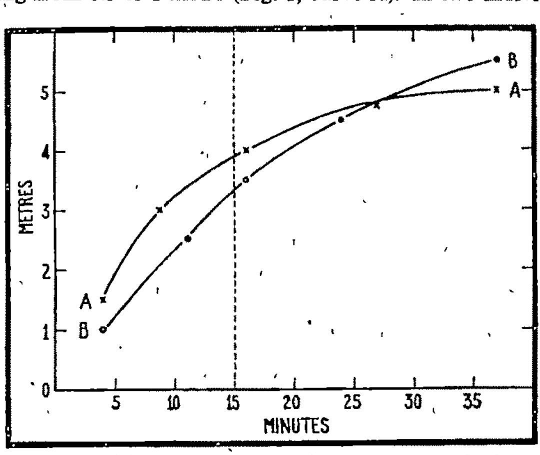

FIG. 1.—Bishop Harman test: improvement with time.

2. Comparison of the Bishop Harman and the Haines Instruments

The principle of the Haines apparatus (Haines, 1938) is the control of illumination over a wide continuous range by the use of neutral filters, together with a pair of polaroid disks. The minimum detectable illumination (threshold illumination) is determined at intervals. The instrument used in this work has been modified in certain respects and calibrated in absolute units of illumination. Its reliability was demonstrated by S. Yudkin (1941), and it has since been used by one of us in collaboration with G. W. Robertson and S. Yudkin for the measurement of the dark adaptation of upwards of 2,500 individuals (J. Yudkin, 1943; J. Yudkin *et al.*, 1943). Thirty subjects were tested with both the Bishop Harman and the Haines instruments and a comparison made of the readings obtained after at least 35 minutes in the dark. (No improvement occurred with either apparatus subsequent to this time.) If the Bishop Harman apparatus measured dark adaptation only, subjects with a high final threshold as shown by the Haines apparatus—that is, with poor dark adaptation—should give a low reading with the Bishop Harman apparatus, and conversely. In fact, however, little correlation exists between the results obtained with the two instruments (Fig. 2). (The correlation ratio, $r = 0.20$.) Some individuals with good dark adaptation (final threshold log. $\mu\mu l = 3.1$) showed a poor performance with the Bishop Harman test, and others whose dark adaptation was bad (final threshold log. $\mu\mu l > 3.5$) reacted well with the Bishop Harman test.

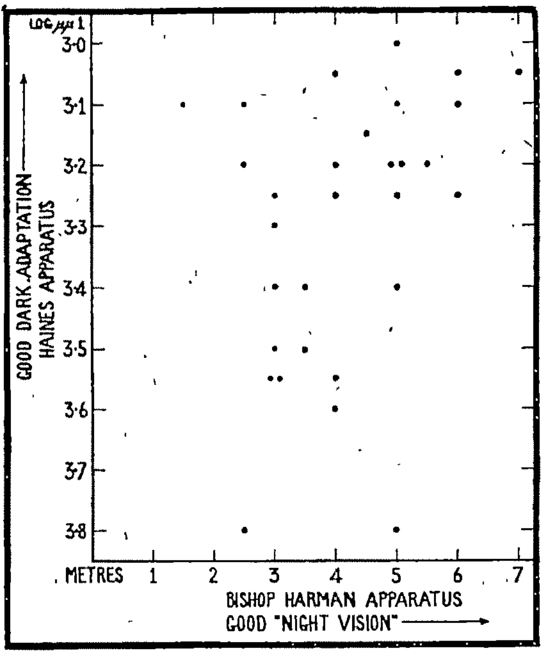

FIG. 2.—Correlation of Bishop Harman test with dark adaptation measured on the Haines instrument.

Discussion

The fact that dark adaptation is of considerable topical interest may lead to the use of unsatisfactory apparatus. This has indeed happened on several occasions: the effect has been a tendency, especially noticeable recently, to discredit a great deal of the reported results on dark adaptation, the sound as well as the unsound.

It will be seen from the findings here reported that the Bishop Harman apparatus, as suspected from theoretical considerations, does not provide a satisfactory measure of dark adaptation. Since improvement in performance occurs during the time a subject is in the dark room, dark adaptation appears to be one of the factors involved in the response to the test. On the other hand, the fact that so little correlation exists between the results recorded with the two instruments shows that other factors play a considerable part in the response to the Bishop Harman test.

Summary

An investigation of the Bishop Harman apparatus has been made with a view to determining its efficacy as an instrument for the measurement of dark adaptation. It has been shown that, besides having many theoretical objections, the test is, in practice unsatisfactory compared with well-standardized apparatus, since other factors as well as dark adaptation are involved.

We are indebted to Dr. K. J. W. Craik for much advice on the methods of calculation and interpretation of data on illumination.

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Medical Memoranda

Toxic Reactions to Sulphathiazole

Identical and, I believe, rare toxic reactions to sulphathiazole in two patients in the same ward and at the same time are here recorded. The syndromes were characteristic enough to make recognition easy, once the picture had been grasped.

RECORDS OF TWO CASES

Of two patients, A and B, one had subacute bacterial endocarditis and had been running an intermittent temperature of 100° F. He had been treated for some months with sulphapyridine 1 g. q.i.d. The drug was judged to be losing its efficacy, and a change to sulphathiazole was decided upon. On Jan. 19 a course of the new drug, 2 g. q.i.d., was begun. On Jan. 28 a skin lesion was noticed. That evening the temperature rose to 104.6° F., and in the ensuing days it remained near this figure, irregularly remittent. Delirium was present. The lesions started as a number of well-separated discrete subcutaneous nodules. These quickly—in 24 hours—involved the cuticle and when fully developed presented as erythematous macular plaques. The centres appeared to be depressed owing to a single row of accurately radial pinhead vesicles at the perimeter. The whole, varying in size from a pea to a silver threepenny-piece, gave a rosette effect. Within 24 hours scabbing, without abatement of the inflammation, had begun The distribution was: forehead first, then the sides of the neck in the mastoid regions, and finally the backs of the hands and extensor aspects of the forearms. There was no pruritus.

Case B was one of traumatic thrombophlebitis of the leg with some superficial gangrene. Here, too, was a mild febrile reaction—100° to 100 4° F. To reduce possible infection, on Jan. 24 sulphathiazole in the same dosage as with A, but four-hourly, was begun. For two days the temperature fell—reaching normal on Jan. 26. Thereafter it rose by about 0.5° F. each day. On Jan. 29 several nodules appeared on the forehead. These developed as with Case A, with similar distribution and order of appearance, but the fever never exceeded 102.8° F.

The diagnosis of Case A had at first been "a shower of emboli," and, in fact, on the last day the dosage of the drug was increased to 2 g. four-hourly. Then the striking identity of distribution and sequence in the two cases was observed. The lesions were carefully compared, and were found to tally in every respect. A common infection was next considered, but this seemed improbable. The two lay in separate and reasonably distant rooms in a ward of some 35 beds. The chances of conveyance were fairly remote. Finally the drug was considered, and on the evening of Feb. 2 it was discontinued in both cases. On the following morning A's temperature was normal; B's continued to fall during the next week, reaching normality on the seventh day. (A was taking fluids well; B rather poorly.) In both cases the skin lesion receded from the first day after discontinuing the drug. In four days both were clear

COMMENT

The coincidence of time and place is remarkable. It considerably reduces the element of doubt, so often and inevitably present in the purely clinical diagnosis.

I would like to express my indebtedness to Dr. J. F. Gaskell for permission to publish this note; indeed, for the suggestion to write it.

Addenbrooke's Hospital, Cambridge.
H. C. SCOTT, M.R.C.S., L.R.C.P.

Reviews

ALDOUS HUXLEY ON VISION

The Art of Seeing. By Aldous Huxley. (Pp. 143. 7s.) London. Chatto and Windus. 1943.

Aldous Huxley had bilateral keratitis at the age of 16 which left him with greatly reduced vision. As is common in such cases, his sight improved towards middle life. After he had become an ardent devotee of the Bates method of visual training his vision improved so that it was "twice as good as before." To repay a debt of gratitude to his benefactor and to make his art more widely known, Huxley has ventured into medical literature and written a book—*The Art of Seeing*.

Bates's hypothesis is, of course, well known to the medical profession: visual derangements and refractive errors are due to a deformation of the eyeball by a condition of nervous and muscular strain in the extra-ocular muscles; for this reason, according to Bates, the refraction may change "a dozen times or more in a second," if a child tells a lie, and so on. According to Huxley "disappointed love" can produce refractive errors; and myopia in children, while it may be influenced by physical factors, is essentially due to the fact that school children "are often bored and sometimes frightened . . . so that they emerge from the educational ordeal with myopia or some other defect of vision." The universal treatment in all cases is the induction of cerebral and ocular "dynamic relaxation," on the achievement of which the eye becomes normal. This desirable condition is attained by exercises which include palming (covering the closed eyes with the palms of the hands and imagining a beautiful scene), butterfly blinks, relaxed breathing, sunning ("letting go and thinking looseness," and turning the eyes to the sun), swinging (rhythmic swaying of the body while looking out of a window to make the mind "friendly to movement" and "soothe" it "as do the movements of the cradle"), nose-writing (writing with an imaginary pencil attached to the end of the nose), flashing with dominoes, shifting, rubbing and kneading the upper part of the nape of the neck, and a host of other procedures which Huxley admits are undignified but which he assures us permanently help the vision.

Whatever be the value of the exercises, it is quite unintelligent of Huxley to have confused their advocacy with so many misstatements regarding known scientific facts. It has been shown that the hypothesis upon which these methods of treatment are based is wrong; but Huxley, while admitting he is ignorant of the matter and unqualified to speak, contends that this is of no importance because the method works in practice and gives good results; it comes into the category of "art," not of "science." This argument is perfectly allowable, for in other spheres than medicine empirical methods have often produced effective results the rationale of which may be mysterious. The most stupid feature about his book, however, is that he insists throughout on the physiological mechanism whereby these exercises are supposed to work. It would at least have been logical if he had continued to allow the reader to assume that he was speaking in ignorance of anything except results. He only borders on the ridiculous when he says that these methods result indirectly in the relief or cure of many serious diseases of the eyes, such as glaucoma, cataract, iritis, or detachment of the retina, because they "reduce nervous muscular tension, increase the circulation and bring back the *vis medicatrix naturae* to its normal potency." Like the bonesetter who treats by forcible manipulation every joint whether rheumatic or tuberculous, or most obsessionists who believe that every virtue resides in one particular drug or practice, he treats all visual troubles as one all-embracing unity, all amenable to one sovereign remedy.

There is, of course, another side to the argument. There would appear to be no doubt that these exercises have done Aldous Huxley himself a great deal of good. Every ophthalmologist knows that they have made quite a number of people with a similar functional affliction happy. And every ophthalmologist equally knows that his consulting-room has long been haunted by people whom they have not helped at all. Huxley is quite right when he says that there is a tendency for the ordinary person, when there is a falling-off in vision, to "hurry off to the nearest spectacle shop" and there get fitted for a pair of glasses by someone who has "no knowledge of him as a physical organism or as a human individual." Nothing could be worse medicine than the indiscriminate and mechanical prescription of spectacles. He is quite right in saying that visual disabilities are often muscular and often psychopathic in origin. But every competent ophthalmologist treats the former with curative exercises (of a more scientific type than those recommended here), and, in the second case, at the least should advise the patient of the origin of his difficulties and suggest steps for their amelioration. For the simple neurote who has abundance of time to play with, Huxley's antics of palming, shifting, flashing, and the rest are probably as good treatment as any other system of Yogi or Coué-ism. To these the book may be of value. It is hardly possible that it will impress anyone endowed with common sense and a critical faculty. It may be dangerous in the hands of the impressionable who happen to suffer from glaucoma or detachment of the retina, and undoubtedly will be dangerous in the hands of the anxious parent of a myopic child who may be misled into neglecting the fundamental medical problems of growth, constitution, endocrinology, and rational ocular care, and may be persuaded to subject it to dangerous eye-strain in the absence of spectacles. But the greatest value of the book will be to the psychiatrist as an intimate and revealing self-study in psychology.

STEWART DUKE-ELDER.

ENCEPHALITIS

Encephalitis: A Clinical Study. Edited by Josephine B Neal, M.D., Sc D., F.A C.P. Foreword by Hubert S. Howe, M.D. (Pp. 563. 42s.) London: H. K. Lewis and Co 1942.

This book, edited by Josephine B. Neal, is a publication which has been rendered possible by the Matheson Commission for Encephalitis Research. It covers the whole field of encephalitis as that term is used to describe both those diseases known to be due to infection of the brain with neurotropic viruses and the demyelinating disorders, the aetiology of which is still obscure. Different authors, including Dr. Neal, discuss the clinical features, epidemiology, pathology, and treatment of encephalitis. Each section is followed by references, and the book is thus a comprehensive review of what is known of the subject, or, perhaps one should say, what was known when it reached the printers, for there are important new observations on the epidemiology of St. Louis encephalitis and equine encephalitis which are too recent to have been included. It would have been more valuable if much of the space devoted to encephalitis lethargica—about half the book—had been allotted to poliomyelitis. Encephalitis lethargica is not now of sufficient clinical importance to justify such a lengthy recapitulation of what has already been published in earlier volumes by the Matheson Commission, and in any case is in all the textbooks. Poliomyelitis is as much entitled to be included in a book on encephalitis as the Guillain-Barré syndrome, which finds a place in this one, and, as recent work has shown, it has close epidemiological affinities with several forms of encephalitis. It is somewhat confusing, too, in a book describing so many forms of epidemic encephalitis to limit this term to encephalitis lethargica. The book will be found useful, especially by neurologists, paediatricians, and public health experts.

CONTROL OF SCABIES

Scabies. By Kenneth Mellanby, Ph D. Oxford War Manuals. (Pp 81. 5s.) London: Oxford University Press. 1943

Practitioners will welcome the opportune publication of Dr. Kenneth Mellanby's Oxford War Manual on scabies. Some such authoritative production has been clearly required to establish a settled policy in treatment and to separate the good from the indifferent or the actually bad. Thus on page 60 there is printed a table showing the comparative efficiency of different methods. Sulphur ointment and benzyl benzoate emulsion come through the test well, achieving nearly 100% of cures. On the other hand, sulphur taken internally is shown to be completely valueless; and many other methods, despite popular advocacy, make very poor showing—sulphur soap, for example, achieving only 17%, and the thiosulphate–hydrochloric acid method a meagre 25%. Dr. Mellanby is of the opinion that disinfestation of contact garments and bedding has been over-emphasized, and that, as the Ministry of Health has decided, disinfestation of the clothing and blankets of scabies patients may reasonably be dispensed with (p. 42). In this connexion the opinion of Ferdinand Hebra is often quoted, though not by Dr. Mellanby. Hebra was certainly against formal disinfection by heat or vapour. Whether he was equally opposed to simple hygienic measures such as washing and ironing is uncertain, as his statement is a little confused. In any case Dr. Mellanby allows these methods, or others of a more searching character, where it is considered necessary to use them.

The way in which scabies is transmitted must obviously be closely bound up with disinfestation, although we have perhaps still to decide the usual means of dissemination. Scabies, Dr. Mellanby tells us, is essentially a domestic disease, and bedding is certainly able to transmit it under favourable conditions. He also lays stress on the sleeping partner. He mentions that, in the last war, men in the trenches may have transmitted scabies among themselves to a limited extent. This last observation seems improbable, because it was when troops were in rest, and clothing was removed and communal blankets were in use, that conditions favourable to contamination arose.

The author has completed a brilliant and successful research. Both the practitioner and the expert will find much that is original, and in the details of treatment and diagnosis a clear and simple description of the necessary facts and procedure. Dr. Mellanby has made a good job of it.

Notes on Books

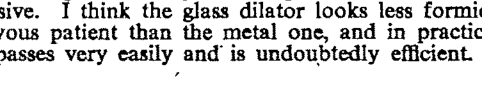
Dr. WILLIAM J. DIECKMANN wrote his monumental treatise *The Toxemias of Pregnancy* for a dual purpose—to correlate recent advances in obstetrical physiology for the benefit of the obstetrician, and to present the non-obstetrical investigator with the facts of the physiology and pathology of obstetrics. By means of this form of "pincer movement" he marshals all the available material for a co-ordinated assault on that elusive enemy, the aetiology of pregnancy toxaemia. The material collected is imposing and skilfully arranged in six sections. These deal with the classification, incidence, and pathology of the toxaemias of pregnancy; normal and abnormal physiology; the aetiology of eclampsia; clinical aspects of the toxaemias; treatment; and maternal and foetal prognosis. As might be expected in a work so comprehensive, reference to other papers is frequent, and a valuable list of these references is summarized at the end of each chapter. This cannot have been an easy book to write, and in spite of its concise and lucid text and excellent illustrations it is not an easy one to read, but as a book of reference it will be most valuable to research worker, teacher, and clinician. It is published by Henry Kimpton at 37s. 6d.

Preparations and Appliances

A NEW ST. MARK'S HOSPITAL DILATOR

Mr. W. B. GABRIEL, F.R.C.S., writes:

The St. Mark's Hospital pattern of rectal dilator has proved, over a course of many years, to be an invaluable instrument in the treatment of patients suffering from conditions associated with spasm of the anal sphincter or contraction of the anus. In the after-treatment of surgical operations on chronic anal fissures, certain fistulae, etc., it is indispensable. Owing to the shortage of metal and labour the chromium-plated metal dilators have lately proved difficult to obtain, so at my suggestion Messrs. Allen and Hanburys have manufactured a dilator in glass, 3½ inches in length, and instead of a graduated taper the new model has a more "streamline" design which permits the maximum diameter of 1 inch to be reached about 3/4 inch proximal to the flange. This enables the full dilatation to be applied not only to the anal margin but to the entire length of the anal canal. The dilator is not composed of solid glass but is stout enough to stand boiling and "fair wear and tear"; it is light and easy for the patient to handle, and it is inexpensive. I think the glass dilator looks less formidable to the nervous patient than the metal one, and in practice I find that it passes very easily and is undoubtedly efficient.



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PSYCHIATRY IN THE GENERAL HOSPITAL

Whatever may be the ultimate scope of the new physical methods in the treatment of mental diseases they have collateral advantages of no inconsiderable kind. Their tangibility makes them easily acceptable by the layman, sometimes perhaps dangerously acceptable; and for the same reason they have an appeal to medical men in general, who, somewhat to their own detriment, are still apt to regard mental diseases as things apart from their concern. The actual physical treatment of mental disease which is in use, for example, at the Sutton Emergency Hospital, and described by Dr. Dalton Sands in this number at p. 628, should have the effect on many people of bringing mental diseases within the same category of thought as physical ill-health. The effect, moreover, on the staff of a hospital which carries out these new therapeutic measures is to create an atmosphere of activity, interest, and hope which it was extremely difficult to create before in any hospital devoted to the care of the mentally disabled. About its moral effect on the patients themselves there is no doubt whatever. They above all people appreciate the reality of the methods and the amount of attention that they receive from doctors and nurses in the process—even apart from the actual results in curtailment of suffering. But there are still greater advantages. Early treatment becomes more possible because both patients and relatives are willing to accept it, and Sands's paper shows that a general hospital can become a suitable place for the treatment of many mental illnesses which hitherto have had to be sent to special hospitals.

To bring mental disease back into close contact with general medicine, from which it should never have been allowed to separate itself so long and so far, is the most fundamental step that can be taken in any programme of advance, not only in psychological medicine but in medicine as a whole, because it profits both realms. And any reorganization of medical services now being contemplated which ignores this will fail lamentably to provide the comprehensive service advocated by Sir William Beveridge. If "mental medicine" is properly integrated with "physical medicine" the patient, whether his illness shows itself as a mental or physical reaction, is much more likely to come to be regarded as a personality rather than as a collection of individual organs. No doctor who takes the narrower point of view can hope to be as effective in his own specialty as he could be if he remembered always that his patient has a social meaning as well as a liver or a heart or a thalamus. As an estimate of what can come to pass in this direction Sands's paper is worthy of note. In two wards in a general hospital with 46 patients suffering from nearly all varieties of mental illness, short of the severely disturbed type, 80% of them were returned to ordinary life cured or much improved with the aid of insulin, electric shock, continuous narcosis, or even leucotomy. The consequences of the success of a policy of this kind can be very great. It makes the introduction of psychiatric wards in a general hospital more desirable and more practicable than ever before. Such wards as already exist for this purpose in King's College Hospital and in the Middlesex Hospital can look forward to a wider usefulness, and the introduction of entire psychiatric units such as the York Clinic at Guy's Hospital is additionally justified. It would be a pity if enthusiasm for the provision of facilities for psychotherapy in general hospitals were to obscure the need for providing in the same hospitals facilities for modern psychiatric treatment by physical means. The dangers of compartmentalism in medicine should be stressed.

It is of course necessary to remember that this particular experiment at the Sutton Hospital was carried out with a prognostically favourable group. On the whole they were women who had broken down under special stress and for the most part fairly recently. They were all fairly young, and it has to be remembered also that similar cases can do well if put in really suitable surroundings and given adequate rest and proper general care. It is true also that there is some risk of exaggerating the effect of such methods. Statistics of shock treatment tell a very contradictory story at the present time: this is in regard to ultimate results rather than to duration of illness, which they undoubtedly shorten. At the same time it is noticeable that with various shock treatments something may happen to the doctor as well. His judgment of the clinical state of the patient after treatment seems to be rose-coloured by expectation, so that where formerly he would have prided himself on his skill in detecting residual symptoms following apparent recovery, he is now rather apt to imitate the Nelson touch, in the manner of the times perhaps, and to fail to see them altogether—a kind of professional amaurosis, psychologically determined. But there can be little doubt that even the most ideal surroundings and the most special care would fail to produce satisfactory results as speedily as these newer methods. And, whatever methods of treatment and prevention are eventually found to stand the test of time, the administrative temptation to split the whole person into two parts—"mental" and "physical"—must be withstood by those who care for the sick.

MASS RADIOGRAPHY UNITS

Mass miniature radiography has proved its usefulness in the Services—particularly the Navy—for the detection of chest abnormalities, but its extension to the civilian population, as encouraged by the Ministry of Health, brings in some special considerations and difficulties. It is one thing to require people in a disciplined Service to submit themselves for examination, and quite another to persuade members of the public of its necessity or value. At the invitation of the Minister a subcommittee of the Advisory Committee on Tuberculosis, including a number of well-known radiologists, was set up to consider the establishment and operation of a scheme, and the result is published in the form of an *Advisory Report on the Working of a Mass Radiography Unit*. Incidentally, let us plead for the adoption of the term "fluorography," which is the term used by de Abreu of Brazil, who devised the method. The method depends upon the photography of the image obtained on the fluorescent screen. It is true that the image is obtained by x rays, but the process so far as the 35-mm. film is concerned has little relation to diagnostic radiography as commonly understood, and on the analogy of fluoroscopy the term "fluorography" suggests itself. The subcommittee lays it down as essential that only standardized methods must be used. Improvisations are to be discouraged. The report sets out the standards for the radiographic and photographic apparatus, the screen for viewing the enlarged image, the record card which ensures that each radiograph is related to the individual concerned, and the terminology to be used in describing the findings either of pulmonary disease or of cardiovascular abnormalities. The apparatus consists of four principal parts: high-tension transformer, control panel, *x*-ray tube and stand, and screen and camera unit. The problem of portability—the apparatus weighs about a ton—with a generator to supply current offers some difficulties at present, so that use must be made of fixed sites of operation in fairly well populated areas. The housing of a unit requires *x*-ray room, dressing room, dark room, projection room, and rooms for medical director and staff. The procedure suggested is for groups of sixty or so to attend at half-hour intervals (in the Services, we believe, it has been possible to deal with up to 200 an hour). The individual will first obtain a record card from the clerk, and the number of the card will appear in the photograph; after returning from the *x*-ray room he will surrender his card to the clerk, who will enter the particulars in a day book.

The medical director of the unit, preferably a member of the tuberculosis staff of the authority, working under the medical officer of health, will be assisted by a radiographer and a technician, and the services of a consultant radiologist will be available. The medical director's work will consist of daily attendance to interpret the films; but, the work being tedious, the sessions should not exceed one and a half hours, and he should have clinical duties in addition. The task of examination should not be undertaken by two persons at once, because there might be a tendency for each to trust to the other and for the attention to wander. The object is simply to sift out the photographs which suggest an abnormality. When an abnormality is found the subject is recalled and a full-size skiagram taken, preferably at the clinic where the mass radiography is done, so as to avoid any premature association with the tuberculosis dispensary, with its psychological disadvantages. The result of the second examination is sent to the subject's private doctor, with, if there is ground for suspecting tuberculosis, a recommendation to consult the tuberculosis officer; and at this stage, of course, the clinical and radiological staff of the tuberculosis service co-operate. The examination will disclose conditions other than tuberculosis (in some figures for the Navy which we have seen 25% of the chest abnormalities were due to non-tuberculous lesions), but it is thought that in view of wartime shortage of doctors the tuberculosis officer should have the chief responsibility for dealing with these cases also.

There remains the great difficulty of the choice of subjects for examination. Here discreet propaganda will be necessary. Mass radiography cannot be forced upon the public. People must be told what it offers, and the importance of what it may discover must be made clear without exaggerations which would bring discredit on the procedure. It is suggested that the members and advisers of the local authority should be the first to seek examination, followed by young persons leaving secondary schools. The approach to people already in employment must be made with care. Any attempt to make examination a condition of employment must be discouraged—at least until the idea of routine examination of persons apparently healthy is more generally accepted. If it is proposed to examine employees in any factory the representatives of the trade unions concerned should be approached. Statistical information might be given to an employer, but only if it did not prejudice individual employees. Equally the co-operation of the works medical officer might be sought, but only if there was no suggestion that his participation would prejudice the confidential nature of the examination. The matter is difficult. No eager queue of examinees is to be expected in the initial stages. Central and local propaganda is necessary, but this must be in wise hands, otherwise it may deter more than it persuades, and in some cases an undesirable "tuberculophobia" may be created. It might be stressed that mass fluorography aims at discovering how many people have healthy lungs.

TROPICAL HYGIENE

Prof. Douglas Lee of the University of Queensland has published a very useful "Basis for the Study of Man's Reactions to Tropical Climates,"[1] with a bibliography of 350 references. In this he considers the mechanism of loss of heat from the body, and the bodily reactions to diminished heat loss, the adaptive reactions and failure of such adaptations, with consequent heat stroke, heat exhaustion, heat cramps, and superdehydration of the body. He says that very little is known of the mechanism of acclimatization. In discussing climate and loss of heat he deals in particular with the Queensland climate, with the habitability of such tropical regions by white men, and with means of protection against heat elements in climate. He finds that Queensland as a whole is suitable for settlement by the white race, but selection and individual adaptation are necessary for the more tropical parts: Cape York is not a suitable region. In dealing with protection against heat he recommends that for hot dry climates outdoor clothing should be stout, extensive, and loose to permit mild convection currents set up by body movement; such clothing, shielding the body from radiation and hot air, is worn by the Arab. In hot wet climates light, porous, scanty, and loose garments are required so as to allow free removal of air saturated with evaporated sweat. When the body is exposed to the sun in such climates it needs some light protective covering, leaving ample ventilation of the limbs and neck. Underclothing is not necessary in hot dry climates, but further outer protection is needed at nightfall when the temperature drops. The use of light underclothing in hot wet climates may be of advantage for soaking up sweat that would otherwise roll off the body. Radiant energy has no specific local effect upon the brain, but a broad-brimmed hat is needed in hot dry climates to protect against the warming of the whole body by radiation, and to prevent glare. In hot wet climates there is much less need for headgear.

As to housing, the thick-walled, small-windowed, heavily shuttered Arab house set in a courtyard and kept closed from early morning to late afternoon is suitable for hot dry climates, while the lath-built, thatched, airy dwelling of the Polynesian is suitable for hot wet climates. In fact the rules for housing correspond to those for clothing under the two conditions. In hot dry climates interference with air movement by fly-screens and mosquito-net is not detrimental to body cooling, whereas in hot wet climates it is disadvantageous. A lowering of air temperature in a house on hot dry days can be effected by a water-blind kept wet by slow dripping from a pipe or siphoning from a trough, with a breeze blowing through it from a fan or otherwise. This is the simplest method of air-conditioning to be used if water is available. The large medium-velocity overhead fan is preferable to the high-velocity table fan, but increased air movement may not help in hot dry climates when the air temperature is higher than that of the body, except of course for carrying away the heat of a cooking stove. Increasing air movement in hot moist climates affords great relief by favouring evaporation of sweat. Full air-conditioning plants are a public necessity in at least half of Queensland. There are great commercial possibilities in the provision of such plants in tropical climates, as well as at home, after the war. As to personal habits, excessive exercise and use of protein are to be avoided; under-activity is also a danger: one must not slip into lax habits of mind and body. A balanced diet, moderation in alcohol, great cleanliness, and avoidance of infection are all required in the Tropics. There should be a greater intake of fluid than is customary; and for heavy workers an additional 1/4 oz. of salt a day in hot, dry periods to make good the loss in sweating.

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[1] *A Basis for the Study of Man's Reactions to Tropical Climates.* By Douglas H. K. Lee, M.Sc., M.D., B.S., D.T.M. 1940 University of Queensland, Department of Physiology, Vol. 1, No. 5. Price 8s.

Prof. Lee's study will stimulate to combined inquiry research workers who have hitherto felt isolated in a maze of conflicting opinion.

HEALTH UNITS FOR THE WEST INDIES

A large-scale demonstration of the health unit system—by which it is hoped to improve the standard of health throughout the West Indies—is being staged in Jamaica to serve as a model and training ground for twelve other schemes in Jamaica, and many more throughout the islands. The health unit, a new idea for the Colonies, is an organization which provides a small community with the means to prevent and cure disease. Its main functions are seven: health education, ante-natal and maternal care, child welfare, school medical work, prevention of endemic diseases, control of endemic diseases, and sanitation. The work of the unit is carried on from a centre, where a medical officer of health has his office. Clinics are held for treatment, and an important feature is a meeting-room for talks, lectures, and demonstrations. Away from the centre will be branches, staffed by nurses and midwives, who will also visit the people's homes. Village health leagues will be formed, and the centre will put out health propaganda. The Jamaica Centre is to have a model venereal disease clinic, and start an intensified campaign against yaws. The underlying assumption is that with good team work the health unit system can accomplish far more than a much larger number of doctors working independently could do; it can get into close touch with the people and can be linked with social welfare, agriculture, education, and other efforts to raise the standards of rural life in the West Indies.

FOUR-YEAR PLAN FOR CHILDREN'S NURSERIES

Lack of suitable family houses and the improvised dwellings that will be used immediately after the war are among the reasons put forward by the National Society of Children's Nurseries for an increased demand for children's nurseries after hostilities end. The chairman of the society, in a memorandum which has been sent to the Minister of Health, states that about 16% of children attending school for the first time at the age of 5 suffer from defects, most of them preventable, due largely to bad housing, poverty, ignorance of mothercraft, overwork on the part of the mother, and the absence of regular and frequent supervision. A good deal of help, he points out, is given to mothers at infant welfare centres, but attendance at these centres falls off after the child reaches the age of 1 year, while there is ample evidence of improvement in the physical and mental development of children who attend regularly. Nursery provision should be an integral part of reconstruction, and no new housing scheme should be considered complete without it. The memorandum then describes a four-year plan for children's nurseries. It says that if a start were made within a year of the end of the war, premises to accommodate 300,000 children up to the age of 5 and trained staff could be available within four years. The children would fall into two groups. In the first would come those for whom full-time nurseries are necessary because their mothers go out to work, or because of sickness in the home, or for other reasons. One-third of the provision—100,000 places, which is equivalent to approximately 4% of the child population between 2 and 5 years of age and 2½% of those under 2—would be allocated to this group. Nurseries for these children would have to be open 5½ days a week for at least 9 hours a day and for 52 weeks a year. In the second group would be children under 5 who require a nursery day of 7 hours for, say, 48 weeks a year. These 200,000 places, it is suggested, would be used to the best advantage by giving a day's holiday each week to the mothers of 1,000,000 children. It is estimated that the cost in group 1 would be 3s. 6d. a day and in group 2 3s. a day, of which the parents would pay 1s. A foreword to the memorandum says that the plan, by its nature, constitutes a "charter for mothers." In addition to ante-natal and post-natal clinics, improved midwifery and lying-in services, and maternity benefits in cash, such a charter must include: (1) suitable housing with the benefit of modern labour-saving devices; (2) children's allowances; (3) training in mothercraft; and (4) proper provision for a regular weekly holiday. It is good to know that the needs of the working mother are not being overlooked.

PATHOGENY OF THE SPRUE SYNDROME

It is now generally agreed that tropical sprue, idiopathic steatorrhoea, and coeliac disease are varieties of the same disorder—the "sprue syndrome." The pathogenesis of this syndrome is still a matter for discussion, although it is generally agreed that it is a disease of malnutrition, the primary defect being faulty absorption from the intestine, particularly of fat and carbohydrate. Verzár[1] originally suggested that fat, like carbohydrate, is absorbed from the intestinal mucosa by a process of hydrolysis, phosphorylation, and resynthesis to neutral fat, the failure in sprue being one of phosphorylation due to lack of adrenal hormonal control. This notion has been disproved by a number of workers. Stannus[2] has now come forward with a novel hypothesis to explain the defect in intestinal absorption. He states that the absorption of neutral fat in sprue is normal, but that of fatty acid, glycerol, cholesterol, and glucose is defective. The loss of power to absorb these is due to failure of phosphorylation, an essential process for their absorption by the intestinal mucosa. Neutral fat and fructose are normally absorbed without phosphorylation, and this would explain the success of the older methods of treating sprue with strawberries and bananas. Calcium is lost to the body because it forms insoluble soaps with the free fatty acids, and phosphorus is lost by the defect in phospholipid formation resulting from failure of phosphorylation. The loss of calcium and fats, with their fat-soluble vitamins (A, D, K), is responsible for the bone changes, tetany, and failure of blood-clotting so often seen in the sprue syndrome. The mass of unabsorbed fatty acid and gas due to the fermentation of unabsorbed glucose causes intestinal delay and passive distension, together with other signs commonly demonstrated radiologically. Like Verzár, Stannus believes that the physiological lesion in sprue is failure of phosphorylation, but that this is due not to adrenal insufficiency but to a defect in the enzyme system catalysing phosphorylation. He believes[2] that the coenzymes of this system are members of the vitamin B_2

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[1] *Absorption from the Intestine*, by F. Verzár, London, 1936.

[2] *Trans. roy. Soc. trop. Med. Hyg.*, 1942, 36, 123.

complex, including riboflavin, nicotinic acid, pyridoxine, choline, and possibly other members. The observation of Birch[3] that pyridoxine plays a part in the absorption of unsaturated fatty acids by the intestinal mucosa and their incorporation into phospholipids suggests that this member of the vitamin B complex may play a part in the pathogenesis of sprue. It also seems possible, as Stannus points out, that the loss of certain phospholipids containing unsaturated fatty acids may explain the causation of anaemia in sprue, and the nature of the fatty acids in the diet may even be a factor in determining the geographical distribution of the disease.

These observations would explain the beneficial effect of liver, rich in the vitamin B complex, in sprue. The response of the sprue patient to parenteral liver therapy is beyond all doubt. The hypothesis of Stannus receives support from the observations of May and his co-workers,[4] who have recently shown that the absorption of fat and glucose, the intestinal motility, and indeed the whole clinical course of coeliac disease are favourably influenced not only by crude extracts of liver given parenterally but also by mixtures containing vitamin B_1, riboflavin, nicotinic acid, pantothenic acid, and pyridoxine given parenterally. Oral therapy gave unsatisfactory results. It is known that both riboflavin and coenzyme I—a complex containing nicotinic acid amide, adenine, pentose, and phosphoric acid—may function in the transfer of phosphoric acid, and it is possible that other members of the vitamin B_2 complex may do so as well.

THE PERIPHERAL NERVES IN RHEUMATOID ARTHRITIS

The part played by the nervous system in the pathology of rheumatoid arthritis has often been investigated on account of the trophic features which the disease frequently presents, and for this reason the term "atrophic arthritis" is generally preferred in the U.S.A. A group of workers[5] at Wayne University, Detroit, have recently examined the condition of the central nervous system and the peripheral nerves in chronic arthritis. No specific or characteristic lesions were found in the brain and spinal cord. The sympathetic chain and peripheral nerves were next investigated in five cases, all of which presented the clinical and pathological features of chronic atrophic arthritis. The ages of the patients ranged from 49 to 73 and the duration of the disease from 4 to 16 years. In each instance nodules were found in the main nerve trunks of the limbs, situated in the perineurium and sharply circumscribed and inflammatory in character. In a large number of cases other than of arthritis no nodules of the same kind were found. The nodules strikingly resembled the subcutaneous nodules seen in rheumatoid arthritis. The endoneurium was not involved, and there were no pathological changes in the nerve fibres themselves. The authors recall that Koeppen[6] reported circumscribed perivascular lymphocytic infiltrations in the endoneurium of the sciatic nerves in three out of seven cases of rheumatic fever; in a second group of healed cases no such lesions were found. This observation is consistent with the fact that in rheumatic fever the subcutaneous nodules disappear with the decline of the active phase of the disease, whereas in rheumatoid arthritis they generally persist.

The conclusion drawn by the Detroit workers is that these nodules in the peripheral nerves are specific to chronic atrophic arthritis and should be classified under the term "rheumarthritic nodulous perineuritis." After a careful comparison between the symptoms of polyneuritis and those of atrophic arthritis it is suggested that the pains, paraesthesias, and trophic cutaneous symptoms may be due to the irritating action of these peripheral-nerve lesions. The lesions are considered to provide additional evidence of the close relation between rheumatic fever and chronic atrophic arthritis. The observations are too few to justify sweeping conclusions, but further research along similar lines is clearly called for. When the work was begun the nature of the results was not anticipated, and so it was not possible to correlate the severity of the nerve lesions with the degree of involvement of the joints. All the cases were of long duration and in middle-aged or elderly subjects. A similar investigation into the more acute types of shorter duration and in younger subjects would be of value: owing to the fortunately few opportunities of necropsy in such cases, could biopsy be brought in to help to clear up some of the obscurities in this common disorder?

BREADTH OR DEPTH IN MEDICAL TRAINING

Dr. W. M. Frazer, in his account of his recent visit to America, now printed as a report to the Corporation of Liverpool, comments in an informative manner, among many other subjects, upon the progress of medical education in the United States. The teaching of medicine as conducted there to-day has been a plant of rapid development. Twenty years ago American medical schools exhibited every grade of competence from the lowest to the highest. To-day, under the pressure of the medical profession itself, the dead wood has been cut away and the general level raised, though there still exists much more variety in the standards of different schools than in this country, where medical teaching has been regulated since 1858 under an *ad hoc* council. Dr. Frazer's impression is that the range of the medical curriculum in the U.S.A. is in some respects broader than ours. It is, for example, preceded by a course of cultural studies, and within the curriculum proper more emphasis is laid on such subjects as psychology, mental disease, preventive medicine, and paediatrics. On the other hand, there would appear to be, by comparison with this country, a shortage of clinical material in most American medical schools, occasioned in part by the relatively larger numbers of the students seeking a qualification, and in part by the fact that in voluntary teaching hospitals many of the beds are not available for instructional purposes, being private or semi-private. Either way there are not enough beds to go round, and American students have in consequence less ward work than ours. There are no clinical clerks or surgical dressers with duties and responsibilities in the handling of sick people. Teaching thus becomes didactic, aided by the distribution of typewritten or printed lecture notes, and the student's personal experience of the medical art on its practical side is inevitably more restricted than in Britain. While, therefore, a tendency to greater breadth in the outlook of their curriculum may be cordially conceded to the American schools, it may be claimed for the British system that it is better organized in depth, an arrangement of the first importance in the medical field as in the fields of war.

The Croonian Lectures for 1943 will be given before the Royal College of Physicians of London by Air Commodore C. P. Symonds on Tuesday, May 25, and Thursday, May 27, at 2.45 p.m. His subject is "Flying Stress."

The Hunterian Oration will be delivered before the Royal College of Surgeons of England by Mr. Victor Bonney on Wednesday next, May 26, at 3 p.m. His subject is "The Forces behind Specialism in Surgery."

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[3] *J. biol. Chem.*, 1938, **124**, 775.
[4] *J. Pediat.*, 1942, **21**, 289.
[5] Freund, Steiner, Leichentritt, and Price, *Amer. J. Pathol.*, 1942, **18**, 865.
[6] Koeppen, *Virchows Arch.*, 1932, **288**, 303.

THE REPRESENTATIVE COMMITTEE REPORTS

When the Representative Committee was authorized to enter into non-committal discussions with the Minister of Health an assurance was given that from time to time a report of the position would be made to the profession. This is the first such report.

In the past two months discussions have been proceeding. In the course of such discussions the Ministry put forward certain tentative proposals for a comprehensive medical service based on modified central and local administration and the employment of doctors as salaried officers, mainly whole-time, by a new type of local authority. The Representative Committee, considering that further discussion on the basis of such proposals would be unfruitful, met the Minister and the Joint Parliamentary Under-Secretary representing the Secretary of State for Scotland on Monday, May 17.

The Representative Committee made plain that, though not empowered to commit the medical profession, it believed that such proposals would be contrary to the public interest and unacceptable to the great majority of the profession, and sought their withdrawal.

The Minister, in reply, stated that the only Government commitment on the subject of a comprehensive health service was that outlined by Sir John Anderson in the debate on the Beveridge report in the House of Commons in February. The Government was not committed as yet to any particular form of medical service, and the Ministry proposals in question were put forward only as a basis of discussion. He agreed to regard these proposals as " in the discard " and to a re-examination of the whole position. He stated that after further full consultation with the Representative Committee and other bodies with whom discussions had been taking place he would proceed to express his conclusions in the form of a White Paper, which would then be open for consideration and discussion by the public and the medical profession before final decision by Parliament. He stated that he was not bound by any timetable in relation to the issue of a White Paper. He had not made up his mind, and he did not wish that the proposals already put forward should be regarded as in any way prejudicing the issue of a White Paper, the form and substance of which had not yet been decided.

These assurances were accepted by the Representative Committee, which decided to continue the non-committal discussions with the Ministry. The discussions will accordingly go forward on the basis of these assurances.

The Representative Committee asks for the continued confidence of the profession in pursuing these vital discussions on the understanding that at no stage will the profession be committed without prior consultation with it through the established machinery.

⁂ A report of the mass meeting of the Metropolitan Counties Branch of the B.M.A. held last Sunday to discuss the Government's proposals will be found in the *Supplement.*

On Wednesday, July 28, the Minister of Health will open in London the 26th annual conference of the National Association for the Prevention of Tuberculosis. The mass radiography scheme will be discussed during the morning, and the afternoon will be devoted to consideration of the new financial allowances for the tuberculous. Private persons interested in tuberculosis are welcomed to the conference, admission being by ticket only. The following instructions have also been issued from the Ministry of Health: " The Minister of Health has notified the N.A.P.T. that he has sanctioned in the case of county councils, county boroughs whose accounts are subject to audit, metropolitan borough councils, and joint tuberculosis committees the payment of the reasonable expenses which may be incurred in connexion with the attendance of two delegates, one of whom should be either the medical officer of health or the chief clinical tuberculosis officer. Individual applications to the Minister for sanction in respect of the conference will not, therefore, be necessary so long as the proposed expenditure is within these limits." The usual conference fee of one guinea has been waived owing to wartime conditions. Delegates are asked to send in their names and addresses as soon as possible to the Secretary-General, N.A.P.T., Tavistock House North, Tavistock Square, W.C.1.

BELGIAN FAMINE

Owing to the density of the population, which is mainly industrial, Belgium is probably experiencing war starvation to a greater extent than any other European country except Greece. A very sober account of what the Belgian people are suffering was presented at a famine relief conference in London recently by Dr. E. J. Bigwood, vice-president of the Belgian Red Cross Committee.

Before the war the average daily intake of the Belgian population was 2,850 calories per head, half of which was contributed by home-produced foodstuffs. During the four years of German occupation in the last war the figure was 2,250, and this reduction of 21% was held to be alarming. But during this war the ration cards (90% or more of the total food is rationed) allow only 1,250 calories, and, even so, the people do not get the amount indicated on the card Leaving out of account agricultural producers, who have a better diet of the order of 2,200 calories a day, but who represent only one-sixth of the population, and leaving out also the few rich people who can buy in the black market, Dr. Bigwood considered that the average figure might be taken as only 950 calories. Even more marked than the calorie deficiency is the reduction in protein intake. The bread ration is down to one-half of what it was in ordinary times, but the bread is hardly recognizable—a black, ropy, viscous substance comprising potatoes, barley, beetroot residues, and chestnuts. The fat content of milk has been reduced by more than one-half. Children under 3 receive three-quarters of a litre daily, and children between 3 and 14 are supposed to receive half a litre. Dr. Bigwood's figures referred to no later than the middle of 1942, but he said that the effects of partial starvation have already shown themselves both in vital statistics and in disease ratios. In normal times in Belgium there are annually 40,000 more births than deaths; in each of the years 1940 and 1941 the deaths exceeded the births by 21,000. School attendance has dropped by 40% in the urban areas through the sheer inability of the children to come. A very frequent complaint is hydroderma. The tuberculosis rate, which by 1930 had been reduced from higher levels to 1.18 per 1,000 of the population, had risen to 1.9 by the end of 1941. After Dr. Bigwood had spoken, M. Pierlot, the Belgian Prime Minister, added a few words of further entreaty to the British and American Governments to permit, within the limits imposed by the blockade, a certain amount of powdered milk and vitamin preparations, corresponding only to the medical requirements of those whose lives are actually threatened, to enter Belgium. He said that the Belgian Government has at its disposal sufficient funds for this necessary purpose, and has ceded to the International Red Cross a ship, now waiting at Philadelphia to undertake her first voyage of mercy. It will sail if, and as soon as, " navicerts " are obtained.

SOCIAL BACKGROUND OF HEALTH IN INDIA

During the Ling Physical Education Association's Easter Course at Homerton College, Cambridge, Dr. ALICE PENNELL (*née* Sorabji) spoke on " Health in India." She traced the effect of climatic conditions, diet, and customs, including religious taboos and traditions, on the health of the Indian people. Cases of goitre were most common in the salt ranges of the Punjab, malaria in damp Bengal, dysentery in the hills or plains where rainfall was excessive, eye diseases in places where desert sand and low rainfall were responsible for heat glare and dust, and elephantiasis in places where climatic conditions lowered resistance to disease, while many regions were conducive to the spread of epidemics such as cholera and plague. Various customs, notably the purdah system, involving lack of sunlight and seclusion to their own quarters, had affected the health of women, who in consequence suffered much from osteomalacia and difficult labour in childbirth. Superstition and ignorance, combined with the observance of many harmful traditions, had made the task of doctors in India exceptionally difficult. As a contrast to the disease in towns and among the sophisticated peoples, the healthy aboriginal tribes of Central India and the Pathans of the Afghan border were well worthy of consideration. Among the finely modelled women of these tribes childbirth was a natural function, after which a mother would immediately resume her work or rejoin in a march without any ill effects either on herself or on her new-born child.

Dr. Pennell spoke of the changes during the twentieth century, effected by willing and enlightened workers in the cause of science and health, who co-operated with British and Indian leaders in medicine in fighting the hydra-headed monster of ignorance, superstition, and disease. There were an increasing number of women doctors, women health visitors, and welfare workers; engineering reforms, canalization, and the building of big dams were correcting the grosser defects of desert land and bad irrigation, while education had helped much to combat retrogressive customs.

Reports of Societies

SURVEY OF VIRUS INFECTIONS

At the last meeting of the Fever Hospital Medical Service Group of the Society of Medical Officers of Health, with Dr. ANDREW TOPPING in the chair, Prof. S. P. BEDSON opened a discussion on recent work in the virus diseases.

Influenza and the Common Cold

The demonstration ten years ago by Smith, Andrewes, and Laidlaw that epidemic influenza was due to a virus, and the early and world-wide confirmation of this, had encouraged, Prof. Bedson said, the hope that specific prophylaxis might be made available for the control of this disease. That this hope has not yet been fulfilled was due to two main reasons: the virus of Smith, Andrewes, and Laidlaw (now known as influenza A virus) was not the sole cause of influenza, and influenza A has been found to comprise a number of serological types. A second virus causing influenza—influenza B virus—has been identified (Francis), but influenza A virus still remained the most important aetiological agent. An efficient polyvalent vaccine of this virus was difficult to prepare, but the observation of Horsfall and Lennette (1940) that cultivation of a strain of influenza A virus with a particular strain of distemper virus gave it a broad antigenicity covering all the serological types had made possible the preparation of a vaccine for field trial. This bivalent vaccine had given only mediocre results; the morbidity in the vaccinated had been about half of the unvaccinated. Immunization by spraying the nasopharynx with attenuated living virus or passive immunization by spraying with antiserum, both methods giving promising experimental results, awaited field trial.

No advance had been made since the demonstration by Dochez and his colleagues that some forms of this condition were due to a virus. A limiting factor in research on the common cold was the restricted host range of the causal agent; the chimpanzee and man alone appeared to be susceptible.

Primary Atypical Pneumonia

Outbreaks of this condition had been common, particularly since the beginning of the war. The condition appeared to be of virus aetiology, but more than one virus was concerned.

Psittacosis.—One virus known to cause atypical pneumonia in man was psittacosis virus. Diagnosis of human infection rested on the isolation of the virus from the sputum by mouse inoculation or the demonstration of specific antibody in the patient's serum by the complement-fixation test. The demonstration that psittacosis virus was antigenically complex, that one of the antigens was not destroyed by heating to 100° C., and that antibodies to the heat-stable antigen were regularly developed in human infections had made available a safe and stable antigen for use in the psittacosis complement-fixation test. It was now recognized that birds of the parrot family did not constitute the sole reservoir of infection. Naturally occurring infection had been demonstrated in the fulmar petrel (Haagen and Mauer, 1939) and in Iceland (Bedson, 1940). Infection in pigeon stocks has been shown to be widespread in America (Meyer and Eddie, 1942), and human cases from this source have been described in the Faroe Islands (Haagen and Mauer, 1939); and pigeons in this country have been found to be infected (Andrewes and Mills, 1943). Human cases derived from pigeons and the domestic fowl had been described (Meyer and Eddie, 1942). Strains of psittacosis virus from the different sources were antigenically similar, but differed in their virulence for the mouse and pigeon. It followed from this work that consideration of psittacosis as a diagnosis should never be excluded because the patient had not been exposed to psittacine birds. A recently published note (Baker, 1942) even suggested that cats and kittens might be the source of human cases, since in America they suffered from naturally occurring infections with a psittacosis-like virus.

Relation of Psittacosis with Other Viruses.—A large group of viruses existed of which psittacosis was the type. They were alike in morphology and staining reactions, and since they all stained by Castaneda's method, whereas other viruses did not, these viruses might be referred to as the "Castaneda-positive group." In addition to psittacosis virus the group included the viruses of lymphogranuloma venereum, meningo-pneumonitis (isolated by Francis and Magill, 1938, from a ferret inoculated with throat-washings from a case of "influenza"), a virus isolated by Eaton, Beck, and Pearson (1941) from cases of atypical pneumonia (possibly pigeon psittacosis), and the viruses of trachoma and inclusion conjunctivitis. Recent work by Rake and his colleagues (1942) had shown that all these viruses were closely related; experimentally in animals they cross-immunized to a considerable degree and they cross-reacted in the complement-fixation test. It was suggested that these viruses had a common ancestry and that what specific differences they possessed had been acquired as the result of long residence in a particular host species: psittacosis in a variety of birds (hence Meyer's suggestion to replace the term "psittacosis" with "ornithosis") and the viruses of lymphogranuloma venereum, trachoma, and inclusion conjunctivitis in man. It followed from this that the complement-fixation test used in the diagnosis of psittacosis infections, atypical pneumonia, and lymphogranuloma venereum had lost its specificity. A positive result merely meant infection with one of this group of viruses, and its significance could be determined only after consideration of the clinical and epidemiological evidence. Similarly the Frei test lost much of its specificity.

Primary Atypical Pneumonia due to Other Viruses.—Viruses of the psittacosis group appeared to be the cause of relatively few cases of atypical pneumonia. In this country serological sampling of outbreaks, both civilian and military, during the past two years had brought to light only three possible cases, and these were in American soldiers. These three gave weakly positive psittacosis complement-fixation tests, the significance of which was doubtful. In America, also, the majority of cases appeared to be due to some unidentified virus or viruses. Among the claimants as causal agents of atypical pneumonia one had to consider the virus of Horsfall and Weir (1940) isolated from atypical pneumonia and pathogenic for the mongoose; the virus of lymphocytic choriomeningitis, known to infect by the respiratory route and produce a pneumonitis; and the virus recently isolated from cases of atypical pneumonia in America by inoculation of the cotton rat (Eaton, Meikeljohn, Van Herrick, and Talbot, 1942).

Virus Meningitis

The virus of Armstrong and Lillie—lymphocytic choriomeningitis (L.C.M.)—appeared to be the cause of about one-third of the cases of aseptic meningitis. A second virus had been isolated from two cases of this clinical condition by MacCallum and Findlay, and named by them the "pseudo-lymphocytic choriomeningitis virus"; its importance as a cause of aseptic meningitis has yet to be assessed. The recent report of a case of infection with the virus of lymphogranuloma venereum (L.G.V.) in a negro in America (Sabin and Aring, 1942) in which the presenting symptom was meningitis, and from the cerebrospinal fluid of which L.G.V. virus was isolated, made it necessary to consider this virus in the causation of aseptic meningitis. In all cases of suspected aseptic meningitis the cerebrospinal fluid should be injected into mice intracerebrally and into guinea-pigs subcutaneously or intramuscularly in the thigh. Both species of animals were susceptible to L.C.M. and L.G.V. viruses, and the guinea-pig would confirm the diagnosis should it prove eventually that the case was one of tuberculous meningitis. In addition, serological tests for antibody to L.C.M. virus and possibly L.G.V. virus, should be made, a complement-fixation reaction being the test of choice.

Herpes

This condition was mentioned not because of its importance as a disease but because of the excellent example it provided of the symbiosis which could be established between a virus and its host. Herpes was common in a considerable percentage of individuals. There was no evidence that the infection in adults was exogenous. Levaditi and his colleagues had produced evidence that in those people subject to labial herpes the virus could be demonstrated in the saliva in between the attacks, and Andrewes and Carmichael (1930) and Brain (1932) had shown a very close correlation between the possession of herpetic antibody and susceptibility to herpetic eruptions.

Recently Dodd, Budding, and Johnston (1938) had shown that vesicular stomatitis in the first two years of life was herpetic, and that it represented a primary infection. This had been confirmed by Burnet and Williams (1939). It would appear that infection with this virus occurred in the early years of life, and that recovery resulted in the individual's becoming a carrier. With increasing age a physiological insusceptibility to infection developed, so that those who had escaped infection in the first two years of life would not later contract the infection and become herpetic subjects. In those who carried herpes virus the balance between host and parasite might be upset by a variety of factors—infection, fever therapy, excessive exposure to sunlight, fatigue, menstruation—allowing the virus temporarily to gain the upper hand and give rise to an attack of herpes. The importance of this work was that it disposed of the conception of the spontaneous generation of herpes virus, a view which found favour with some workers, such as Doerr.

Poliomyelitis

Owing to lack of time, mention of recent work on poliomyelitis had to be omitted. It had been intended to draw attention to the recent demonstration by Paul and his colleagues in America (1940) that the virus of poliomyelitis was present in the stools and could be demonstrated in the sewage of localities in which poliomyelitis was occurring. This made it necessary to recast our views on the mode of spread of this disease. The spread of poliomyelitis by droplets with the nasopharynx as the portal of entry was probably of minor importance, if it occurred at all. Infection most probably entered by the alimentary tract, the virus passing to the central nervous system by axonal routes at different levels.

Dr. Andrewes on Influenza

Dr. C. H. Andrewes said that he agreed with Prof. Bedson's remarks about influenza vaccination. If one used the best possible influenza A vaccine and injected it shortly before an influenza A epidemic, one might hope for a 50% drop in incidence of influenza A (but not necessarily of all "clinical influenza"). In less favourable circumstances no obvious benefit would follow from vaccination, which therefore could not be said to be as yet a practical proposition for widespread use.

The periodicity of influenza outbreaks in England had lately been such that we had had some every other year and a bigger peak every fourth year (as in 1929, 1933, 1937). Influenza A virus had been recoverable as a rule only in the odd years and especially in the peak years (1933, 1937). The expected epidemic in 1941 did not turn up, nor did influenza A appear in 1942 or (as yet) in 1943. The widespread but mild influenza now current seemed, on serological grounds, to be mainly influenza B. The virus was much more difficult to establish in experimental animals from B than from A cases.

ACTION OF DRUGS ON THE UTERUS

At a meeting of the Section of Obstetrics of the Royal Academy of Medicine in Ireland on March 26 Dr. Edward Solomons and Dr. J. D. H. Widdess presented a paper on the action on uterine muscle of certain antispasmodics—trasentin, syntropan, and pethidine hydrochloride. The drugs were used clinically, and experimental work was carried out on the human uterus *in vivo* by the intra-uterine balloon technique as described by Chassar Moir. Further observations were also made on human uterine muscle (removed at operation) and animal uteri *in vitro*. The experimental results were as follows: Trasentin caused relaxation and diminution of contractions in the uteri of the rabbit and guinea-pig and of the human subject *in vitro*. This effect could not be observed in the human uterus *in vivo*. So far as the limited supplies available were used, syntropan showed a similar effect. Pethidine hydrochloride invariably stimulated the uterine muscle of the guinea-pig and rabbit *in vitro*, causing an increase in the force and frequency of contraction. On the human uterus *in vivo* the action of this drug caused, in the majority of experiments, slight increase in tone and frequency of contraction. Clinically, in a small series of cases neither trasentin nor syntropan proved satisfactory in the treatment of dysmenorrhoea. Trasentin produced drying of the mouth and unpleasant eye symptoms. On the other hand, pethidine hydrochloride gave relief in a high proportion of the cases in which it was used, a result probably to be explained by its central action as an analgesic. All the cases of dysmenorrhoea selected for this investigation were normal on gynaecological examination. During the investigations carried out by the balloon technique no relation could be observed between the incidence of powerful contractions of the uterus occurring naturally or by stimulation with pituitrin, and sensations of pain experienced by the patient. Neither could it be shown that contractions observed in patients suffering from dysmenorrhoea were any greater during menstruation than those observed in normal subjects.

Correspondence

Organization of Postgraduate Study

SIR,—It is fashionable at present to make plans for the future of the medical profession. One of the objects to be attained by such planning is stated to be the provision of adequate leisure for postgraduate study. This is a praiseworthy intention, but stops short just as it becomes most promising. A logical sequel would be "planning for postgraduates"; but this has not so far been mentioned.

In 1939 the main bodies responsible for the teaching of postgraduate medicine were the British Postgraduate Medical School at Hammersmith, the Fellowship of Medicine, and the North-East London Postgraduate College. These establishments were quite separate and did not co-operate with each other to any noticeable extent. In consequence, a student would often waste a great deal of time looking for the instruction which he wanted, visiting several hospitals and clinics in his search. Another difficulty was the absence of provision for general practitioner students. A few concentrated "refresher" courses were held from time to time, but these only partly filled the hiatus. The correspondence colleges provided tuition of a sort, but again did not go far enough. It is obvious that we must do better in future.

At least three distinct types of clinic are necessary in postgraduate instruction. First, the general revision course designed to meet the special needs of the general practitioner. This must not be a rushed cramming of recent advances in medicine and surgery, so often the case in the past. It should be organized by someone with knowledge of general practice if the greatest benefit is to ensue. Too often a specialists' symposium is rather overwhelming, but not permanently beneficial to the students. Next come the various special clinics at which instruction and practical experience may be obtained. Demonstrations of the injection treatment of haemorrhoids, performance of artificial pneumothorax, and so on, with opportunities for practice under supervision would be of the greatest help to many postgraduates who cannot attend regular courses. In this connexion should be mentioned the lack of provision for tuition in physical medicine. Let us hope that the newly formed British Association of Physical Medicine will do something to remedy this. Finally, we have the courses and classes for those desiring to take examinations for diplomas, higher qualifications, etc. In this case, also, there is room for co-ordination and improvement. Teaching advanced medicine and surgery is not something to be ashamed of, as certain institutions seem to think.

However, the greatest lack is the absence of co-ordination of the facilities available. Cannot the various bodies concerned get together and work for the benefit of the students, instead of continuing in splendid isolation? Here, if anywhere, is a case where medical planning is vitally necessary and urgent.
—I am, etc.,

Royal Hospital, Chelsea, S.W.3. TREVOR H. HOWELL.

The Case for a Shortened Puerperium

SIR,—I am sure that others besides myself have been interested in the recent outcry in the lay press about the shortage of maternity homes and facilities for mothers-to-be. One cannot condone such outbursts, even though they have a very definite foundation, but I think that we, as a profession, have been to some extent responsible for the present unsatisfactory state of affairs, largely because of our failure to make the best use of what accommodation is available. Indeed, I have a suspicion that something like a minor "racket" has arisen over maternity homes (particularly of the private nursing home type). I will say, however, the doctors are innocent but misguided participators in it, and if we are all honest with ourselves most of us will have to admit being guilty some time or another.

It has become the fashion in recent years to teach that having a baby is a simple job, unattended by any great danger provided that adequate care is taken of the mother before, during, and after childbirth. Such propaganda is admirable, and the standard of ante-natal care and midwifery nowadays is moderately good and is slowly improving. It is with after-care I wish to deal, and by that I do not mean the post-natal clinics but the immediate puerperium.

Despite the improved teaching, women (as well as many doctors) still fondly cherish the belief that childbirth is an exhausting experience that will leave them weak and helpless for months. To offset this it is becoming common to prescribe "a good rest" to follow the labour, and among the better-class patients this usually lasts a fortnight before any attempt is made to get the woman out of bed, let alone on her feet or out of doors. Indeed, the average woman paying for a stay in a nursing home now books for a stay of at least three weeks after her confinement. After her fortnight in bed she has become so weak from lying still and her muscles have lost so much tone that she finds it harder than ever to get up and about. Returning home in this state she calls in her doctor and is prescribed further rest by that well-meaning man. The vicious circle is started, normal muscle tone is not regained, and it may be months before the patient is anything like fit. And then her troubles begin. Backache—that gynaecological *bête noire*—due to strain on her spine inadequately supported by flabby and wasted back muscles, and prolapse, due to lack of support of the organs by weak perineal and abdominal muscles, all follow in due course. All this time the woman is a liability to her family: she has to have help in the home (a liability to the whole country these days); and instead of making her muscles do their job she runs off to get a nice firm corset to help "support her" (using up more of the country's labour, rubber, and other materials), which she thus condemns herself to for the rest of her life.

Is there any solution? Surely a more rational approach is to realize that the longer a woman remains on her back the weaker and more flabby all her muscles will become. (This is true of any condition which leads to confinement to bed.) I am certain from my own experience that prolapse is far more likely to arise in this way than from not allowing time for hypothetically torn ligaments to heal. Ligaments always depend on muscle tone, and there is no need to postulate any differences in the pelvic organs. It is also a known fact that many slighter degrees of prolapse are greatly benefited merely by exercises for the abdominal, pelvic floor, and back muscles. The obvious thing to do, therefore, is to make every effort to improve the woman's muscular tone, by exercises from the first day, by getting up early, etc., and the very worst thing that could happen is to leave her lying in bed for a fortnight. The concomitant improvement of the circulation which occurs will help to prevent venous stasis and white-leg, and will encourage the blood supply to the breasts in the first critical days of feeding. It is probably not wise to get the patient up before the fifth day, as the breasts tend to be heavy and uncomfortable, but by gradually increasing the exercise the patient should by the tenth day be walking and feeling strong. I believe that only for severe perineal tears should this be modified, and even for them continuous exercises in bed from the first should be given. (I make no mention of massage because active exercises are better than any amount of massage, and our masseurs have too much to do in other fields.) Mothers treated on these lines are happier, they feel themselves rapidly getting stronger from the start, they are able to go home and not be invalids when they get there, their psychological outlook is better, and they remain keen on natural feeding, which is so often blamed for causing "weakness."

May I plead for a little more thought and action on these lines? If we reduce the stay of our mothers from three to two weeks in the nursing homes and at the same time send them home well and fully able to undertake their household duties, then not only does more accommodation become available for other mothers but we are making better use of the reduced number of midwives and saving woman-power which might otherwise be needed to help in the home. I am aware that in the ordinary hospital women are sent home much sooner, and what a contrast there is between this class of mother (who in the majority of cases leaves the hospital fit and well) and the pampered well-to-do patient who thinks that her experience of labour (which is probably a harder job of work than she has ever done in her life before) is sufficient to justify her being an invalid and being waited upon hand and foot for several weeks afterwards.

I must add one word of warning. I have noticed (and it has been the experience of my colleagues) that nursing homes are encouraging longer stays. One supposes that a labour every three weeks is much less work and expense than one every fortnight, and the income from the patients remains assured. Added to this, the dangerous teaching of ill-informed nurses and midwives about the dangers of prolapse, etc., is doing much to foster wrong beliefs in the minds of the mothers, who appear to be regaled throughout their stay in the home by gruesome stories told by so-called professional women who should know better. Women have a pathetic faith in what other women tell them, especially about troubles peculiar to their sex, and a great deal of harm is being done by this vicious propaganda.—I am, etc.,

DENYS J. NEAL SMITH,
Richmond, Surrey Late Obstetric Officer, Charing Cross Hospital.

Advice on Sterility

SIR,—In view of the fact that at least 10% of married couples suffer from involuntary sterility it is obvious that the problem of such sterility is one of great national importance, not only because of the personal unhappiness it may cause but because of the urgent need to increase our present birth rate if a falling population is to be averted. Not all cases of sterility are as intractable as might be supposed from the literature on the subject, and many yield to quite simple advice. Only in so far as this fails is it necessary to institute more complex inquiry. In cases which continue to prove refractory, elaborate examination of both parties may be necessary.

Although many experts are interesting themselves in this subject, few facilities exist for a broad study of the problem and for that co-operation between gynaecologist and male genito-urinary specialist which is essential to its solution. Nor, indeed, is there much likelihood that the average country patient who seeks advice in this matter can obtain expert help.

The Family Planning Association has long been in touch with working-class family life through the medium of its contraceptive clinics, scattered throughout the British Isles. It believes that there is a great opportunity to reach a certain type of patient who is not likely to present herself at a hospital out-patient department complaining of sterility, but who is nevertheless deeply disappointed by finding herself barren. Many such women have already asked for help at F.P.A. clinics, thereby demonstrating the reality of the demand.

The association has formed an *ad hoc* committee which intends to organize clinics to deal with cases of sterility either by referring them, where necessary, to the appropriate hospital centres, or, where these do not exist, by providing such expert attention as facilities permit. Such sessions would be called "Motherhood Clinics," and would be held occasionally in the same premises as already existing birth control clinics. Details of such developments will be communicated later to the medical press. In this way there will be the beginnings of a nation-wide effort to eliminate the present distressing wastage of potential maternity.—I am, etc.,

HORDER,
69, Eccleston Square, S W 1. President, The Family Planning Association.

Resuscitation of the Drowned

SIR,—Dr. F. C. Eve's paper (May 1, p. 535) on complacency in resuscitation of the drowned is very timely in pointing out that Schäfer's method of artificial respiration has not been universally accepted as the most satisfactory manual method. Its main weakness is probably that it depends upon elastic recoil of the thorax to produce efficient inspiration. This difficulty is overcome in the Drinker combined method of artificial respiration (Drinker, C. K., and Shaw, L. A., *J. industr. Hyg.*, 1935, **17,** 243), which combines the prone pressure method of Schäfer with the arm lift of the Holger Nielsen method. In the Drinker combined method one operator applies pressure on the loins of the prone patient as described by Schäfer. A second operator kneels at the patient's head and grasps his upper arms. When the first operator relaxes his pressure (i.e., during inspiration) the second operator raises the patient's arms from the ground to facilitate inspiration. During the expiratory phase, when pressure is being applied to the loins, the arms are allowed to lie on the floor.

In the course of a comparison of different manual methods of artificial respiration in this department we were impressed by the superiority of the Drinker combined over the Schäfer method by the only criterion which can be applied experimentally—that is, the volume of the pulmonary ventilation. As the results obtained by trained operators on a small number of trained subjects may be misleading, we decided to compare these two methods when performed by operators comparable in skill to ordinary first-aid parties. For this purpose preclinical students in this department have during the last three years compared the efficacy of the Schäfer and Drinker combined methods as a class exercise. Each method was performed at the rate of twelve respirations per minute for three minutes on a normal subject, who had voluntarily suspended his breathing. During the second and third minutes the subject's expired air was collected in a Douglas bag and subsequently measured on a spirometer. (Collection over longer periods results in changes in the respiratory apparatus, probably in the tone of the muscles, which vitiates any comparison of methods.) The subject rested for ten minutes between the collections. In half the experiments the Schäfer method was first applied, in the other half the Drinker combined method.

The results show the ventilation of the lungs is 25% greater in the Drinker combined than in the Schäfer method. This difference is statistically significant. The detailed results are as follows:

Number of sets of results = 113.

Average expired air by Schäfer method = 8.70 litres per minute.

Average expired air by Drinker combined method = 10.88 litres per minute.

Mean difference, Drinker combined − Schäfer = $+25 \pm 2.0\%$.

Although the efficacy of instrumental methods such as Dr. Eve's rocking apparatus is not in doubt, it will always be necessary to train first-aid workers in a manual method which can be applied in cases where no instrumental aid is available, or during the interval when the patient is being transported to the instrument. In view of the above results we suggest that this simple addition to the Schäfer method might with advantage be incorporated in the training of first-aid workers. It can be applied to a patient immediately if two operators are available, or can be added later to the Schäfer method without cessation of respiration or alteration of rhythm if there is no second operator at first. The additional ventilation of the lungs thus produced may be just sufficient to tip the balance in favour of the patient.—We are, etc.,

Department of Physiology,
Manchester University.

A. A. HARPER.
W. V. WADSWORTH.

Ariboflavinosis

SIR,—The note of warning uttered by the writer of the annotation upon riboflavin and corneal vascularization (May 1, p. 545) is most timely. At the same time it is perhaps a pity he did not state the case more clearly, and say quite frankly that the whole fabric of ariboflavinosis may require much remodelling when the results of the more carefully planned investigations now being carried out in this country, the United States, and elsewhere become available.

Many of the difficulties have arisen as the result of lack of precision in clinical description and failure to define the terms used on the one hand and on the other ignorance of, or disregard for, the normal anatomy and physiology of the affected tissue, especially true, perhaps, of the eye, and then more particularly of the limbus. Your annotator exemplifies this very well when, in referring to *corneal vascularization,* he cites an article by Scarborough upon *circumcorneal injection,* as if the two were synonymous. Scarborough's observations, unchecked by slit-lamp microscopy, do not lead one very far. That so-called circumcorneal injection is commonly to be observed in the general population of this country and unrelated to riboflavin deficiency is well known; it was so recognized by Prof. Sydenstricker when in this country. At the same time he pointed out how necessary it was to exercise great care in attempting to interpret some of the tongue lesions which have been included in the ariboflavinosis syndrome.

May I urge, therefore, after a study of many of these conditions going back some thirty years, that we still exercise patience before arriving at any very definite conclusions concerning the signs of riboflavin deficiency. At the same time may I protest against the introduction into medical literature, as was done last year,* of the term "pseudo-ariboflavinosis."—I am, etc.,

London, W.1. HUGH S. STANNUS.

Incidence of Venereal Disease

SIR,—The amount of venereal disease in the last war, now called the First German War, was serious enough, as anyone who will read the British *Official History of the War,* volume 2, will realize. There were 400,000 cases in British and Dominion troops and 340,000 in American troops, a total of 740,000 reported cases.

Those concerned may be aware of the facts and some may have read my *Vision of the Possible,* which contains Lieut.-Col. Elgood's monumental memorandum on the conditions in the Port Said area in Egypt. Few people, however, have realized the manner in which the Americans acted after the war. They took one-day censuses in many of their cities, asking every medical practitioner to state confidentially how many cases he had under treatment on a particular day, and his estimate for twelve months. The profession responded well. The results varied, but led some men to come to the conclusion that there was no remarkable increase in wartime. In war, cases are reported and noted; in civil life we do not know what is occurring.

I have not read of any similar activity in Great Britain; and in Melbourne, though I offered to bear the cost. I met with a stone wall for reasons not worth discussing. The stone wall was friendly enough but remained solid. The cases reported are those in institutions, not the numerous cases in private practice. Until the American method is adopted we shall not know the facts. As regards the wartime cases, it must be remembered that only the reported cases count. The unreported cases remain a matter of conjecture.—I am, etc.,

Melbourne. JAMES W. BARRETT.

V.D. in the Merchant Navy

SIR,—In my experience during the war there has been considerable increase in venereal diseases among merchant seamen. The reasons for this are the long periods away from home, the increase in the amount of money that the men have to spend, also bad propaganda in the way of articles published in certain popular magazines, such as "The Five-day Treatment of Syphilis," "The One-day Treatment of Syphilis," and "The Five-day Treatment of Gonorrhoea." These indicate that the disease is easily curable, and, in the earlier part of the war, the great majority of cases of gonorrhoea responded well and rapidly to sulphonamide therapy, but gradually the number of resistant cases has increased. This increase was most remarkable in South Africa, where it would appear that two types occur—one with an incubation period of 4 days, which is the same disease as we get in this country; the other with an incubation period of 9 to 14 days. In the second type the onset is insidious and produces a pale milky discharge, and is almost always exceedingly difficult to cure. In one S. African port seventeen of the crew contracted gonorrhoea and only two of them responded to large doses of sulphapyridine and sulphathiazole. This is of importance, because seamen are liable to spread this resistant type of the disease in this country.

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* "Pseudo-ariboflavinosis," M. Ellenberg and H. Pollack, *J. Amer. med. Ass.* 1942, 119, 790.

The treatment of men in the Merchant Navy always presents difficulty. A number of ships do not carry surgeons, and therefore adequate treatment is impossible, so that it is necessary for these men to be put ashore, where, even in the larger ports, there are no adequate facilities for hospitalization. In a large S. African city there are only 14 beds available for the treatment of venereal disease in Europeans. This means that the shipping companies responsible for the welfare of the individual have to keep him in a hotel or other lodging-house until such time as he can be repatriated. This unfortunate system allows a large number of men who are virulent carriers, with plenty of money and nothing to do after they have received their daily washout or weekly injection, to roam the town and spread the disease among the brothels and numerous enthusiastic amateurs who seem to abound in all ports in these times.

The treatment of syphilis is even worse than gonorrhoea; the Board of Trade regulations do not demand that antisyphilitic equipment be carried. In peacetime, when a man was able to choose the ship in which he worked, the international arrangement of receiving treatment in various ports was satisfactory; but now it is quite impossible for a man to say when he will be able to remain in port long enough to receive treatment. Periods at sea are frequently a month and over. Three times in the course of the last few months merchant seamen have come to me after I have lectured on this subject and they assured me they were told that they had been cured of syphilis by having twelve weekly injections of N.A.B. Each man produced a book showing he had a positive dark-ground, following which he had twelve weekly injections. One went so far as to say he had been told that he was fit to get married. I think further observation on this apathy, ignorance, or malpraxis is unnecessary.

If the ship surgeon carries venereal patients he should receive adequate information in time to make the necessary preparations. I quote two personal experiences.

> Two men were sent out from England to join the ship and they produced papers to show that they were suffering from syphilis. They stated that they had received injections but did not know the drug that was used. One did not know how many injections he had had.
>
> The other example I offer is that on the morning of embarkation for a long voyage 150 distressed British seamen came on board. I was assured by the Indian shipping master that they had been medically examined, required no treatment, and were fit to travel. However, I have been at sea for some time and am rather sceptical on such occasions, so I called a muster and found thirteen active venereal disorders among them. These men had all been attending the local hospital; they were suffering from primary chancre, chancroid, and gonorrhoea. In no case did any man have any papers stating the diagnosis or the treatment he had been receiving. Owing to the time factor it was quite impossible to obtain the necessary quantity of drugs to deal with the situation, so these men were sent ashore, which means going back to the hotels, to continue to be an expense to their respective companies and a prolific source of infection to the women of the town.

—I am, etc.,

Bournemouth. J. C. H. BROWNE.

Incidence of Pulmonary Tuberculosis

SIR,—It has been claimed that by means of mass radiography the incidence of tuberculosis could be ascertained, the cases discovered before they were a menace to their fellows, and so treated in the early stages that the disease could be eradicated. If we assume that it would reveal every case we have to realize that, as with any widespread infectious disease (at least 3% of all elements of the population are said to have active tuberculosis), all the cases and their contacts—i.e., the entire population—will have to be examined, preferably within the incubation period of the disease, and, in the case of tuberculosis, certainly within three months of exposure to infection. For the whole population this would necessitate the use of 1,000 units with their full staffs, and if, as now suggested by Dr. J. V. Sparks (March 27, p. 398), medical officers should report on 500 films per week we should need about 6,000 medical officers to interpret the films. Your correspondent Dr. N. P. Henderson (April 17, p. 487) states that even if each of the thirty units carries out 5,000 examinations per week "then some 10,000 bus loads per week will be proceeding throughout the country to cope with this new form of examination"; apparently with 1,000 units we should require 330,000 buses for the purpose. It has further been suggested that the thirty units are but a beginning, and that gradually these can be increased to include all the population—i.e., give us the equipment, staff, etc., cited above, for they are necessary if the goal cited by the Minister of Health is to be reached.

Has the immensity of the investigation in medical officers, technical staff, accommodation, and materials been considered by the Treasury? To carry out the investigation on relatively small numbers of the population, as can only be done with the thirty units—except, perhaps, in the gaols, where the outside contacts are few and not intimate—could not be regarded as a useful measure in preventive medicine. Even in the Services, with their close segregation, which permits of multifarious outside contacts not subject to inspection, the investigation must be conducted at least every three months to detect cases infected from outside, otherwise they would become foci of infection, the more dangerous because of the false sense of security given by the radiography. To impose it compulsorily, as suggested by some enthusiasts, on groups of workers, ignoring all contacts, would not be a contribution to preventive medicine, but would be an unjust penalization of the selected workers who happened to be so unfortunate as to be examined. How unfortunate is indicated by the aims of some officials. For instance, Flight Lieut. A. G. Evans (May 8, p. 565) states of the infected patient: "This type of patient should never be re-employed in an indoor industry, however well he may feel in himself, except in a light sedentary job where he has an office to himself. The fact that a patient has become temporarily sputum-negative is no guarantee that he will not again become sputum-positive under conditions of stress. One envisages that in the future there may be some form of industrial segregation of this type of case in the big industrial areas so that they can be usefully employed in indoor industry. It is only by such bold measures that we can hope to tackle efficiently the problems before us." And further: "It is hoped, and anticipated, that a considerable proportion of these cases, having been discovered in an early stage, will be suitable for artificial pneumothorax, which after preliminary induction in a sanatorium can be continued at the local tuberculosis dispensary." It sounds like compulsory leper colonies with official freedom to act.

How has this mass examination helped in the Services? Flight Lieut. Evans gives the results of 75,000 cases. He records the finding of 387 cases of inactive tuberculosis, 95 active without symptoms, 135 active with symptoms. He states: "It is wishful thinking to expect a majority of early cases at once, before the more advanced cases have been discovered in the preliminary surveys." Obviously, as in the scheme the detection of early cases depends entirely on the radiographs, he cannot include in his figures the early cases, with and without positive sputum, which do not show any typical radiographic lesion. Those who deny the existence of these cases confess an ignorance of the grossness of the lesion necessary in some cases to give radiographic evidence of departure from the normal. A comparative study of lesions and their radiographs, whether they are in soft tissues or bone, reveals that these lesions and their surrounding reactions are considerably in excess of the size suggested by the radiograph; and that in the lungs, which contain tissue of different densities, macroscopic lesions can be present without any radiographic indications.

Flight Lieut. Evans does not indicate in his classification which patients did or did not show clinical signs or give a history of family or other contact infection. The mass radiographic examination ignores these factors. Of the sputum-negative cases without symptoms but with evidence of active infiltration he states: "It is suggested that in the younger age groups so discovered the individual should be re-radiographed six-monthly for two years, then annually for three years. If the patient is then written off the dispensary books he will be given due warning, should any symptoms arise, to report first to his local practitioner." If a patient who has had active infiltration can be "written off," and not re-radiographed even annually without he reports the development of symptoms, why incur all this expense of periodically radiographing masses of the population who are happy and well? Why not leave it until they develop symptoms and report to their doctor, who should be alive to the significance of the symptoms, of the family history, infective contact, and, possessing a knowledge of clinical signs, can then refer the patient for further investigation by the tuberculosis officer? This method already provides more cases than we have either the accommodation or the staff to treat, and we still cannot control the infective person or prohibit the sale of unsterilized tuberculous milk.—I am, etc.,

Birmingham. JAMES F. BRAILSFORD.

Planning for Treatment of Head Injuries

SIR,—It is difficult to see what harm could be done to the patient in taking what Dr. T. Rowland Hill (April 10, p. 457) and Dr. Harold Parsons (May 1, p. 550) consider an over-optimistic attitude in the management of head injuries. On the other hand, it is obviously harmful to adopt the pessimistic bias expressed in Dr. Hill's routine question: "Do you feel the same man that you were before the accident or have you never fully recovered from it?" With our present knowledge it is impossible to disentangle the "organic" and the "psychogenic" factors of the traumatic syndrome. Early reassurance and graduated exercise are a definite help and have not proved to be dangerous. The relatively early social readjustment following their application can safely be regarded as an asset both for the individual and the community. Whatever the cause and intensity of the headaches, etc., may be they will be borne more easily by a person who considers himself fit for his job. On the other hand, cases treated by prolonged rest in bed and without some kind of psychological help early on do indeed have a bad prognosis.—I am, etc.,

Radcliffe Infirmary, Oxford. FRANCIS SCHILLER.

Control of Head Lice

SIR,—In Memorandum No. 230A/Med. published by the Ministry of Health, entitled, "Memorandum on Control of Head Lice," the claim is made that lauryl thiocyanate "is undoubtedly lethal to lice and nits." Mention is also made of the fact that when lethane was used for the treatment of a group of 8,746 cases only 0.916% of failures was noted, the criterion for failure being the finding of *live lice* from one to three weeks after treatment.

Similar experiments were tried in Liverpool, but it will be noted that the criterion for failure in the Liverpool experiments was the finding of *live larvae* from one to three weeks after treatment. This difference in standards may account for the big discrepancy in the percentage of failures recorded in the two series of experiments. The Liverpool experiments were carried out in two remand homes and one city hospital, where the opportunities for reinfestation were practically negligible. As against the previously reported 0.916% of failures 35% of failures was recorded—i.e., live lice were found, at some time or other, one to three weeks after treatment. Almost invariably the lice found in these cases of failure were very diminutive in size, looking like specks of dust, yet on magnification they proved to be larvae. In the Liverpool experiments these were found mainly as the result of the nurse who carried out the experiments teasing out the combings on a piece of paper and examining them with a magnifying glass. It is suggested that the small percentage of failures encountered in the experiments quoted in the memorandum may be due to these small larvae having been missed by the naked eye of the observers.

The Liverpool experiments fully confirmed the fact that lethane was lethal to lice, but the big percentage of failures recorded can only be attributed to the fact that the lethane was not lethal to the nits, because in most of the cases the heads were inspected daily after the lethane application and adult lice were never found, only young larvae, some days up to three weeks later. Obviously these must have hatched from the nits which had purposely been left behind and had not been killed by the lethane. That lethane did not act as a preventive for killing the newly hatched larvae for more than a day or two was shown by the number of instances in which live larvae were found a few days after its use. It is possible that on exposure to air lethane loses its potency through volatilization of its lethal factor. That lethane does possess a volatile factor was shown by the fact that when lice were placed in vessels at the bottom of which were a few drops of lethane with which the lice could not come into contact they always died within an hour or less.

Considerable experience at a camp school has elicited the fact that complete disinfestation of heads by combing alone is by no means always successful. Various experiments, therefore, have been continuously tried for the past twelve months with the object of finding some modification of the lethane treatment which would devitalize any nits that might be, and often are, inadvertently left behind after combing. In my opinion this factor is at least equally responsible with "home reinfestation" for causing relapses after treatment by combing with a fine-toothed steel comb.

Without going into the details of the various experiments referred to, the latest to be tried might with advantage be recorded, in the hope that others will try out the use of lethane alone and the following suggested modification. The hair is first saturated with a 2% solution of lysol at a temperature about 104° F. After this lysol treatment the hair is combed by the usual methods for the removal of lice and nits. (It was found that the hot lysol treatment greatly facilitated the removal of the nits from the hair.) After combing, the hair is treated with lethane in the manner advocated in the Ministry's pamphlet.

Up to the present ninety cases have been treated by this method and subsequently followed up for three weeks. In not one single instance was any further evidence found of infestation. Cold lysol followed by lethane was not so effective; it showed 10% of failures. Both the lysol solution and the lethane can be very irritating to the eyes, which during treatment should be protected by means of cotton-wool pads. If the experience of others confirms the fact that the preliminary treating of infested hair with hot lysol does succeed in destroying the nits, a further step forward in combating the head lice problem will have been achieved.—I am, etc.,

Liverpool. R. GAMLIN.

Scabies

SIR,—The question of recurrence in this complaint does not seem to have received the attention it merits. After reading various contributions to medical journals on this subject, one is led to imagine (did one not know better) that about two or three applications of certain medicaments will settle the problem in individual cases, and should a recurrence occur, or, rather, should itching persist, this is put down to the residual irritation that follows for a time after a cure.

The fact remains that some individuals appear to have skins which are resistant to the two common remedies—sulphur and benzyl benzoate. After an apparent cure the trouble starts again, even though, within the limits of their means, they have been careful about changing their underclothes and bed-clothes. There is another type of patient, not so careful about personal hygiene, who often has a persistence of scabies around the wrists, and one looks askance at those moth-eaten fur coats and not-so-clean overcoats. How is one to ensure a disinfestation of this kind of garment? For, if it is true that clothes act as fomites, it is probable that the tenacious hold which the acarus gets to the edges of the sleeves is responsible for keeping up the infection at the wrists.

Relatively, treatment of scabies in the Services must be a simple problem, because the medical officer can have his wishes carried out, whereas in civil practice one has to contend with all kinds of difficulties in the home. Scabies, therefore, in an industrial practice continues to be the vexatious problem that it is to-day, and in some cases much time is lost from work. To this must be added the loss of sleep and serious debility suffered by children, who are also afflicted on quite a considerable scale.

The time seems to be due to make scabies a notifiable disease, and municipal clinics should be established for treatment and education of the public as to how to avoid scabies, and what to do themselves when they contract it. This is perhaps a counsel of perfection, but it would at least be a start in the right direction.—I am, etc.,

Hove. G. L. DAVIES.

Abdominal Rigidity in Blast Injuries

SIR,—Lieut.-Col. Denham Pinnock and Lieut.-Col. Paul Wood (May 1, p. 537) stress the extreme difficulty which may arise in differentiating between upper abdominal rigidity due to peritonitis and that secondary to a thoracic lesion. There is one diagnostic trick which I have found may sometimes be of great help in distinguishing such a condition as pleurisy on the one hand from, say, a perforated ulcer on the other. Rigidity due to peritonitis will generally tend to diminish on respiration. If, however, the rigidity is of thoracic origin, it will often be found that there is a definite relaxation of the upper abdominal wall when the patient is told to hold his breath, with his mouth open, at the end of expiration. This sign is sometimes enough to turn the scales when deciding whether or not to perform a laparotomy.—I am, etc.,

STANLEY C. RAW.

Collapse Therapy

SIR,—We have read with interest Dr. W. D. W. Brooks's suggestion that many patients with early pulmonary tuberculosis could be treated with an artificial pneumothorax and then discharged after only a short period of institutional treatment. We are in sympathy with this as a wartime expedient (and it was on account of the shortage of accommodation for the tuberculous that Dr. Brooks put forward the idea), provided the place which the A.P. holds in the treatment of the disease is fully realized.

The A.P. has never yet and never will cure phthisis. A cure can only be attained by the patient developing resistance to the disease, and this is brought about by such constitutional remedies as rest (mental and physical), good food, and fresh air—in fact, all which is embodied in the term "sanatorium routine." The A.P., by placing the lung in the best possible condition for healing, is an adjuvant only in the control of toxaemia and the spread of disease, and assists considerably in the mechanical closure of cavities. Nevertheless, as Dr. P. Heffernan has intimated (May 8, p. 581), success ultimately depends upon the building up of the individual resistance.

We have both had experience of the "peripatetic" A.P., and have occasionally been urged by patients to adopt this method because they were unable, for domestic or financial reasons, to undergo a full course of orthodox sanatorium treatment. We have not been impressed with the results; recovery in such patients has seemed slower and more uncertain and the incidence of effusions higher. Dr. Brooks's suggestion should only be acted upon in those early sputum-positive cases in which activity is minimal—i.e., absence of constitutional symptoms and only a slight increase in the B.S.R.—and we believe that with this proviso the number of patients who can be safely treated in this way will be disappointingly small.—We are, etc.,

London, W.1.

H. V. MORLOCK.
N. L. RUSBY.

SIR,—May I be allowed to endorse the warning given by Dr. Gregory Kayne (April 24, p. 519). He urges that the patient with an artificial pneumothorax may properly be treated as an out-patient only when he has been stabilized in a sanatorium, and shows, from recent American experience, that neglect of this proviso leads to an increased incidence of empyema. The incidence of empyema in A.P. cases, even under institutional conditions, is higher than one might suppose. When examining published statistics I found a total of 284 empyemata in 2,646 cases, a percentage of 10.7 (*Lancet*, 1939, **1**, 134). It seems likely that the figure is higher rather than lower in unpublished cases. The long and disheartening course of tuberculous empyema, and its frequently fatal termination, make it a complication to be avoided. "The average mortality for published cases, then, was approximately 50%. One must not suppose, however, that the remaining patients were cured. On the contrary, many were classed as 'improved,' which meant that they died slowly. . . . And no doubt the mortality for unpublished cases would be greater still."—I am, etc.,

Westminster

LAWRENCE ROBERTS.

Test of Resolution and Endurance

SIR,—Dr. Harper believes that the 40-mm. test may be regarded as an indication of the resolution and power of endurance of the subject and/or his physical fitness, and Sir Adolphe Abrahams has doubts. It may, therefore, be worth while to record the results of this test, performed at sea-level, on twelve men who afterwards climbed high on Mount Everest. The highest camp reached by each climber may be taken as a good index of his physical fitness, for each man climbed to the greatest height of which he was, in my opinion, at the time capable. In only one instance was I not present to give an opinion.

Highest Camp Reached	No. of Climbers	40-mm Test	
		Range	Average
VI (27,400 feet) .	6	50–90 seconds	70 seconds
V (25,700 ") .	2	75–75 "	75 "
IV (22,700 ") .	4	58–90 "	77 "

I am not suggesting that these figures are of great significance, but they may be of interest, and I record them for what they are worth.—I am, etc.,

Whitchurch, Bucks

RAYMOND GREENE.

Irritant Spectacle Frames

SIR,—In December, 1927, the late Dr. R. W. MacKenna of Liverpool treated a patient for spectacle dermatitis such as described by Dr. H. Thistlethwaite (April 17, p. 493). It was the first case he had seen, and he referred to his colleagues in London, none of whom had seen a case. Shortly after that date Dr. Elizabeth Hunt told me of an article which had appeared in an American journal describing the condition and showing how an outline inflammation was produced on the arm by binding the frames on to the patient's arm. Since 1927 Dr. MacKenna's patient has been supersensitive to anything with black or brown dye—e.g., gloves or clothing.—I am, etc.,

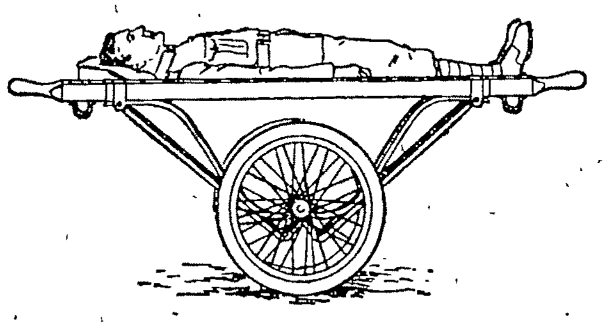
Aberdeen

W. M. GRAY.

A Wheeled Stretcher or Equipment Carrier

SIR,—Your correspondent Dr. K. Vernon Bailey (May 1, p. 542) is probably not aware that a wheeled stretcher carrier was in use by the British Army during the war of 1914-18 and with slight modifications is still being used. This official stretcher carrier has stood the test in war; it is capable of withstanding very rough handling and is of simpler construction than the model described by your correspondent. The fact that it is designed to carry only one stretcher is considered an advantage on active service.

The "Miller-James" collapsible stretcher carrier has a folding collapsible frame. The axles are jointed so that the two wheels can be brought close together and the apparatus easily transported. Running up from the axles at each side are two elliptical springs, on the top four corners of which the stretcher is supported. The tyres are pneumatic, of broad tread, and consequently do not sink deeply in firm mud, but offer great resistance when forced through liquid mud.



—I am, etc.,

The War Office.

C. A. WHITFIELD,
Lieut.-Col.

Doctors and the Future

SIR,—We have been unable to find any concise statement of the evidence on which the agitation for the drastic and immediate changes in the conditions of medical practice is based. The agitation suggests a general feeling that something is radically wrong with our present methods and that patients do not get proper and efficient treatment. Is such a feeling really widespread, and, if so, how has it arisen?

If it is justified by facts it is apparent that a serious effort must be made to remedy the proved defects, bearing in mind that it takes some time to assess the value of any new form of treatment. If it is of the nature of a panacea envisaged by idealists it deserves respect and, possibly, consideration. If it is merely a nostrum exploited by political hucksters it might justly excite resentment.

The production and publication of evidence in a form that could be readily digested by busy doctors would be of incalculable value, not only to them and to the younger men serving with the Forces, who, after all, are those most affected by the proposed changes, but to those, less actively engaged in professional work, who have time to decide the future of medicine.—We are, etc.,

A. BASIL ROOKE. C. E. P. MARKBY.
THOMAS ROBSON. J. W. NANKIVELL.
J. H. BENTLEY. HUMPHREY I. MARRINER.
D. D. MALPAS.

Royal Victoria and West Hants Hospital, Bournemouth.

Chairs of Child Health

SIR,—I am glad that Prof. Sydney Smith has corrected the mistake that the University of Durham was the first university in the kingdom to establish a chair of child health, and has pointed out that Edinburgh took this step more than 10 years ago. This gives me the opportunity of paying a tribute both to that university and to the University of Glasgow. There was a time when each of these Scottish universities was spending more on their departments of child health or paediatrics than all the English universities and medical schools put together.

How heartily I agree with Prof. Smith when he says that what matters most, however, is that these departments should now be established in our universities! The promotion of health and the cure of disease in children are not subjects of minor clinical importance.—I am, etc.,

Newcastle-upon-Tyne. J. C. SPENCE.

Obituary

W. J. EASTWOOD, M.Ch., F.R.C.S.Ed.

Brigadier, A.M.S.

The death of William James Eastwood at the early age of 40, on service with the Army of the Middle East, has brought an end to a short but brilliant surgical career. During his education at Merchant Taylors' School and the University of Liverpool, Eastwood held a high position both in the scholastic and academic fields, playing rugby football and running for his school, university, and county.

After graduation he decided to devote himself to orthopaedic surgery, in which his skill has since been recognized internationally. His contributions to surgery were few in number, but what they lacked in quantity was compensated by the clarity of writing and soundness of opinion. He had a peculiar gift for teaching both the undergraduate and the graduate, who recognized his determination to concentrate on principles rather than on details. He was attached as orthopaedic surgeon to the Northern Hospital in Liverpool, while his work at Alder Hey Children's Hospital and the Wigan Infirmary gave him the breadth of clinical experience on which his skill was based. Joining the Army two years ago he rose rapidly to the rank of brigadier, to which he was officially posted a few weeks before his death. His work as consulting surgeon in the Middle East was characterized by great organizing ability, tact, and surgical skill, and to him is due much of the improvement in results of the surgery in that area.

In his personal contacts Eastwood was particularly happy, being kindly and helpful to those of his staff, and always willing to discuss their problems and help in any difficulties. Those of us who had the privilege of his friendship will remember him as a true friend, who seemed to be constantly bearing his own and other people's burdens.

T. P. McM.

W. BREMNER HIGHET, F.R.C.S.

The death of Temp. Lieut. William Bremner Highet, R.A.M.C., was announced at a meeting of the Royal College of Surgeons of England on Feb. 11. In July last he was elected a Hunterian Professor to deliver two lectures on injuries to peripheral nerves. He was born on April 10, 1911, was educated at Otago, and graduated M.B., Ch.B. of the University of New Zealand in 1934. He was elected F.R.C.S. in 1938. After filling a post at the Dunedin Hospital he came to England in 1935 and held house appointments at the Dreadnought Hospital, the Princess Beatrice Hospital, the Royal Cancer Hospital, and the Norfolk and Norwich Hospital in turn. He obtained the Nuffield scholarship in orthopaedic surgery in April, 1940, and then became first assistant in the Nuffield Department of Orthopaedic Surgery (Peripheral Nerve Injury Centre) at Oxford, a post he held until he entered the R.A.M.C. in Sept., 1942. In 1941 he was awarded the Jacksonian Prize of the Royal College of Surgeons of England for his essay on "Injuries to Peripheral Nerves, with Special Reference to Late After-results," and he contributed a paper on "Splintage of Peripheral Nerve Injuries" to the *Lancet* of May 9, 1942. He had been a member of the B.M.A. since 1934.

We are indebted to Prof. G. R. GIRDLESTONE for the following appreciation.

William Bremner Highet, to the great sorrow of his many friends, has been missing at sea since Dec. 6, 1942, and it must be presumed that he is lost. He was 31 years of age, and was born in Dunedin, New Zealand. He took his M.B., Ch.B.N.Z. at Otago University, where he was awarded Junior National, Senior National, and University National Scholarships. He held house appointments at Dunedin Hospital, and in 1935 went with the second Byrd Antarctic Expedition as medical officer. Afterwards, before coming to England, he spent three months visiting hospitals in the U.S.A. From October, 1935, to 1937 he held resident posts at the Norfolk and Norwich Hospital, and while resident orthopaedic officer there became deeply interested in orthopaedic surgery and decided to devote himself to it. He was subsequently R.S.O. at the Princess Beatrice Hospital, where he had charge of the fracture clinic and inaugurated a septic finger clinic. From the outbreak of war until April, 1940, he acted as surgical registrar at the Royal Cancer Hospital, where he made a thorough study of bone tumours. In April, 1940, he joined the staff of the Wingfield-Morris Orthopaedic Hospital, Oxford, having been appointed Nuffield scholar in orthopaedic surgery. The creation of the peripheral nerve injury centre later in the same year was followed by such an influx of cases that it soon became necessary to appoint a man who could devote all his time to work on nerve injuries. Thus at the end of 1940 Mr. Highet ceased to be Nuffield scholar, and was given a special research grant by the University. He assisted Prof. Seddon in the scientific study of the rate of regeneration of nerves. He developed a technique for the investigation of anomalous innervation of muscles and cutaneous areas, and in particular investigated the part played by the ulnar nerve in the innervation of the thenar muscles, and his findings have cleared up certain anomalies which had previously been encountered in some cases of total median thenar loss. In collaboration with Prof. Seddon he investigated the effects of post-operative stretching of nerves, where much loss of the nerve had necessitated the flexion of one or more joints; he also joined in research on certain ischaemic lesions which were found to be attributable to arterial spasm rather than to the original injury.

In 1942 Mr. Highet was awarded the Jacksonian Prize of the Royal College of Surgeons for an essay on peripheral nerve injuries. He gave himself unsparingly to the study of peripheral nerve injuries and their operative treatment, and, spending long days in this most exacting work, mastered his subject. The victims of nerve wounds often suffer from severe disabilities which drag on for many months, and may need repeated operation. Many such men found in Mr. Highet both operative skill and personal encouragement, for he proved himself a good doctor and a good friend. He was on his way to similar work for the Forces over-seas when he lost his life.

His colleagues learnt to appreciate his high qualities, which were associated with a fundamental integrity and modesty, more and more as they worked with him. His death is a very great loss to us and to the whole fellowship of orthopaedic surgeons. To Mrs. Highet and her child we extend our deepest sympathy.

Supplementing our obituary notice of Mr. C. Lambrinudi (May 15, p. 617) Sir Arthur Hurst writes: Some ten years ago Lambrinudi had a long and almost fatal illness which left him liable to sudden death at any time. He well knew this and the danger of overwork, but he never allowed it to interfere with the long hours he put in at the service of his patients at Guy's and in private, for his great skill had naturally brought him a large consulting practice. The hospital, however, always came first, and he looked forward to devoting all his energies to the service of his beloved Guy's after the war. Always cheerful and the best of company, he told me in a letter written within a month of his death that he had accommodated himself to living from day to day without fear of the future and enjoying every minute. He will be sorely missed by his many devoted friends and his innumerable grateful patients, who will all wish to extend their sympathy to his wife, son, and daughter.

Dr. G. Douglas McRae, who died in Edinburgh on May 7, aged 68, was well known as a psychiatrist. He graduated M.B., C.M.Ed. in 1895 and proceeded M.D. with honours in 1907, in which year he was elected F.R.C.P.Ed. Dr. McRae took up the study of mental disease not long after graduation, and was for a time assistant medical officer at the West Riding Asylum, Wakefield, and then assistant physician and pathologist at the Royal Morningside Asylum. His last appointment was that of physician-superintendent at Glengall Hospital, Ayr. He served as president of the Royal Medico-Psychological Association in 1937–8 and had been joint editor of the *Journal of Mental Science*. He joined the British Medical Association in 1897 and held office as president of the Glasgow and West of Scotland Branch in 1923. He was also a member of the Edinburgh and the Glasgow Medico-Chirurgical Societies.

Capt. G. N. Braham, F.R.C.S., died in Baghdad on Nov. 16 and an obituary notice appeared on Dec. 12, 1942 (p. 710). A colleague writes: Dr. Braham's work as a surgeon in Iraq will be looked upon with great respect by British and Iraqis for a long time to come. His great virtues as a surgeon were his sound judgment, careful handling, and avoidance of meddlesome surgery. He was an excellent practical teacher, a good clinician, and a skilful operator whose cases did well. He had very good hands and had the art of imparting his skill to others, being patient and very helpful to his assistants who were training under him. At the same time he was fearless in his expression of opinion on medical matters and was a great asset to the Council of the Medical School. He was very generous to all who sought his advice on any problem and it was most sound. He had a profound understanding and sympathy for the country to which he gave much of his work and did much to promote harmony.

The following well-known medical men have died abroad: Dr. Edward R. Maloney, emeritus professor of dermatology at New York University College of Medicine and consulting dermatologist to the Bellevue Hospital, New York, aged 68; Dr. David King Smith, formerly president of the Toronto Academy of Medicine and member of the British Association of Dermatology and Syphilology (Canadian Branch), aged 69; Dr. Aaron Joshua Rosanoff, professor of psychiatry at Los Angeles and associate editor of the *American Journal of Psychiatry*; Dr. Edgar Allen, professor of anatomy at Yale University School of Medicine, aged 50; Dr. Ewing Wilber Day, past-president of the American Otological Society and emeritus professor of otology, laryngology, and rhinology at the Pittsburgh University School of Medicine; Dr. Jean Louis Burckhardt, director and founder of the Children's Sanatorium at Davos, formerly lecturer on hygiene and bacteriology at Basle University; and Prof. Georg Magnus, director of the Surgical Clinic at Munich and coeditor of the *Münchener medizinische Wochenschrift*.

Among recent arrivals in this country from the U.S.S.R. is Prof. S. A. Sarkisov, who represents the Soviet Red Cross and Red Crescent, and who is exchanging with experts here new knowledge gained in the treatment of wounded and sick and in rehabilitation. Prof. Sarkisov was born in 1895, and in 1926 helped to organize the Moscow Brain Institute. He has published over 30 works on neurology and psychiatry, and is a member of the administration of the Soviet Society of Neuropathologists and Psychiatrists, of the Soviet Society of Physiologists, and of the Neurosurgical Council. Since 1937 he has been vice-president of the Scientific Medical Council of the U.S.S.R., of which N. N. Burdenko is president. This council forms a very important part of the medical organization of the U.S.S.R.

Medical Notes in Parliament

Mr. Johnston, in the House of Commons on May 6, introduced the Nurses (Scotland) Bill to make provision in Scotland for the enrolment of assistant nurses for the sick, for the restriction of the use of the name or title of nurse, and for the regulation of agencies for the supply of nurses for the sick, and to amend the Nurses Registration (Scotland) Act, 1939. The Bill was read a first time.

Positive Health in the House of Lords

A debate on the health of the people was opened in the House of Lords on May 5 by Lord Geddes. He said that during the evacuation from the great towns in 1939 he had been impressed by the listlessness of the young people and adults from the crowded areas of the cities. Their physical condition was better than when he was a young doctor, and signs of rickets were absent, but a great deal of their independence seemed to have vanished. He had noticed a similar contrast between the conscripts of this war and the young men who served in 1914 or in the Boer War. This Easter he had seen some of the children still evacuated and they were grand. They were entirely different young people. Adults and elder children who came to the country in 1939 and 1940 were to a surprising extent convinced that they were not well. They all seemed to believe that patent medicine was an essential element of diet. In the cities and even in Government offices people had been infected in the cult of negative health and thought that they ought always to be taking medicine. The term "positive health," which had been used in the report of the B.M.A. on the organization of the medical profession, had a special meaning. It meant that you were not going to be ill. The whole tendency of the medical profession was to deal with people by giving them tablets out of a bottle or fluid in a bottle. That must be so under present conditions, and would be worse under a State Medical Service. To be well without taking anything was what positive health meant. A certain amount was done for positive health by a section of the medical profession, and a good deal by the Ministry of Food, but ideas on it were vague. Importance was attached to measurable things like height and weight. But large size was not necessary to high efficiency. There was as yet no science of positive health. There was no knowledge whether a child was benefited by being given large quantities of milk between 11 and 13 years. It grew larger, but there was evidence to show that men of larger sizes and larger bulk were dying younger. The death rate was rising in the 50–65 period, which showed something was wrong in the general life of the individual. Positive health meant that the body of each man, woman, and child should have power to resist the assaults of the pathogenic bacteria. These resistances should be natural. Science in medicine at present laid an undue emphasis on the attackers and too little on the defence of the human body. Alexis Carrel had suggested there should be in each of the great countries a "General Staff of Health," to advise the Government on social legislation affecting health. Such a general staff would perhaps report to the Government through the Lord President of the Council. It would not be a research body, but would collect results of research.

Lord Snell, replying for the Government, said the present medical services would stand comparison with any in the world. But these services tended to be piecemeal and restricted in their scope. The Government had laid on local authorities a statutory responsibility for planning comprehensive hospital services on the basis of wide areas and of division of function between hospitals. The post-war policy must include the position of the general practitioner. Thousands of young doctors were away on war service and had the right to expect conditions when they returned which would give them an honoured and useful place in their profession. The Government had accepted the principle of a national health service which would meet the needs of every citizen. In a few months a general statement of the Government's proposals would be published. There was no need to be unduly depressed about the conditions revealed by the evacuation.

Lord Geddes said the reply of the Government confirmed his impression that what was meant by positive health was not fully appreciated.

Government's Proposals for Health Services

Sir Percy Hurd asked on May 6 whether steps will be taken to enable medical men and women and nurses serving with the Forces abroad to express their views in the discussions now proceeding on the future of medical and health services. Mr.

BROWN replied that he contemplated publishing as soon as practicable a statement of the general nature of the Government's proposals, which would enable everybody (including men and women in the Forces) to see for themselves what was suggested and to discuss and, if necessary, criticize before the stage of legislation was reached.

Osteopathy

On May 6 Mr. BAXTER asked the Minister of Health if there was any likelihood of his changing his attitude towards osteopathy in wartime, and if it was his intention to recognize osteopathy as a legitimate branch of medical science. Mr. Brown replied: No, sir. It is not my intention to propose any amendment of the law on this matter.

Rehabilitation Treatment for Civilians

Mr. GRANVILLE on May 4 asked the Minister of Health if he would consider providing rehabilitation centres for sick and injured artisans analogous to those provided for the Services, to be worked by, or in conjunction with, factory medical officers. Mr. ERNEST BROWN replied that rehabilitation treatment of the kind referred to was already being provided at or in connexion with a number of hospitals under the E.M.S. scheme, and medical officers of his Department were at present visiting all the larger hospitals in each region to discuss with the hospital authority methods of developing such provision. He understood that the Minister of Labour had decided to set up an experimental centre for certain types of cases needing rehabilitation beyond the stage to which it could reasonably be provided as part of the hospital services, and that he had under consideration the question of extending the experiment in accordance with the recommendation of the Interdepartmental Committee on the Rehabilitation and Resettlement of Disabled Persons.

Domestic Staff of Nursing Homes.—The Minister of Labour and National Service has instructed his local officers not to withdraw domestic staff in nursing homes except after consultation with Regional Officers of the Ministry of Health and with their consent. Mr. Brown has instructed his Regional Officers to consider each case on its merits, and if a particular nursing home is an essential part of the area's hospital facilities, to advise that it should be treated on the same lines as a hospital, so that the domestic staff there would all be reserved. If, however, there are redundant staff by hospital standards agreement would be given to withdrawal of the redundant workers.

Universities and Colleges

UNIVERSITY OF OXFORD

In a Congregation held on May 6 the following medical degrees were conferred:

B.M., B.CH.—M. J. Long, R. Patuck, *J. C. H. Dunlop, *G. K. H. Hodgkin, *D. M. de R. Winser, *L. E. D. F. Joubert, *D. H. Garrow, *G. D. W. McKendrick, *E. H. Hillyard, *T. H. J. Williams, *Sheila R. Tangye

*In absence.

UNIVERSITY OF SHEFFIELD

At a meeting of the University Council held on May 14 Mr. J. T. Chesterman, F.R.C.S., was appointed lecturer in surgical pathology and assistant curator of the museum.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

At a meeting of Council on May 13, with Sir Alfred Webb-Johnson, President, in the chair, Mr. J. B. Hume was re-elected a Member of the Court of Examiners for the period of one year from June 10, 1943, and Prof. R. V. Bradlaw was elected a Member of the Board of Examiners in Dental Surgery for three years from June 10 next. It was decided to recognize the post of resident surgical officer at the Guest Hospital, Dudley, for the six-months surgical practice required of candidates for the Final Fellowship Examination. Mrs. H. P. Herbert, B.A., was appointed a Leverhulme Scholar for the year beginning May 10, 1943, for her research on the metabolism of proteins, especially in relation to their protective properties against disease. Mr. Arnold Sorsby, F.R.C.S., was appointed Research Professor in Ophthalmology at the Royal College of Surgeons of England and the Royal Eye Hospital for the period of five years from July 1, 1943. A Professorship in Experimental Pathology was conferred upon Dr. W. E. Gye, F.R.S., Director of the Imperial Cancer Research Fund. Prof. Gye and Mr. H. G. Crabtree were appointed Lecturers of the Fund in the College for the ensuing year. Group Capt. G. L. Keynes was nominated external examiner in surgery for the Fellowship examination of the Faculty of Radiologists.

Diplomas of Membership were granted, jointly with the Royal College of Physicians, to the candidates whose names appear in the report of the meeting of the Royal College of Physicians published in the *Journal* of May 15 (p. 618), and to Sheila W. Anderson, G. A. James, and M. F. C. Walker.

The Services

A *Supplement* to the *London Gazette*, dated May 14, announces the appointment to O.B.E. (Military Division) of Acting Squad. Ldr. Frederick Thomas Moore, F.R.C.S., R.A.F.O., and the award of B.E.M. to Leading Aircraftman B. V. Icke. One night in March, 1943, an aircraft crashed on an R.A.F. station and immediately burst into flames. Squad. Ldr. Moore (the duty medical officer) saw the accident and, accompanied by L/A Icke, a medical orderly, proceeded to the scene. Squad. Ldr. Moore directed the removal of the rear gunner, who was dazed and sitting amongst the burning wreckage, to a place of safety. The aircraft was now enveloped in flames and ammunition was exploding. Nevertheless, despite the intense heat and the danger from exploding oxygen bottles, this officer and airman entered the burning wreckage in an attempt to rescue another member of the crew who was pinned down. Without any protective clothing they lifted aside the burning wreckage and, with great difficulty, succeeded in extricating the injured man. Squad. Ldr. Moore rendered first aid to the rescued man and sustained burns to his chest and hands in carrying out the operation. This officer and airman both displayed courage and devotion to duty in keeping with the highest traditions of the Royal Air Force.

CASUALTIES IN THE MEDICAL SERVICES

Prisoner of War in Japanese Hands.—Capt. M. F. Smith, R.A.M.C., Cambridgeshire Regt.

Died.—Lieut. Sheila Dorothy Markham Brown, R.A.M.C.

Medical News

A paper on identification of animal fibres will be read by Dr. J. L. Stoves before the Medico-Legal Society at 26, Portland Place, W.1, on Thursday, May 27, at 5.30 p.m. Members may introduce guests to the meeting; tea at 5 o'clock.

At a meeting of the London and South-Eastern Counties Section of the Institute of Chemistry, to be held at 30, Russell Square, W.C., on June 16, at 6 p.m., Dr. W. T. J. Morgan of the Lister Institute will lecture on "Some Recent Advances in Immuno-chemistry."

An opportunity for Roman Catholic doctors to discuss future medical services is being provided by the Sword of the Spirit Movement at a meeting to be held in the Essex Hall, Essex Street, W.C.2, on Saturday, June 5, at 3 p.m. The subject is "Catholics and the Future of Medical Services" (Assumption B of the Beveridge report), and the speakers will be Dr. Charles Hill, Dr. E. E. Larkin, and Dr. Letitia Fairfield.

A special film session for doctors has been arranged by the Bristol Medical Officer of Health in collaboration with the Ministry of Information to take place at the Odeon Cinema, Union Street, Bristol, on Sunday, June 6, at 10.45 a.m. Two films will be shown: "Scabies"—the new film just issued for the Ministry of Health—and "Neuropsychiatry." An address on "Scabies—a Present Problem" will be given by an assistant medical officer, Bristol Health Department. Doctors will be admitted on presentation of their professional cards or by the invitation folder available on application to the Bristol Public Health Department, Kenwith Lodge, Westbury Park, Bristol, 6.

A meeting of the executive committee of the Cancer Control Organization for Edinburgh and South-East Scotland, the objects of which include the investigation, care, and cure of cancer, was held in Edinburgh recently. Among the subjects discussed was the fuller use by medical practitioners of the system of the organization whereby practitioners may arrange for the issue of travel vouchers to enable persons suffering or suspected of suffering from malignant disease to attend at Edinburgh Royal Infirmary for treatment or for examination. The honorary treasurer of the organization is Prof. William Annan, C.A., 22, Charlotte Square, Edinburgh, to whom subscriptions, donations, or bequests by way of legacy should be sent.

The U.S. Office of War Information announced on May 10 the formal opening of the American Library, which has been operating for several months as a special reference library at the American Embassy, 1, Grosvenor Square, W. The library is designed for American, British, and other United Nations' officials, agencies, for research institutions, associations, business, and for the Press. The American Library Association, the Library of Congress, learned societies, and many other American associations, and their opposite numbers in Great Britain, have been consulted constantly in building up this modest but potentially important centre and cultural focus.

The Treasury has made an Order under Section 20 of the Finance (No 2) Act, 1940, exempting from purchase tax batteries of not less than 30 volts and not more than 90 volts specially designed for high-tension supply for deaf-aid appliances and using cells not larger than 40 mm. over all in length by 13½ mm. in diameter. The exemption applies only to goods delivered on sale or appropriated to retail trade or similar purposes on and after May 11, 1943, or, in the case of imports, to goods entered for home use on and after that date.

Owing to prevailing conditions difficulty is being experienced by the London County Council in filling vacant positions for assistant pathologists in the hospital laboratory service. In order to secure a wider field of candidates it is proposed that a new class, to be designated junior assistant pathologist, should be instituted to appeal to medical practitioners who, although not fully experienced in pathological work, have a bias in favour of this particular branch of the profession. There are to be 17 such positions, the salary to be £500 a year, rising by annual increments of £25 to £575.

The Colonial Office announces that a subcommittee of the Colonial Advisory Medical Committee has been appointed to advise the Secretary of State on the problems of venereal disease in the Colonies Mr. T. I. K. Lloyd, an assistant under-secretary of State in the Colonial Office, will be the chairman of the subcommittee. The members include Sir Wilson Jameson, Sir Drummond Shiels, Dr. Mary Blacklock, Dr. Letitia Fairfield, Dr. Robert Sutherland, and the medical advisers to the Secretary of State.

The Board of Trade announces that the sale and hire of all typewriters, except second-hand portable machines weighing less than 22 lb., are now controlled. No dealers or private individuals may dispose of or acquire typewriters without a licence, and special permission will be required before any machines may be broken up. Applications for licences should be addressed to the Directorate of Office Machinery, Hawkins House, Dolphin Square, S.W.1.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* during the week the decline in the notifications of infectious diseases continued, especially for measles 386, whooping-cough 187, scarlet fever 87, and diphtheria 43. Dysentery, however, rose by 66, acute pneumonia by 40, and typhoid by 13.

The rate of decline in notifications of measles was not so marked as previously, notifications falling by 386, compared with an average fall of over 2,000 during the preceding three weeks. The largest decreases recorded during the week were Sussex 118, Warwickshire 115, Durham 113, Cornwall 100, London 90; the largest rises were Glamorganshire 112, Suffolk 80, Berkshire 62, Northamptonshire 52, Hampshire 40. In two counties, Suffolk and Norfolk, the notifications were the highest during the present epidemic.

Within the counties only small variations occurred in the incidence of diphtheria, except in Lancashire and Cheshire, where the incidence has been almost halved during the past five weeks. Diphtheria is still relatively prevalent in the North, and 38% of the week's notifications were in the three counties of Durham, Lancashire, and Yorks West Riding.

For scarlet fever the largest declines were Yorks West Riding 69, Essex 31, and Lancashire 29; and for whooping-cough, London 48, Lancashire 47, Warwickshire 32.

Notifications of dysentery were doubled during the week. An outbreak in Staffordshire, Stoke-on-Trent C.B., 45 cases, was confined to the nursing staff of the North Staffordshire Royal Infirmary. Kent, Maidstone M.B., reported 16 cases, Gloucestershire, Bristol C.B., 14, Lancashire 13, and London 11.

The rise in typhoid from 3 to 16 was due to sporadic cases occurring in nine counties.

In *Scotland* the notifications of dysentery rose from 26 to 65, the highest level of recent months, the chief centres of infection being the counties of Banff 10, Midlothian 10, and West Lothian 15. Notifications of measles fell by 165. Of the two large local epidemics, that in Glasgow showed an improvement, the number of cases falling from 330 to 179; in Edinburgh the number of cases rose from 88 to 104.

In *Eire* the high level of diphtheria incidence, which has persisted since the beginning of January, continued; 37 of the 98 cases were recorded in Dublin C.B.

The Week Ending May 8

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,458, whooping-cough 2,225, diphtheria 643, measles 10,090, acute pneumonia 745, cerebrospinal fever 61, dysentery 193, paratyphoid 7, typhoid 12.

No. 17

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended May 1.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	86	3	22	5	5	149	5	52	1	6
Deaths		—	3				3	—		
Diphtheria	667	42	186	98	23	743	39	185	42	20
Deaths . ..	13	2	1	1	1	17	1	1	3	1
Dysentery	135	11	65	—	—	160	15	42	1	—
Deaths . ..			—	—	—			—	—	—
Encephalitis lethargica, acute	3	—	—	—	—	3	—	—	—	—
Deaths		1	—	—			—	—	—	
Erysipelas .. .			46	9	2			36	12	2
Deaths . .		—	—				—	—		
Infective enteritis or diarrhoea under 2 years .. .				34					44	
Deaths . .	72	14	4	15	1	30	2	3	14	4
Measles . .	13,104	770	340	7	38	4,006	339	562	159	133
Deaths . .	16	3	2	—	—	6	—	2	2	1
Ophthalmia neonatorum	72	8	22	2	—	100	4	27		—
Deaths . .										
Paratyphoid fever ..	2	—	—		—	13	1	2		—
Deaths . ..	1	—	—		—	1	—	—		—
Pneumonia, influenzal*	906	37	8	5	6	813	28	13	4	6
Deaths from (influenza)	23	—	5	1	—	22	—	2	—	—
Pneumonia, primary ..			224	9				306	17	
Deaths		—		14	14		—		10	19
Polio-encephalitis, acute	3	—				—	—			
Deaths .. .		—					—			
Poliomyelitis, acute ..	1	—	1	4	1	5	—	1	2	—
Deaths		—	—				—	—		
Puerperal fever ..		3	21	2	—		1	11	1	—
Deaths		1					—			
Puerperal pyrexia ..	137	7	17		—	147	6	29		1
Deaths										
Relapsing fever ..	—	—			—	—	—			—
Deaths										
Scarlet fever	1,683	164	221	39	40	1,005	38	165	57	16
Deaths	3	—	—	—	—	3	—	1	1	—
Small-pox	—	—	—		—	—	—	—		—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever† ..	16	2	11	2	1	10	3	1	10	—
Deaths .. .	1	1	—	—	—	2	—	1	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths			—	—	—			—	—	—
Whooping-cough ..	1,640	115	145	11	18	1,623	194	115	34	13
Deaths	15	—	1	2	1	11	2	1	7	—
Deaths (0–1 year)	368	45	71	51	22	339	32	73	37	29
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	4,341	649	602	213	126	4,621	557	640	206	125
Annual death rate (per 1,000 persons living)			13·6	14·0	‡			14·4	13·8	‡
Live births . ..	6,670	764	1,095	380	272	6,312	653	965	363	313
Annual rate per 1,000 persons living ..			22·4	25·0	‡			20·0	24·2	‡
Stillbirths . .	228	24	38			222	20	43		
Rate per 1,000 total births (including stillborn)			34					43		

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes paratyphoid A and B for Northern Ireland.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

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ANY QUESTIONS?

The Negative Phase

Q.—*What is the significance of the "negative phase" following immunization? How long does it take to develop, and how long does it last in the case, say, of A.P.T. and T.A.B.C.?*

A.—When carrying out the active immunization of healthy people against diphtheria and the enteric group under ordinary circumstances, the practitioner may well forget the existence of the concept "negative phase." (At the same time, he must be prepared for the rare "sea-lawyer" type of patient, who, because he has been already heavily infected before vaccination, may develop the disease, and by a *post hoc* line of argument maintain that he is a victim of "negative phase." Anyone who is a member of a medical protection society will face such a contingency with composure.) In the laboratory one could show, by carefully planned experiments, that the immunity of an animal partially immunized against diphtheria or enteric could be temporarily depressed by huge doses of toxin or antigen. It has therefore been argued that where intense exposure has existed—e.g., the drinking of water or milk heavily infected with bacilli of the enteric group—there is a possibility that the injection of T.A.B.C. vaccine might possibly increase the liability to clinical attack in those infected with only a small dose of bacilli. A medical leader writer[1] claimed that such vaccination was a "highly undesirable procedure." This does not seem to be the general view. Discussing the hypothesis that "the administration of vaccine will for the time being lower resistance instead of increasing it, an effect which might be disastrous during the incubation period," a leading article in this *Journal*[2] concluded: "An examination of actual evidence lends no support to this theoretical objection." Sir John Ledingham[3] said that the literature abounds in records of epidemics (isolated or explosive) where vaccination of exposed persons has been put in force as a measure of control without evidence of unfavourable results. With reference to the Portsmouth epidemic, Dr. Facey[4] stated that, in response to inquiries of various authorities, "the general consensus of opinion was to the effect that inoculation was definitely indicated and that the risk of a negative phase could be ignored."

The League of Nations Health Committee[5] in 1932 resolved that "immunization is to be recommended even during epidemics in the case of children who have been in contact with patients, as there is so far no evidence on record as to the existence of a negative phase." It is improbable that a similar international committee would to-day reverse that resolution.

The questioner will find his inquiry discussed at length in the *Journal* in the autumn of 1937 following the Croydon "explosive" outbreak of water-borne typhoid fever. He may also note that, from the birthplace of the "negative phase," Dr. Maclean[6] in 1941 observed: "My own experience has led me to disregard the danger of a negative phase in healthy persons in the presence of an epidemic."

REFERENCES

[1] *Lancet*, 1937, **2**, 1320.
[2] *British Medical Journal*, 1937, **2**, 1128.
[3] *Lancet*, 1937, **2**, 1402
[4] *British Medical Journal*, 1937, **2**, 1092.
[5] *Quart. Bull. Hlth. Org. L. o. N.*, 1932, **1**, 1–6. quoted in *Bull. Hyg.*, 1932, **7**, 623.
[6] *Proc. roy. Soc. Med.*, 1941, **34**, 255.

Rough Lips: Infected Nails

Q.—*There are two minor ailments which are constantly cropping up in general practice. The first is a condition of the lips (that part which is commonly rouged), met with in both sexes, where the epithelium is roughened and tags of loose skin appear on the surface. This condition is of course met with in acute illness and chronic disease, but I am mostly concerned with it as found in normal healthy subjects. The second problem is a form of chronic infection in the region of the finger-nails, mostly affecting females and very often near the menopause. One finger after another gets involved and pus wells up from the side of the nails for long periods before a cure is effected.*

A.—A scaliness about the lips, more common in girls and young women than in men, is not infrequently seen in dermatological clinics. When the condition is well marked, chronic fissures are usually present at the angles of the mouth, and the whole picture suggests a vitamin B_2 deficiency, and will sometimes respond remarkably to riboflavin, 1 mg. three times a day after food. (But it should be pointed out that the clinical manifestations of ariboflavinosis are at the moment a matter of dispute.) If the case does not respond to this vitamin alone, it is better to try a compound vitamin of the B group, giving, in addition, ascorbic acid 50 mg. twice a day. Sometimes the scaly condition referred to is part of a seborrhoeic dermatitis, and the scalp should be examined to find evidences of this possibility. If scurf is present, the same vitamin therapy may be given with some advantage, but local applications are important. An ointment consisting of liq. pic. carb. ♏ 30, sulph. praecip. gr. 10 in ung. acid. salicyl. *B.P.*, will be found useful for the scalp, and, if applied very lightly, it may also suit the scaly skin of the face; but if it is not tolerated on the face, then 2% of ichthammol in lotio calamin. oleosa will be a better local application. It must be remembered that cheilitis and a scaly dermatitis about the mouth may result from lipstick or even from something in a tooth paste or perfume to which the patient is allergic, so that the possibility of a dermatitis from an external factor must always be considered.

The second problem seems to be concerned with chronic paronychia, in which mild infections occur at the sides of the nail and may be very chronic and relapsing. Sometimes they are of mycotic origin, but usually are pyogenic. The general condition of the patient should be considered, and a tonic containing iron and arsenic, or a combined syrup of hypophosphites, should be given after meals. Local treatment consists in hot hypertonic saline baths, with gentle massage of the nail folds to express any underlying pus. After drying, the following paint should be applied night and morning to the edge and sides of the nails: phenol. liq. ♏ 10, tinct. iod. mit. ♏ 120, spir. meth. indust. ad oz. 1. When the condition appears to be cured the paint should be applied daily for a further month or two in order to prevent relapses. Frequent washings and employments which keep the hands continually wet (e.g., in a barmaid) render the skin folds about the nails very susceptible to infection, so that in relapsing cases it may be necessary to effect a change of employment. In dermatological clinics doses of *x* rays are very helpful in the treatment of the difficult cases.

Hypertrophic Mastitis

Q.—*A well-built girl of 21 has been suffering for some 3 to 4 months from what I believe to be a subacute mastitis. She has rather heavy breasts, and the lesion has been a tender diffuse lump in the upper lateral quadrant of each breast, more pronounced in the left one. I ordered a firmly supporting brassière, and ultra-short-wave therapy was tried for a period, together with rest. She is a land-girl whose main occupation is milking. There was some improvement, but now she gets a severe relapse with the approach of menstruation. Would any form of hormone therapy be beneficial, since menstruation seems now to be the most aggravating factor? Her menses are fairly normal except that the interval between is sometimes slightly shorter than usual.*

A.—The condition is probably a so-called hypertrophic mastitis, predisposed by some slight hormonic disturbance and determined and localized by trauma due to the pressure of a light brassière or to her work. The term "mastitis" is really a misnomer, because it is likely that the changes are due to an exaggeration of the normal cyclical activity of the breast with menstruation. The hormonic control is only partially understood, and so it would be wise to try other methods of treatment before resorting to hormone therapy. Superficial *x*-ray exposures will often relieve the pain and tenderness; or, if available, radio-active pads (usually containing mesothorium), which are worn for a few days continuously, may be tried. The successful use of hormones in older women, especially those about the climacteric, does not indicate that they would be equally valuable in a case of this type.

Premature Ejaculation

Q.—*What is the best line of treatment for a premature ejaculation which prevents effective penetration being achieved? There is no evidence of organic or psychological abnormality in either partner.*

A.—The treatment of ejaculatio praecox is one of the most difficult that can be undertaken. Previously it was treated mainly by physical remedies—instillations into the posterior urethra of silver nitrate, light scarification of the verumontanum with a diathermy electrode, etc. Now it is generally believed that psychological rather than physical factors are responsible for the condition. It occurs usually in sensitive, anxious men and is amenable to psychological treatment. This has usually to be prolonged and should be carried out by an expert.

Arthritis and Intestinal Streptococci

Q.—*I have a patient with chronic infective polyarthritis, presumed to be due to intestinal infection with haemolytic streptococci, large numbers of these organisms being found in the stools. Is succinylsulphathiazole likely to be an effective intestinal disinfectant in this infection, and, if so, what are its toxic reactions?*

A.—It is extremely rare to find haemolytic streptococci in faeces except those belonging to Lancefield's Group D. These organisms have many of the characters of *Str. faecalis*, and share with this variety of streptococcus a high degree of resistance to the action of sulphonamides generally. The proposed treatment is therefore not as hopeful as it sounds, but information available about the action of succinyl-sulphathiazole is not yet detailed enough for a categorical answer to be given. Very little of this drug is absorbed, and toxic reactions from it are negligible. (The " presumption " that arthritis is due to the presence of these streptococci in the bowel may not be correct. Such an association is often assumed but can rarely be substantiated.)

Nasal Drops

Q.—*There is a preparation of ephedrine hydrochloride and argyrol now in wide use as nasal drops in catarrhal infections. Is there any danger in the prolonged use of this, especially in the case of children? The silver is, I believe, retained. What knowledge is there of any ill effects due to prolonged habitual use of benzedrine (or methedrine) nasal inhalation in chronic nasal cases?*

A. Ephedrine is a useful vasoconstrictor for the swollen mucosa in acute inflammatory attacks, and argyrol acts as a demulcent and antiseptic. Where there is an inclination to use astringent applications more than temporarily the swelling is probably in the nature of a vasomotor rhinitis and allergic in character, and therefore other treatment following suitable investigation is indicated. Silver has to be ingested for a long time to cause argyria, but some local staining may be produced more easily. Sollmann (*Manual of Pharmacology*, 1942) states that " many cases have been reported from the routine use of colloidal silver preparations, especially by the laity as prophylaxis against colds generally in children and young people."

Benzedrine also acts as a vasoconstrictor, but is more potent and causes dryness of the mucous membrane. The same criticism applies to its use, and any application which is employed constantly should be in the form of a warm saline solution in water.

INCOME TAX

Appointment—Deduction of Tax—Car Allowance

" **Delta** " began work as assistant M.O.H in June, 1941. His earnings for the period June, 1941, to April, 1943, were assessed somewhat late and the tax deducted during the period November, 1942, to April, 1943; tax on the earnings of the year to April, 1943, is being deducted over the period November, 1942, to October, 1943. He has a car allowance of 4d. per mile, but owing to the petrol shortage this amounted to only £35 for the year to April, 1943. The car cost £130 when bought second-hand in June, 1941.

⁂ (1) The tax appears to be correctly assessed For 1943–4 " Delta " will be assessed on the basis of his earnings for 1942–3, and the tax will be deductible over the period November, 1943, to October, 1944.

(2) The income-tax authorities usually oppose any claim to include an expenses allowance as income and to deduct the actual costs, holding that the employing authority may be assumed to have made an adequate allowance. Where, however, the mileage is relatively small the depreciation by wear and tear may be such as to make the rate of the allowance too low. The " cost " to " Delta," calculated on the usual basis, would be running costs (including petrol, repairs, tyres, etc.) plus the depreciation allowance, which for 1943–4 might be put at, say, £20. It may well be that it would pay our correspondent, therefore, to substitute a cost claim for exclusion of the mileage allowance he received in 1942–3. Whether the point is worth pressing, however, depends on the amount of the running costs. The revenue authorities might oppose a subsequent return to the normal basis of excluding the allowance on the ground that the matter should be dealt with consistently to ensure fairness.

LETTERS, NOTES, ETC.

Prevalence of Pityriasis Versicolor

Dr. **James Hasson** (London, W.2) writes: An epidemic of pityriasis versicolor seems to be occurring at the present time. I have examined several cases and found them true to type with no exception to their peculiarity of resistance to treatment. It will be interesting to know if other dermatologists have noticed an increase in the number of their cases. This " maladie des gueux," as it used to be called by Jeanselme, appears now to be spread amongst all classes.

A New Syndrome ?

Dr. K. **Temple Brown** (University College of the South-West) writes: Referring to Dr. C. E. H. Milner's letter (May 8, p. 590), may I suggest his using a preparation of vitamin B_1 for his patients. This is *the* vitamin with which Nature is frugal, and several cases of symptoms due to its deficiency spring to mind, all within the past two years. There was a french polisher, who had done no work for four months, because of pain in the right upper limb, when he came under my care. Physiotherapy and salicylates had not relieved him, but a course of vitamin B_1 (tablets of 3 mg., 2 tablets t.d.s., p.c.) altered his outlook on life, and in a fortnight he was back asking to be signed off the panel. The cheapest but slowest form of treatment is to use tablets of dried yeast, 4 or 5 gr. Quicker, but more expensive, are the tab. " benerva " (Roche), 3 mg. for oral use, 2 tablets t.d.s., p.c. Most rapid and most expensive are injections of " benerva," ampoules of 25 mg., an ampoule once a week. This is not " blunderbuss " prescribing but diagnosis by a therapeutic test, and quite justifiable.

Dr. **Leonard S. Willox** (Dumbarton) writes: The symptoms complained of by the four patients mentioned are suggestive to me of those that are sometimes found in cases of aluminium poisoning in persons susceptible to the absorption of small doses of aluminium. If the patients are using aluminium cooking utensils or consuming food or drink from any aluminium vessels I suggest that for a fortnight all medical treatment should be stopped, and that the use of aluminium utensils should be entirely abolished. A fortnight will give time to see whether improvement is being made.

Filaria Worm in the Eye

Dr. F. J. **Darbyshire** (Ilford) writes: With reference to recent correspondence about the occurrence and removal of adult *Filaria loa* from the subconjunctiva, I enclose a letter from Dr. T. B. McAleer, whom I asked to record his experiences in the Niger delta. The adult female filaria which I removed from his right eye was easily seen squirming in the subconjunctiva to the outer side of the lower fornix. The eye was cocainized, a piece of conjunctiva picked up gently near the worm and cut by sharp-pointed scissors. The worm obligingly presented in the wound and was withdrawn by forceps. Dr. McAleer's method introduces very little trauma, and, he tells me, was always successful.

Dr. T. B. **McAleer** (Hornchurch) writes: During some years spent in the Niger delta I saw numerous cases of filaria *Loa loa* and removed quite a number of the adult worms from eyes. The technique was simple. The eye was cocainized and the conjunctiva was picked up in small forceps at a point over or near to the worm and, with a small sharp scalpel, an incision was made, about 1/8 in. long, in the membrane. A small hook was then inserted through the opening in the conjunctiva and the worm removed with comparative ease. No sutures were used, and the only antiseptic measure taken was frequent lavage with boric solution before and after the operation. Incidentally I myself have *Loa loa* infection and have had an adult worm removed from my eye in this country by Dr. F. J. Darbyshire of Ilford.

Hand and Finger Lesions

Dr. F. R. W. K. **Allen** (Ernakulam, South India) writes: I agree with all that Surg. Commander J. B. Oldham (Dec. 12, 1942, p. 706) says. The principles of the surgery of the hand and fingers are fully explained in *Surgery of the Hand*, by Marc Iselin. (An English translation is now available.) Since following his methods my results have been excellent, whereas they were often disappointing previously.

Casualties in Rough Country

Lieut.-Col. D. G. **Duff** writes from Denbigh: An article in a current popular picture weekly shows what are presumably the latest Army methods of casualty recovery in rough country as practised in an advanced course of instruction. It is surely regrettable that the lessons of pre-war mountaineering experience have not yet been developed. Axis use of the sledge stretcher, as shown, for example, in a Swiss weekly medical journal of three years ago just sent me by the B.M.A. Library (*Schweizer medizinische Wochenschrift*, 12, 40), must be by now very far ahead indeed.

Keep it Short

The first number of the newly named *British Medical Journal*, dated Jan. 3, 1857, had the following notice to contributors which is worth reproducing in these hard times:

" The Editor would feel glad if Members of the Association and others, would cooperate with him in establishing as a rule, that in future no paper for publication shall exceed two pages of the Journal in length. If the writers of long communications knew as well as the Editor does, that lengthy papers *always* deter the reader from commencing them, this great evil would never arise. Brevity is the soul of medical writing—still more than of wit."

BRITISH MEDICAL JOURNAL

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TREATMENT OF PERNICIOUS ANAEMIA WITH AN EXPERIMENTAL PROTEOLYSED LIVER PREPARATION

PRELIMINARY OBSERVATIONS

BY

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AND

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The treatment of pernicious anaemia by parenteral injections of liver extracts has almost universally replaced the oral administration of whole liver. Among the disadvantages of whole liver are its relatively high cost, the difficulty of ensuring a regular supply, the distaste engendered by its prolonged administration, and the uncertainties attending its assimilation in patients whose digestive and absorptive processes are impaired. Recent reports, however, have indicated the superiority of whole liver in the treatment of certain types of macrocytic anaemia, such as those occurring in pregnancy, sprue, and tropical nutritional deficiency states; occasionally cases of these anaemias have in fact been shown to be refractory to fractionated liver extracts administered parenterally but amenable to whole liver given by mouth. Accordingly it occurred to one of us (D. R.) that it might be an advantage to administer to such patients whole liver in a soluble predigested form.

"Proteolysed Liver"

In the normal physiological process of assimilation of whole liver, absorption presumably begins as soon as any soluble split products are formed as the result of acid peptic digestion and alkaline tryptic digestion. In view of the impossibility of reproducing these processes exactly in the laboratory it was decided to attempt the experimental preparation of predigested whole liver. Papain was chosen as a suitable enzyme for use, since this will react at the natural *p*H of minced liver—namely, approximately *p*H 5.6. In this way the danger of the destruction of active principles by exposure to acid or alkaline conditions would be avoided.

Process of Preparation.—Take 330 lb. of minced liver in a steam-heated pan. Add 36 gallons of water and 660 g. of papain, and heat the mixture to 60° C. Maintain the temperature at this level for three hours. Then raise the temperature to 100° C. and boil vigorously for ten minutes. Strain the hot digestion mixture through cloth, and concentrate the filtrate at a low temperature in a vacuum still to 20 gallons. Clarify the concentrate by filtration, using sterilized kieselguhr as a filter aid, and then sterilize by filtration through suitable asbestos pads. Dry the sterile liquid in a low-temperature vacuum oven.

Properties.—The product thus obtained is a dry, sterile, granular light-brown powder which is not unreasonably hygroscopic. It is completely soluble in hot or cold water, giving a solution that is reasonably palatable, being free from the characteristic liver flavour. It seems probable that as the cell walls are disrupted a high proportion of the water-soluble constituents will be liberated and hence retained in the final product, and that any active principle initially present as a protein complex will be set free and so be rendered available for immediate absorption. In proteolysed liver there is present predigested protein material in addition to essential haemopoietic factors. Fats, fat-soluble vitamins, and coarse indigestible material are alone discarded. It is estimated that one ounce of proteolysed liver powder is derived from approximately six ounces of raw "wet" liver, after allowing for losses due to the mechanical process. A chemical analysis gave the following data:

Loss at 100° C. (moisture)	6.2%	Copper	0.003%
Nitrogen	12.7%	Iron	0.04%
Ash	5.8%	*p*H	4.95

Preliminary tests indicate that riboflavin is present in a concentration of 10 mg. per 100 g., as determined by the method of Shaw (1939).

Thanks to Dr. Bullock of Manchester University, it has been possible to spray dry the sterile liquor, and thereby obtain an even more satisfactory product.

Clinical Trials

The suggestion that proteolysed liver may prove of value in the treatment of certain macrocytic anaemias refractory to the usual liver extracts renders it desirable that the efficacy of this preparation should first be determined in the treatment of the much commoner and more readily available cases of classical Addisonian pernicious anaemia. The object of the remainder of this communication is therefore to record the results obtained in the treatment of five such cases.

All the patients were typical examples of pernicious anaemia in relapse as regards both their clinical and their haematological features. Four of them had received no liver therapy before admission to hospital. The other patient (Case 4) had been treated for pernicious anaemia seven years previously, but had received no treatment during recent years. In all cases examination revealed a macrocytic hyperchromic anaemia with marked anisocytosis and poikilocytosis, and sternal puncture showed a cellular megaloblastic marrow. A histamine-fast achlorhydria was also present in all cases.

As soon as the diagnostic investigations had been completed, treatment with proteolysed liver was instituted. No other haematinic substance was administered during the stay in hospital. The liver preparation is in the form of a granular powder readily soluble in water. For administration it was dissolved in warm but not boiling water, pepper and salt being added to taste, making a beverage which was found by the patients to be quite palatable. The dosage given varied from two to eight teaspoonfuls of the powder daily, equivalent by weight to two drachms and one ounce respectively. The preparation was conveniently given twice daily. Arrangements have been made for the patients to continue taking proteolysed liver in a daily dose of one teaspoonful on their discharge from hospital, and they are being closely observed as out-patients. The present communication is necessarily concerned only with the therapeutic results observed during the period of treatment in hospital.

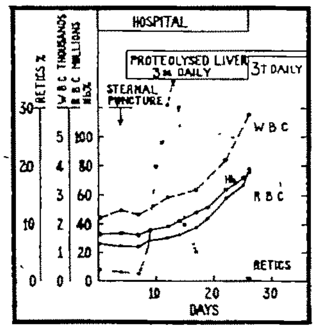
Without exception a satisfactory response was noted within a few days of the institution of treatment. In one case (Case 5) reliable reticulocyte counts were not available, but the progressive improvement in her blood picture left no doubt concerning the effect of treatment. The other four patients all displayed a significant reticulocyte response, which was followed by a progressive amelioration of their clinical and haematological conditions.

The salient features of the cases are displayed for the sake of brevity in the accompanying table, in which are set out the blood counts before treatment and on discharge from hospital, the time and degree of the observed reticulocyte responses, the duration of treatment, and the dosage employed.

Summary of Results of Oral Administration of Proteolysed Liver in 5 Typical Cases of Addisonian Pernicious Anaemia (These data are relevant only to the period of treatment in hospital)

*Blood Counts	Case 1 aged 72	Case 2 aged 50	Case 3 aged 60	Case 4 aged 51	Case 5 aged 44
Hb *a*	23%	32%	35%	44%	50%
,, *b*	61%	75%	75%	80%	83%
R.B.C. (millions):					
a	0·88	1·28	1·37	1·71	1·84
b	2·85	3·88	3·70	3·86	3·54
Rise during first 2 weeks of treatment	1·08	0·92	1·01	0·57	1·11
Colour index:					
a	1·30	1·25	1·28	1·30	1·36
b	1·07	0·97	1·01	1·04	1·17
W.B.C.					
a	—	2,200	2,500	2,200	4,000
b	—	5,800	7,800	4,800	5,400
Reticulocytes:					
Maximum response	35%	35%	17%	22%	—
Time of maximum response	9th day	8th day	7th day	12th day	—
Time of commencement of response	4th day	4th day	4th day	5th day	—
Duration of treatment	34 days	21 days	29 days	20 days	20 days
Dosage daily	℥j	℥ss	ʒij	ʒij	ʒij

* Under this heading "*a*" refers to the count before starting treatment, while "*b*" refers to the final count before discharge from hospital.



Graph showing response to treatment with oral proteolysed liver in a case of pernicious anaemia (Case 2).

The average rise in red cells per c.mm. was 0.94 million during the first two weeks and 1.74 millions during the first three weeks of treatment. As regards dosage, an adequate daily dose appears to be two drachms, but in certain resistant cases it is possible that a larger amount may be desirable. It should be noted that this amount is derived from less than two ounces of raw liver. Since half a pound of raw liver is the usual minimal daily quantity necessary to produce a satisfactory response in pernicious anaemia, it would seem that proteolysed liver is relatively much more effective.

Details of one typical example are given herewith.

Illustrative Case

The patient, a married woman aged 50 (Case 2 of table), gave a history of pallor, increasing breathlessness on exertion, palpitations, nausea, and flatulence of several months' duration. Latterly she had also complained of a sore tongue and tingling of her extremities. Physical examination revealed marked pallor with slight icterus. Nutrition was slightly below standard. The tongue was atrophic. The liver and spleen were slightly enlarged. No enlargement of lymph glands was noted. No evidence of purpura was seen.

Laboratory Examination.—Icteric index, 25; gastric analysis—histamine-fast achlorhydria; Wassermann reaction negative; sternal puncture—cellular megaloblastic marrow with some maturation arrest of the granulocytes. Peripheral blood examination showed a picture typical of pernicious anaemia in the stage of relapse. Further details of blood counts are shown in the accompanying chart.

Treatment.—Proteolysed liver extract was given orally in daily doses of one tablespoonful.

The patient was discharged from hospital 21 days after admission with a great improvement in her physical condition and a gain of 2·6 million red cells per c.mm. She was instructed to continue taking proteolysed liver, one teaspoonful daily.

Discussion

It is not our purpose to advocate the routine use of proteolysed liver in the treatment or maintenance of classical cases of pernicious anaemia. In such cases the existing practice of parenteral injection of reliable liver extracts is economical and effective, and in maintenance treatment has the advantage of assuring that the patient actually receives a known amount of liver extract regularly.

A consideration of obvious importance is that of cost. If it should prove practicable to market proteolysed liver at a price that will enable the cost of treatment with it to compare favourably with existing parenteral therapy, the former preparation would have advantages in the treatment of certain classes of patients—namely, those who may be situated in circumstances rendering regular injections inconvenient, those who object to injections, and those who are allergic to liver extracts injected parenterally.

It is in the field of refractory anaemias, however, that this preparation may find its most valuable application. These anaemias include cases idiopathic in origin, cases associated with pregnancy and the puerperium, and those resulting from nutritional disorders such as sprue. Although a study of the literature may lead to the conclusion that these refractory anaemias are extremely rare in temperate climates, our own experience during recent years has led to a contrary opinion.

Personal observations in support of this suggestion have recently been made on three such cases of refractory megaloblastic anaemia of idiopathic origin, which are responding to oral administration of proteolysed liver. The details of these cases are not now submitted, as it is felt desirable to continue their observation for a longer period and to await the opportunity of studying additional cases.

It is also possible that various factors present in proteolysed liver additional to the liver principle of Castle may render this preparation of value in the treatment of certain anaemias associated with a normoblastic bone marrow.

Summary

A method is described for the production of a palatable and readily assimilable whole-liver preparation by means of enzyme digestion of raw liver with papain.

The name "proteolysed liver" is proposed for the resultant product.

Proteolysed liver administered orally has proved effective in the treatment of five cases of Addisonian pernicious anaemia.

The possible value of proteolysed liver in the treatment of classical pernicious anaemia and of refractory megaloblastic anaemias is discussed.

[*Note.*—It is necessary to state that proteolysed liver is not at present available commercially.]

Our thanks are due to Prof. D. M. Dunlop for allowing us to use two patients under his care for the purpose of this investigation.

REFERENCE

Shaw, G. E. (1939). *Quart. J. Pharm. & Pharmacol.*, **12**, 541.

THE RELATION OF SUNLIGHT TO DESERT SORES

BY

J. M. HENDERSON, M.D.
Captain, R.A.M.C.

Type of Sore

In the series here described the sores took the form of annular subepithelial whitlows occurring on the exposed surfaces of the limbs, and varying in size from 1 to 3 cm. To lend certainty to the diagnosis of what is undoubtedly a distinct clinical entity, only patients presenting six or more of these lesions were included in the group of 50 cases studied. The cases arrived at an advanced dressing station during July and Aug., 1942. They represent roughly a cross-section of the cases occurring among certain armoured divisional formations during this period. When complications did not arise all were treated as out-patients. Many cases were seen at a very early stage of the disease.

Differential Diagnosis.—The group of sores which are peculiar to desert countries are, in my opinion, those lesions of the exposed surfaces which are commonly seen in the form of subepithelial whitlows, and which are characterized by slowness of healing. Furunculosis is frequently seen in the desert; its differentiation is easy, as the lesions are typical and bear no resemblance to desert sores. Chafing of the feet by ill-fitting boots may give rise to septic sores; these heal rapidly when the cause is removed. Epidermophytosis of the feet may sometimes be complicated by sepsis; a march usually reveals the characteristic erythema and vesiculation of this disease. Insect-bites which have become septic are usually brawny and have a necrotic core. They are not infrequently found on those areas of skin which are exposed only in the sleeping individual—e.g., in the region of the ankles and shin.

Relation of Trauma to Occurrence of Sores

As trauma is an accepted aetiological factor its relation to this series will be described first. It is of considerable interest that 21 out of the 50 patients were unable to account for the presence of the sores. They stated that they did not believe them to be due to injury. In the 29 other cases the majority thought that one or more sores were due to knocks or cuts, but were able to point out a number of sores the presence of which they did not believe to have been caused by trauma. In 6 cases only was the statement made that injury had occurred at the site of every sore.

In cases in which sores are multiple it would therefore seem that a large number appear without history of injury. Bearing this in mind, it is of interest that 19 patients volunteered the information that their sores first appeared as what they described as "water-blisters." Apurulent vesicles were present in only five of these cases when they were first seen by me. Failure to observe vesicles in the majority of instances in which they were described by patients is probably due to the fact that they are present only in the early progressive stages of the disease. In the apurulent stage they vary from 2 to 10 mm. in size. Twelve to twenty-four hours after they are first seen rupture occurs and the sores become purulent in most cases. They become spreading subepithelial whitlows which are resistant to treatment, two to three weeks commonly elapsing before they have healed completely. It is therefore the stage of subepithelial whitlow which is usually seen.

Certain features of the original clear vesicles are of interest. Itch may be experienced in the parent skin for several hours before they appear, but when the vesicles are fully developed they neither itch nor pain. The lack of pain is in marked contrast to the later stages of subepithelial whitlow. When the patient comes for treatment for sores which are fully developed, one or more of these small vesicles may be present of which he is quite unaware. The vesicles were multiple in two of the five cases in which they were observed in this series. I have often seen them on skin which has been reddened by the sun and on the back of the hand, sometimes on skin which was shiny and even atrophic in appearance. Like the later stages in which whitlows have developed, there is no underlying palpable infiltration, nor is oedema of the dermis clinically apparent; marked inflammatory reaction is absent from the surrounding skin. They might thus be described as atrophic in appearance, and closely resemble the vesicles which arise from minute burns or scalds. 0.2 c.cm. of fluid from the vesicle of a colleague was introduced intradermally and aseptically into my own skin at a site corresponding to that of the vesicle of which use was made. No visible reaction occurred in the inoculated area. The vesicular fluid probably does not contain organisms which are markedly pathogenic.

It had to be borne in mind that these vesicles might have been caused by insect-bites. A common origin of this nature is, however, somewhat discounted in so far as they bore no noticeable resemblance to the usual reaction to insect-bite; oedematous papules and petechiae were not seen. Only one case of the series gave a history of having suffered mosquito-bites, and the clothes of the patients were free from lice and fleas. During the greater part of this period of two months the men were in areas in which mosquitoes and sandflies were not prevalent. On the other hand, for one period of three or four days some of these troops were in an area in which they were extensively bitten by mosquitoes, and oedematous papules appeared in large numbers during this short time. None of these papules were observed to develop into the vesicles which have been described, and no noticeable increase occurred in the incidence of desert sores. Insect-bites may occasionally be the cause of this vesiculation; it is unlikely that they are the causal factor in all instances. Similarly, where the vesicles may have resulted from insect-bites it is worth while bearing in mind that the lesion is atypical in the sore-bearing areas, papulation being absent and the lesion taking the form of a vesicle.

In one case which I have seen, though it was not included in the series, the sufferer was a regimental medical officer. Two vesicles were present on the knuckles, and a third had ruptured. He stated that he had definitely knocked the area. As he could be regarded as a reliable witness it is probable that some of these vesicles are the result of knocks that are insufficient to produce either bruising or scarification.

One may conclude that the subepithelial whitlows, or "desert sores," often made their appearance as the result of the skin having been abraded by minor injury. In the case of a large number, however, they first appeared as vesicles, which by their nature indicate intactness of the cuticle. The origin of the vesicles is uncertain. One case of the series had suffered mosquito-bites. A case is noted in which trauma had occurred at the site of the vesicles. In 18 cases, however, the cause was not apparent.

Complications

In this series two patients developed low-grade cellulitis and three adenitis. Lymphangitis was seen in one case of adenitis. There were no cases of diphtheritic palsy. In all five cases in which complications arose they appeared after the sores had been present for some days. They probably signified the contamination of the open sores by relatively virulent organisms.

Coincident Facial Impetigo

In 12 out of the 50 cases impetiginous lesions were present on the face, often in the neighbourhood of the mouth or ears. Thus facial impetigo was observed in one case out of every four. This must be regarded as an unduly high incidence, and leads one to believe that its occurrence is in some way related to the typical subepithelial whitlows of the limbs. In 4 cases impetiginous sores were present on the neck.

The Relation of Season

During the months of March, April, and May, 1942, I saw no cases of the disease, though during the same months a very large number of men were treated at morning sick parade. Cases reporting sick with minor illness were few during June on account of the circumstances of the battle. Case-taking disclosed that only one patient in the series claimed that he suffered from sores all the year round. One man stated that they first appeared in April. In 15 cases the onset occurred during the month of June, and of those claiming onset in July there were 26. Desert sore does not therefore seem to be a disease of the late winter and spring, and cases only begin to appear in numbers in the early summer.

Of those who had not experienced a previous summer in the desert 1 had been in the desert three months, 4 for six months, 24 for eight months, and 1 for eleven months. It is significant that in these cases the sores chiefly made their appearance in either June or July rather than at times related to the duration of their stay in the desert. Only one of the patients spending their first summer in the Western Desert stated that he had previously suffered from desert sore. This turned out to have been in Afghanistan in similar country during 1939.

These cases suggest that the sores mainly appear during the summer. Confirmation of this was sought in the past histories of those patients of the series who had seen two or more desert summers. It was found that out of the 11 patients who had spent one previous summer in the desert 8 had suffered during that summer. The sores had appeared in typical form; they did not recur during the winter months. Of four who had had two previous summers in the desert, all had similar attacks during each of these summers. Only one patient had spent three previous summers in the desert, and he had suffered during all three. Significant statements volunteered by patients were: "They broke out about the same time last year, and the year before that"; and "They appear each year just when the sun gets hot."

In respect of season in the Western Desert, I was able to note the main changes in the weather. During the winter months of December, January, and February the weather is cold, and in 1941-2 cloudy days were numerous. In March, April, and May the cloudy days became less frequent and the weather warmer. By June the days had become relatively cloudless. In July the sun was noticeably hot day after day, and the sunlight relatively intense, giving rise to numerous cases of disturbance of vision. I myself tan deeply, and during July noticed a very marked increase in the laying down of pigment in the skin of my knees and forearms, to an extent greater than I had ever before experienced. The seasonal changes mainly resolve themselves into sunlight and heat factors. It was noticeable that the latter was always greatly modified by the desert wind. This enabled the individual to carry on activities which would otherwise have caused heat-stroke. No cases of heat-stroke were seen.

It would thus appear that, allowing a seasonal incidence of desert sore, the factor most likely to be of importance is sunlight. Bearing this in mind, it was decided to estimate, so far as was possible, the part played by the individual resistance to the sun's rays.

Relation of Orientation of the Individual to Sunlight

Differentiation of individuals resolves itself into two main groups. In the first, marked pigmentation of the skin occurs, and reddening and scaling are absent. In the second, in the extreme case, the exposed skin is unable to adapt itself, and erythematization is the chief reaction to exposure, attended in many instances by dryness of the skin and repeated scaling; the individual often points out that his skin is at this stage abraded by the least knock; he complains that he cannot "take the sun." While many persons fall between these two groups, it seemed from clinical study that it was among the second group that cases of desert sores were most frequently found. As might be expected, the majority of those in the first group also showed the natural evidences of pigment-forming powers; they were most often brown-haired and brown- or grey-eyed. Similarly, lack of pigment-forming power was most common among the fair-haired blue-eyed. The division is not a strict one: a small number of brown-haired, frequently blue-eyed individuals react badly, becoming florid rather than tanning, while a small proportion of the fair-haired develop quite a deep tan.

The percentage of fair-haired individuals occurring among the 50 cases of desert sores was compared with the percentage of fair-haired in a unit the personnel of which were drawn from all parts of Britain. Of the men with desert sores 70% were fair-haired, as opposed to 36% in the control group; and 76% were blue-eyed, as opposed to 28% in the control group. While these figures are drawn from a relatively small number of cases, the disparity is so marked as to indicate that desert sores are much more common among the fair-haired and blue-eyed than among other groups, thus confirming the impression gained by clinical experience. Of the 15 brown-haired individuals who developed the condition 11 were noted to react badly to sunlight.

It may therefore be stated that desert sores tend to occur among those whose pigment formation is below average.

Distribution of Sores

The sores occurred on the surface skin which was exposed. Subepithelial whitlows, however, were seen only on the hands, fingers, arms, and legs. They did not occur on the face and neck, though it has been pointed out that impetiginous lesions were not uncommon in these areas.

Incidence in Susceptible Areas

	Hands	Forearms	Upper Arms	Legs
Incidence in susceptible areas (%)	96	68	4	26
Bilateral (%)	88	32	2	8
Unilateral (%)	8	36	2	18

In the above table sores on the fingers were included under the heading of "hands." As is shown, the hands are most commonly affected. Three factors may be of significance in this respect: (*a*) The hands are most liable to suffer trauma; (*b*) the surface hair is less well developed than on the forearms; (*c*) in the very fair-haired the skin of the back of the hands often becomes red and glazed as a result of frequent and prolonged exposures to sunlight.

In the two cases in which there were sores on the upper arms, sores were also present on the forearms. The sleeves of the shirt were in both cases worn very short, and the effects of exposure to sunlight were as obvious on the upper as on the lower arms. It was characteristic that no sores appeared on the ventral aspects of hands or fingers. They were seen on most of the exposed areas of the forearms. No sores were observed, however, on the area of the skin normally resting against the body in the standing individual. The same part of the skin of the forearm is apposed to the driving wheel, or in the sitting person to the desk or table. Even in deeply tanned individuals it remains free of pigment to a great extent; it appears to be always protected from the sun's rays by posture.

With regard to the knees the sores were more frequently unilateral. The sores occurred here in the areas exposed when wearing shorts and stockings. This area tans uniformly in front and behind. Sores often occurred posteriorly as well as anteriorly.

Four Typical Cases

Case 1.—Trooper A. This case was illustrative of the average mild one. The sores were typical subepithelial whitlows, and were present on the back of the hands and the back of the right wrist. None were present elsewhere. They had first appeared at the beginning of July. Some of the sores he believed to have been due to knocks, but he was unable to account for the presence of others. He states that in the case of one sore, "A big water-blister came up and burst." His hair was fair to ginger and his eyes blue. He volunteered the statement, "My skin sunburns easily"; and again, "If I knock my skin against anything it breaks."

Case 2.—Rifleman B. The sores were very numerous in this case, which was a severe one. Whitlows were present on the back of both hands and on both forearms. One sore was present on the left upper arm, and three on the right upper arm. The sleeves were worn very short. The lower halves of the upper arms were sun-reddened and peeling in the area in which the sores appeared. There were neither sores nor scars on the part of the forearm which rests against the body in the standing individual; they were seen only on the reddened and peeling areas The sores had first appeared at the end of June. The patient believed that the sores were due to knocks in some cases, but not in all. He stated, "I sometimes wake up and look at my hands, and find they are festering." He had spent two previous summers in the desert, and during the second of these had had sores on the knees as well. He believed they had broken out about the same time in each of these summers. He was fair-haired and blue-eyed, reddened rather than tanned, and laid down no pigment in the exposed areas.

Case 3.—Driver C. This case is characteristic of the 19 who volunteered the information that their sores first appeared as "water-blisters." The sores were typical. They were present on the right forefinger, the back of the right hand, and on the right elbow. One was present on the left upper arm, one on the right knee, and one on the left knee. They first appeared at the beginning of July. He had been in the desert for eight months and had had no previous attacks. He was dark-haired and blue-eyed. He was florid in type, and stated, "I keep getting red and peeling."

Case 4.—Sergeant D. This case is of interest in view of the past history. The sores when first seen were very numerous and were present on both hands and knees. They had first appeared in July. This soldier had been in the desert for 40 out of the preceding 48 months. In 1939, when he first came up to the desert, short-sleeved shirts were being issued. During the summer of that year he suffered desert sores on the forearms as well as on the hands. Long-sleeved shirts were issued at the end of the year, and he wore the sleeves down, as he had found that the least knock took off the skin of the forearms, and the site of the knock went septic. He also found that since he had worn his sleeves down desert sores had not occurred on his forearms. He believed that his sores appeared only during the summer months. He was of the opinion that none of the sores were due to injury. They had all come up as clear vesicles, which he described as "sweat-blisters." His hair was fair and he was blue-eyed; he was very susceptible to sunburn.

Discussion

It has been shown that the multiple desert sores of this series appeared only in the areas of the limbs which were exposed to sunlight. In two cases in which sores were present on the upper arms shirt-sleeves were worn very short. One patient had discovered during a previous summer that he was able to avoid sores on the forearms by wearing his sleeves down. The sores were found chiefly in individuals whose powers of adaptation to sunlight were below average. They appeared in almost epidemic fashion at the beginning of the desert summer, of which the main characteristics are increased duration and intensity of sunlight and rise in temperature; the latter factor is modified by the more or less constant desert wind.

It would thus seem that the effects of sunlight play an important part in the aetiology of the sores. It is well known that, in the fair-haired especially, marked changes occur in the exposed skin as a result of repeated and prolonged exposure. The skin becomes erythematous, and frequent scalings take place. Eventually it is found that the least knock takes off the skin. This factor would appear to be of importance in cases in which sores follow slight trauma.

On the other hand, a large group existed in which the individual either was unable to give any history of trauma or believed that the site of only one or two sores had been injured. In spite of this, these cases often showed as many as 10 to 15 sores in the exposed areas, numerous sores being present on the forearms, where minor injuries or "knocks" are not noticeably frequent. Similarly, in a large number of cases the sores were stated to have first appeared as "water-blisters" or vesicles, and in some instances these vesicles were observed. If trauma had given rise to the latter it could only have been minimal, as the fact that the lesions took the form of vesicles precluded rupture of the cuticle. The vesicles were most often found on the areas of skin which were most exposed to sunlight, and in a few cases this skin had become both erythematous and atrophic in appearance. For the reasons which have already been detailed, it is most unlikely that they all followed insect-bites. Only one out of 19 patients stated that he had been bitten by mosquitoes; one other case is described in which the vesicles followed minor trauma. The origin of the vesicles is therefore obscure in a large number of cases. Since many appeared on areas which had been chronically sunburned, it may be that they represent a delayed reaction to excessive sunlight, the vesicles developing either on damaged skin as a result of additional sunburn or from minor and unrecognized trauma, the threshold of the injury having been lowered as a result of the changes in the skin. It is of interest to note that the vesicles resembled small burns or scalds in their clinical characteristics. They were the precursors of many typical desert sores which arose as a result of secondary infection of the vesicles.

The desert soldier tends to suffer excessive exposure to sunlight, and the reasons for this are not obscure. In the forward areas shelter from the sun's rays is lacking. Tents are not pitched by combatant units, as they lessen mobility and are aids to observation from the air; they are also hindrances to effective dispersal. Even the shade provided by vehicles is denied to many by the nature of their duties—e.g., gun crews, Bren-gun carrier personnel, tank and armoured-car commanders, drivers of open trucks. No shade is provided by Nature. Personnel are therefore subjected to repeated and prolonged exposure to sunlight, which in other circumstances they would avoid.

Sand may act as a foreign body and delay healing where contamination occurs, though it should be possible to avoid this if the sores are seen early and are effectively dressed. Flies may be of importance in transferring virulent organisms; in fly-infested regions they may cluster on the sores even while the dressing is being changed. While the possibility of vitamin deficiency cannot be discounted in an appraisal of the aetiology of these sores, the absence of any of the features of scurvy in cases of desert sores would appear to indicate that deficiency of vitamin C is not of major importance. Also, sores have been seen to develop in desert troops who were receiving an apparent sufficiency of fresh food (personal communication of Colonel Ardagh, N.Z.M.F.).

Notes on Preventive Treatment

The following measures have been adopted so far as is possible in cases which I have seen recently:

1. Patients have been instructed to wear their sleeves down. Where the sleeves showed signs of having shrunk the men were told to exchange their shirts for ones with longer sleeves. Protection of the forearm is thus provided against trauma, the effects of sunlight, and insect-bite. If the sleeves are long enough some degree of protection is also afforded to the hands.

2. For the same reasons the susceptible were also advised to wear long trousers.

3. The difficulty of adequately protecting the hands and fingers is apparent. A supply of vanishing cream or of oil, preferably containing a small amount of antiseptic, might be helpful. It would have to be applied to the hands each morning after washing, as washing would destroy the protective film. Only the susceptible of a unit, usually well known to the medical officer by reason of many visits to the M.I. room, would need to be so supplied.

It is of interest to note that some "desert rats" who had experienced previous summers in the desert, and who were susceptible, had obtained a supply of germolene and of elastoplast while on leave. They had found that these were the most useful proprietary medicaments for the occasions on which duties compelled them to spend periods at some distance from the nearest medical officer.

Summary

It has been shown that the desert sores of this series bore a marked relation to exposure to sunlight.

It has been emphasized that changes are observable in the exposed skin of those who are susceptible to sunlight. It was in the exposed areas that the sores appeared, sometimes following trauma; in other cases, however, a history of trauma was not obtainable.

Small clear vesicles, resembling minute burns or scalds, were observed to be the precursors of many of the sores. In one such case these vesicles may have resulted from insect-bites; in another they probably followed minor trauma. In the majority of instances no definite aetiological factor could be elicited; the possibility that sunburn contributed the final trauma cannot be discounted.

It has been observed that, in the desert, various factors contribute towards an abnormal degree of exposure to sunlight.

The annual general meeting of the Society for Relief of Widows and Orphans of Medical Men was held on May 12, with Dr R. A. Young in the chair. By the death of Mr. Warren Low the society has sustained a great loss; he had been president for thirteen years and always took the greatest interest in the society and its work. Dr. R. A. Young was elected president in his place. The annual report for 1942 showed that 56 widows had been granted relief and £4,412 distributed. One of the widows died at the age of 95; she had been in receipt of grants for 46 years and had received from the society nearly £4,000. Relief is granted only to the necessitous widows and orphans of deceased members. Membership is open to any registered medical man who at the time of his election is residing within a twenty-mile radius of Charing Cross. Full particulars and terms of subscription may be obtained from the Secretary, 11, Chandos Street, Cavendish Square, W.1.

LYMPHOGRANULOMA INGUINALE (TROPICAL BUBO)

BY

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With men of the Services scattered throughout the world it is certain that some tropical diseases will be met with increasingly in the United Kingdom. In times of peace small numbers of cases have always been encountered at seaports, but they are now arriving at inland hospitals; and some of the less-well-known ones will at first puzzle those whose lot it is to treat them.

One of the diseases very common among the natives of West Africa is tropical bubo, or lymphogranuloma inguinale ("L.G." for short), and as it also affects Europeans, though in smaller numbers, it will from time to time appear in hospitals at home. Having recently returned from a continuous service of 20 months in Sierra Leone, during which time my colleagues and I saw well over 300 cases of this disease, including about 30 in Europeans, a brief description of it based on this experience may be of help to those meeting their first few cases.

Aetiology.—It is a virus disease of venereal origin, occurring in the Tropics. It affects both sexes—the men by a primary lesion on some part of the genitalia, followed by enlargement of the glands in the groin; the women by vulvovaginitis, esthiomene, and proctitis, the last-named leading to stricture of the rectum, of which I saw very few cases, and these only while working for three months at Colonial Medical Service hospitals during 1941. Only as the condition affects the male will it be discussed here.

Symptoms

The primary lesion—in the form of one or more very small vesicles, pustules, or ulcers, rather like herpes, usually on the glans and inner surface of the prepuce, but also sometimes on the body of the penis—develops within a few days of intercourse, and unless complicated by superimposed infection is of fleeting duration. It causes little or no discomfort, and the patient scarcely ever presents himself at this stage. A few weeks later—3 to 8 weeks—a gland in one or both groins enlarges, usually at the inner end, though not uncommonly at about the middle, and on two occasions I saw the outer ones involved. By this time the primary herpetiform lesion has usually cleared up, though where the glands have enlarged early several minute scabs may remain as evidence; but, as has already been said, the primary lesion is essentially fleeting, and more often than not is entirely unnoticed by the patient, and therefore denied. This may be because, in the uncircumcised, if the prepuce is long and tight, where washing facilities are restricted owing to water shortage, or when the man has never been taught the wisdom of keeping himself clean, it is not uncommon to get a mild balanitis, so that the man thinks the primary of L.G. the same thing. However, L.G. is not confined to the uncircumcised.

It is therefore almost invariably for the enlargement of the glands that the patient seeks advice, and this rarely less than three weeks, and usually around six weeks, after the risk of infection. At first it may be entirely painless, in which case the patient either reports in order to find out the significance of the swelling, or not at all. Later on, however, pain develops. The condition then progresses through such constant phases that definite stages may be recognized: I have described these in official reports, and I repeat them here since the classification is a useful one upon which to base treatment and prognosis. It was described in 1942 in the *West African Military Medical Journal*, in collaboration with Major W. A. Law, R.A.M.C.

Stages of the Condition

Stage I.—A solitary, elastic, freely movable gland, adherent to neither skin nor deeper structures. Little or no constitutional disturbance. Rarely tender, but physical activity may cause pain.

Stage II.—The solitary gland becomes adherent to the skin and deeper structures, and there is a tendency for surrounding glands to enlarge, becoming fused with the original one. In Europeans it is common for the glands along the external iliac artery to be involved, sometimes forming a large mass above Poupart's ligament, and later spreading up to the common iliac and even aortic glands. In some instances there is a brawny mass in the groin, with *peau d'orange* appearance of the skin. The mass is tender and painful but non-fluctuant, and the constitutional upset considerable: temperature up to 103° F., pulse around 100, malaise, anaemia, bronchitis, jaundice, etc. This constitutional disturbance is always more pronounced in the European than in the native. A section of the original glands at this stage has a very characteristic appearance, looking like a gland packed with tiny abscesses.

Stage III.—The original mass, be it large or small, softens in one or more places, and fluctuates, and the general condition of the patient improves. I have never seen the glands along the external iliac artery break down. On section the softened area consists of a cavity broken up by interlacing trabeculations of fibrous tissue and containing sterile, glairy, sticky fluid that adheres to the knife, the whole process being the result of coalescence of the earlier tiny points of necrosis.

Stage IV.—Spontaneous fistulation has occurred and secondary infection quickly follows.

Comments on Diagnosis

It is, of course, essential to examine thoroughly for any other source of infection. Ulcers are so common on the legs of natives that doubt may arise as to the true nature of the glands. In the same way abrasions on the skin, chafing by the boot, athlete's foot, etc., may be a source in the white man. The Frei intradermal test will here be of great help, and gives a reliable result in 90% of cases. Small lesions in the urethra have been described, but none was seen in a series that we urethroscoped. General congestion of the urethra, on the other hand, was common.

In brief, it may be said that a mass confined to one or both groins, conforming to any of the four stages described, in the absence of any other possible source of infection and with a positive Frei test, spells lymphogranuloma inguinale. The condition most likely to be confused with it in Europeans is tuberculous glands, and we made this error in our first European case. However, the Frei test was not then available, but is the differentiating point.

Treatment

There is no doubt that among natives a number of cases never pass beyond Stage I, and subside spontaneously without the men ever reporting sick. It is an observed fact, too, that in some of those reporting in Stage I and put to rest in their billet for a few days the condition subsides spontaneously. But the difficult case is the Stage II one that in spite of rest shows no improvement but rather a worsening. It is to such cases that this communication especially draws attention, since the European behaves in this manner—hardly ever clearing up spontaneously, even in the rare event of not progressing beyond Stage I; the vast majority pass well into Stage II with marked constitutional effects. The various lines of treatment available are as follows:

1 Rest in Bed.—Local applications of heat to the glands by fomentation, antiphlogistine, or radiant heat and infra-red lamp.

2. Intramuscular injections of anthiomaline (10 to 20 injections), an antimony preparation, as described by Major W. A. Law in the paper already quoted.

3. Intravenous injections of sodium antimony tartrate.

4. Large Doses of Sulphonamide.—We began with sulphapyridine, giving as much as 96 g., spaced over 3 to 4 weeks, in three courses. Careful watch on the white cell count must be kept. Later on, because of the higher price of sulphapyridine, we ran a series on sulphanilamide, using about the same amount, at roughly one-third of the cost. Later on still, we treated some natives with intramuscular injections of a suspension of sulphapyridine in water. This requires about one-quarter of the above amounts, and was seemingly just as successful. The method was a natural sequel to the highly successful treatment of gonorrhoea in this way by Capt. England and others on the West Coast. Care has to be taken not to inject the drug near a large nerve root, as cases of permanent interstitial neuritis have been reported, though no accident occurred at a general hospital where this work was carried out. In order to avoid the risk of such a catastrophe the vastus externus muscle is the site of election.

5 Injections of triple typhoid vaccine (T.A.B.) 50 millions intravenously—about six injections at three-day intervals.

6. Surgical Excision.—We tried a small group of cases by this method. Those in Stage I do well, healing by first intention and requiring about ten days' hospitalization followed by a week's convalescence. Early Stage II cases can be treated by excision too, but the wound is liable to become moist, and in the brawny stage surgical intervention is contraindicated, the wound always breaking down.

Comments on Treatment

The untreated Stage II case will never resolve spontaneously—it tends to linger in Stage II for weeks and then the mass breaks down. Treatment by local heat hastens this breaking-down process but rarely encourages resolution. The various drug methods, on the other hand, cause a large proportion to resolve—often quite quickly; but even where this does not occur the mass breaks down quickly, and so in either event a prolonged Stage II is avoided. The majority of cases treated with anthiomaline, sodium antimony tartrate, sulphonamides, or T.A.B. are cured, apart from a little residual thickening in the groin, and fit to return to their units in 3 to 4 weeks; anthiomaline is perhaps the best by a few days, but it is expensive. Its chief advantage is that, where constitutional reaction is not great, it can be given to the man in his unit M.I. room, whereas the others require bed treatment. However, as most Europeans do get a marked constitutional disturbance, the point is not so important.

Stage III has been treated in many ways, and there is a natural temptation to incise the fluctuating swelling. This, however, is the worst possible treatment, for experience shows that secondary infection rapidly develops and the wound continues to discharge for weeks. All are agreed that under no circumstances should incision ever be practised. The best treatment is aspiration, which may have to be at several points because of the tendency to loculation, and it may have to be repeated once or twice. It must be carried out with aseptic precautions, and the punctures should be covered with a patch of sterile gauze and elastoplast. Another method is to use a seton, and a piece of silkworm-gut transfixing the cavity serves well, though the device is not so satisfactory as aspiration.

The treatment of Stage IV is really the treatment of the secondary infection; a combination of dry heat and sulphonamides, with rest in bed, is necessary, and is eventually effective.

Recurrence.—A small proportion of our 300 cases showed recurrence of the glandular swelling, but this soon subsided under the influence of a second, shorter, course of the original treatment.

I should like to acknowledge the work of the various officers who successively took charge of the V.D. Department, and to express thanks to Colonel L. A. Harwood, T.D., the commanding officer of this unit, for permission to publish these cases.

ARSENICAL ENCEPHALOPATHY

A COMPLICATION OCCURRING DURING THE TREATMENT OF SYPHILIS

BY

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AND

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The results obtained from the adequate treatment of syphilis with arsenical compounds are among the most gratifying in medicine. Most of the lesions disappear rapidly, and in the primary and secondary stages the Wassermann reaction is quickly reversed to normal, while subsequent treatment in these stages invariably results in a complete cure. The treatment, however, is not without the risks attendant on the administration of a powerful drug, and the toxic effects of arsenical therapy are many and varied. Fortunately the vast majority are mild, and the more severe types, such as deep jaundice and exfoliative dermatitis, are relatively uncommon. But it is to one of the rarest and most fatal complications, haemorrhagic encephalopathy, that we wish to draw attention.

During the past 18 months we have had opportunity of witnessing four cases which we consider typical of this condition. These patients were admitted to the wards after treatment as out-patients at the local clinics, and they are the first cases recorded during the nine years' existence of the wards.

Case I

A man aged 50 first attended the out-patient department on Nov. 21, 1940, with lymphopathia venerea. A positive test to Frei antigen was obtained. A Wassermann test was made as a routine measure; the result was doubtful. Four days later the test was repeated, and a strongly positive reaction was obtained. The patient gave a vague history of a penile ulcer in 1910. On Nov. 28, 1940, he began a course of mapharside and bismuth consisting of alternating bi-weekly doses of 0.04 g. and 0.06 g. of mapharside, and bismuth 0.2 g. bi-weekly. Five injections were given, and on the day following the last he was admitted to hospital in deepening coma. The pupils were small and equal, but responded to light. His knee- and ankle-jerks were present and equal, and the plantar response was flexor. His respirations were stertorous and he was doubly incontinent. There was no paralysis of the limbs, and the attitude of the hands and feet was at times strongly suggestive of tetany. Lumbar puncture showed that the fluid was under slight pressure. Fifteen c.cm. was removed, and 1 c.cm. of adrenaline was given four-hourly Subsequent examination showed the cerebrospinal fluid to be normal. The temperature, which was 100.4° F. on admission, rose within a few hours to 104.2° F., and the man died.

At necropsy the brain was extremely congested on the surface. The cut surface showed very marked congestion of the small blood vessels in the white matter of both hemispheres. Microscopical examination revealed minute haemorrhages surrounding the small vessels. The only other positive finding was a pronounced fatty change in the liver.

Case II

A woman aged 22 attended the clinic with a gummatous ulceration of the hard and soft palates and ulceration of the left tonsil. Her father had a history of syphilis, and she was considered to be a case of congenital tertiary syphilis. She was 27 weeks pregnant. Her Wassermann reaction was strongly positive. Treatment began on March 10, 1942, with N.A.B. 0.3 g. and Bi 0.2 g. The patient returned on March 17 and was given N.A.B. 0.45 g. and Bi 0 2. On March 19 she complained of some headache and dizziness. She relapsed into coma and was admitted to hospital with athetoid movements of the left hand. On lumbar puncture the cerebrospinal fluid was under slight pressure. About 10 to 15 c.cm. was removed, and adrenaline 1 c.cm. was given. A slight increase in protein was found in the fluid. In a few hours the temperature had risen to 109° F., and the patient died.

Examination of the brain showed haemorrhages arranged in a symmetrical fashion in the medulla, both hemispheres, and the corpus callosum. The haemorrhages were punctiform and grouped together, occasionally coalescing to form a larger haemorrhage. They were particularly numerous in the white matter surrounding the basal ganglia, but were also present in the basal ganglia themselves.

Case III

A 24-year-old multipara was admitted to hospital on Jan. 29, 1941 It was her third pregnancy, the previous two having been stillbirths. She showed no clinical signs of either acquired or congenital syphilis The Wassermann reaction and the Meinicke test were both strongly positive. She was then 32 weeks pregnant.

Treatment was given as follows. Jan. 30: N.A.B. 0.15 g., chlorostab 0.16 g. Feb. 3: N.A.B. 0.3 g. Feb. 6: N.A.B. 0.3 g., chlorostab 0.16 g.

Subsequent Course of Events.—Feb. 7: Patient complained of headache and nausea, vomiting once or twice. Feb. 8: The vomiting restarted and increased in severity. Eventually she became irrational and delirious. On examination there was no evidence of oedema or of renal tenderness. Her blood pressure was 155/90. A catheter specimen of urine showed no albumin, but sugar a trace and acetone ++. On auscultation the foetal heart was heard. A provisional diagnosis of toxaemia of pregnancy was made. An intravenous saline drip was set up and morphine given. Feb. 9: The patient was now comatose. There was spasticity of the arms, pupils were unequal, and the right plantar reflex gave an extensor response. Nothing abnormal was observed in the fundi. A lumbar puncture was done for diagnostic purposes. The cerebrospinal fluid was clear and not under pressure. There was no blood present. Treatment was given to reduce the cerebral oedema—viz., 50 c.cm of 50% glucose intravenously and a solution of mag. sulph. 50% P.R. In the evening of Feb. 9 the patient died, the temperature rising to 104.4° F. before death.

Post-mortem Report.—Brain : There were punctate haemorrhages in the centrum ovale and in the roofs of the lateral ventricles. Microscopical examination showed multiple haemorrhages into the white matter. These usually had an obvious perivascular distribution

Both "ring" and "ball" haemorrhages were present. Perivascular demyelination as described by Russell (1937) was particularly looked for, but no evidence was found with either the Marchi or the Loyez modification of the Weigert-Pal method *Liver:* Microscopical examination showed marked cloudy swellings with occasional subcapsular haemorrhages. *Spleen:* Enlarged and soft; subcapsular haemorrhages and petechiae on the cut surface. *Kidneys:* Right showed subcapsular haemorrhages. The cortex was pale, with engorged vessels and glomeruli. The left kidney showed similar changes but no subcapsular haemorrhages. The *suprarenals* appeared normal.

The foetus was examined, particularly the liver. No *Spirochaeta pallida* were demonstrated, nor was there any evidence of syphilitic cirrhosis.

Case IV

A primigravida aged 18 was admitted to hospital on Oct. 29, 1941. She was then 20 weeks pregnant. On examination she was found to have a primary sore of the vulva (*Sp. pallida* +). The Wassermann reaction and Meinicke test were both weakly positive. Treatment was given as follows: Oct. 30: N.A.B. 0.15 g., chlorostab 0.16 g. Nov. 4: N.A.B. 0.3 g. Nov. 7: N.A.B. 0.3 g., chlorostab 0.16 g.

Subsequent Course of Events.—On the evening of Nov. 9 she complained of slight headache, and retired early to bed. The following morning she was stated to have had a fit. When seen a few hours later she was stuporous. There was no neck rigidity; the pupils were equal and reacted to light. Both plantar reflexes gave a flexor response. Heart and lungs were clear. Her blood pressure was then 150/90. A catheter specimen of urine contained a trace of albumin only. The blood urea was 42 mg. per 100 c.cm.

A diagnosis of haemorrhagic encephalitis was made Treatment consisted of repeated drainage of the theca. The first lumbar puncture was done within five hours of the fit.

C S.F. Laboratory Data

	10/11/41	11/11/41	12/11/41	14/11/41	21/11/41
Amount withdrawn	45 c.cm.	30 c.cm.	20 c.cm.	10 c.cm.	5 c.cm.
Appearance ..	Clear	Clear	Clear	Clear	Clear
Fibrin clot . .	None	None	None	None	None
Total protein ..	0·09%	0·12%	0·14%	0·09%	0·04%
Globulin . .	Increased	Sl. inc.	Sl. inc.	Sl. inc.	Normal
Sugar	Normal	Normal	Normal	Normal	Normal
Chlorides .. .	Normal	Normal	680 mg.	650 mg	Normal
Lange .	Negative	Negative	Negative	Negative	Negative
Cells (lymphocytes)	2 per c.mm	2 per c.mm	2 per c.mm.	2 per c mm.	2 per c mm.
W.R. ..	Neg. in all dilutions				Neg. in all dilutions

In addition to drainage of the theca by lumbar puncture 10 c.cm. of mag. sulph. 20% was given intravenously twice during Nov. 10, and thereafter hypertonic mag. sulph. P.R. The patient was kept under the influence of morphine. On Nov. 11 a morbilliform rash appeared on the neck, breasts, and shoulders. This rash disappeared within 24 hours. The maximum temperature was 101.2° F. on Nov. 12; on Nov. 13 and thereafter it was normal. Gradually the patient improved, and two days after the onset of the condition was fully conscious and alert. For a further four to five days she remained irritable and restless. Finally she became her usual self in behaviour and intelligence. A blood Wassermann reaction and Meinicke test done on Nov. 25 were both negative. Antispecific treatment with bismuth was started on Nov. 28, and thereafter was continued at the out-patient department.

On March 11, 1942, she was delivered spontaneously of an apparently healthy full-time male infant, whose weight at birth was 6 lb. 13 oz. The Wassermann reaction of the cord blood was negative and no *Sp. pallida* were demonstrated in the umbilical cord. On April 24 a blood test was done on the child, the Wassermann reaction and the Meinicke test being negative. Radiographs of the long bones revealed nothing abnormal.

Discussion

The so-called haemorrhagic encephalitis is the most fatal of all complications resulting from arsenotherapy. Fortunately it appears to be very rare. Stokes (1934, 1939) observed one case in 63,000 injections. Glaser, Imerman, and Imerman (1935) in a review of the subject found one death due to cerebral complications in every 5,398 cases treated and in every 28,768 injections. Paley and Pleshette (1939) reported one fatality from haemorrhagic encephalitis among 1,200 treated cases of pre-partum syphilis. It is stated that males are slightly more often affected; but of females reported over 70% were pregnant. They were apparently healthy adults, the average age being 22.5 years. The ante-natal cases were usually primigravidae, and the average duration of pregnancy was 5.5 months. In our series of cases the ages were 50, 22, 24, and 18 years. All three females were pregnant. The periods of gestation were 27 weeks, 32 weeks, and 20 weeks respectively. From our own limited experience we suspect that the condition is not so rare as the figures quoted suggest. It is conceivable that such cases might be admitted to medical and ante-natal wards, where, in ignorance of recent antispecific treatment having been given, the diagnosis is not made.

The mortality rate is high. Most cases terminate fatally, although recovery has been reported in several instances by David Lees (1940), Netherton (1934), Dickens (1928), and Parnell and Dudley (1920).

Pathology

The pathological changes are most pronounced in the white matter of the brain, although similar lesions are found to a less extent in the grey substance. It is stated that the sites most frequently involved are the corpus callosum, the caudate and lenticular nuclei, the pons, and the medulla. Globus and Ginsburg (1933) in their description of two cases following arsphenamine therapy indicated that the main central lesions were "ring" haemorrhages. The haemorrhages were pericapillary, and there was no evidence of inflammation. These authors suggested, therefore, that the term "pericapillary encephalorrhagia" was more appropriate than "haemorrhagic encephalitis." In addition to these characteristic haemorrhages reactive gliosis was present in the neighbourhood of the affected blood vessels.

In our post-mortem reports these pathological findings have been confirmed. Pathologists agree, however, that such lesions as described are not peculiar to arsenical encephalorrhagia. They have been observed in association with many diseases.

Treatment

Since the majority of cases are rapidly fatal and are recognized only at necropsy, there is in the literature a paucity of information regarding the relative merits of suggested modes of treatment. In the one case of our series which did recover, repeated drainage of the theca was efficacious. This was instituted 5 hours after the occurrence of the initial convulsion and therefore, one may conclude, before the onset of any appreciable brain haemorrhage or necrosis. In addition this patient was kept under the influence of morphine. Other writers have suggested such procedures as venesection, the giving of large doses of adrenaline intramuscularly, repeated intravenous injections of sodium thiosulphate, calcium preparations, snake venom, and continuous inhalations of oxygen with intravenous injections of urotropin and caffeine.

Theories

The theories as to the cause of haemorrhagic encephalitis are numerous and, examined individually, are not altogether conclusive. As regards the toxicity of the drug administered, no trivalent arsenical is free from the risk of producing this condition. Sulpharsphenamine is stated to be associated with a higher incidence than the other members of the group. N.A.B. and mapharside, the drugs used in the cases reported, are considered to be less toxic than many, and, moreover, the N.A.B. was dissolved in 10 c.cm. of 10% sodium thiosulphate.

The dosage does not seem to play a prominent part in the aetiology, since the largest dose of N.A.B. given was 0.45 g. and of mapharside 0.06 g. Of the other causative factors cited by previous observers, none of our cases showed evidence of chronic arterial disease nor of liver or adrenal insufficiency.

It is reasonable to suppose that pregnancy must have some bearing on the aetiology, since, as already quoted, of women with haemorrhagic encephalitis 70% were pregnant. In one of our cases toxaemia of pregnancy was considered as a provisional diagnosis, and it is possible that an additional toxaemia due to pregnancy may be a predisposing factor. On the other hand, in our own experience a large number of women with ante-partum syphilis, many of them with marked general debility, have been treated with trivalent arsenicals without developing haemorrhagic encephalitis. Furthermore, during treatment a small proportion have presented definite signs of toxaemia of pregnancy. These did not become cases of haemorrhagic encephalitis.

Our post-mortem findings would appear to support the theory of direct toxic action on the brain capillaries. The reason for this apparent selection is obscure, and our observations throw no new light on this aspect. From the study of the four cases reported one interesting feature emerges—namely, the interval between the first injection and the onset of the condition. It is not without significance that in three of them haemorrhagic encephalitis occurred about the tenth day after beginning treatment—a time when it is not uncommon to find other signs of intolerance to arsenic in the syphilitic patient. Indeed, one of our patients did manifest a concomitant morbilliform rash. Haemorrhagic encephalitis does occur in patients receiving arsenical therapy for non-syphilitic nervous disorders, but not with the same characteristic time interval. Therefore one may assume the syphilitic infection itself cannot be excluded as a factor in the aetiology.

Finally, two extraneous factors may be mentioned. It will be noted that these four cases occurred in winter-time, when as a general rule vitamin intake is at its lowest, especially vitamin C. Also they have been reported since the onset of the war. Conditions in wartime naturally impose greater mental stress and strain on the individual, and more so on the patient with syphilis.

Conclusion

Haemorrhagic encephalitis is a rare complication of treatment with arsenic in syphilis.

It is impossible to determine in advance the type of individual who will develop this complication, but the pregnant woman with syphilis should be regarded as a "potential reactor."

The clinical signs are those of cerebral irritation, and may be preceded by such symptoms as headache and dizziness.

The condition is rapidly fatal unless diagnosis is prompt and treatment immediate.

We wish to thank Dr. Ross and Dr. Sanderson for kindly allowing us access to their case.

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A CASE OF HAEMORRHAGIC ENCEPHALOPATHY FOLLOWING ARSENICAL THERAPY

BY

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The following case of arsenical encephalopathy is thought worthy of publication in view of the few references to this complication of arsenical therapy in recent British literature, and also because of the increasing incidence of syphilis at the present time.

Cases in the Literature

Serious cerebral complications following treatment with arsenical preparations are fortunately rare. Haemorrhagic encephalopathy or serous apoplexy is a complication of arsenical therapy which usually ensues within two or three days of the second or third injection of an arsenical preparation. The onset is characterized by drowsiness, irritability, and depression, followed by epileptiform convulsions and coma. The prognosis is bad unless cases are recognized early and prompt treatment is instituted. Lees (1937) mentions nine cases, five of which recovered. Winter (1940) describes a case of primary syphilis in a healthy young adult in which symptoms developed two days after the second injection of an arsenical preparation. The early symptoms in Winter's case were slight nausea, headache, and feverishness. Examination revealed a scarlatiniform rash on the trunk, limbs, palms of the hands, and soles of the feet. The temperature rose to 104° F., the rash became more marked, and oedema of hands and arms developed. Vomiting was a feature, but mental and nervous symptoms were lacking. The rash became purpuric, and about 48 hours from the onset mild mental symptoms developed, followed by loss of consciousness and death. Necropsy revealed oedema of the brain and multiple haemorrhages throughout the brain substance. Friedman and Newman (1941) describe a case of encephalitis in a syphilitic subject aged 28; again the symptoms appeared shortly after a second dose of an arsenical preparation. These symptoms were epileptiform convulsions, projectile vomiting, and rectal and urinary incontinence. Examination revealed no abnormal neurological findings. The cerebrospinal fluid was not under pressure; it contained 15 cells per c.mm. and total protein 70 mg. per 100 c.cm. Their case recovered, after administration of adrenaline intramuscularly and glucose intravenously. Friedman and Shinefeld (1941) describe two cases in syphilitic children, both of whom died. In their cases symptoms occurred after several injections of arsenical preparations. The symptoms were irritability, convulsions, and coma. In one case cerebrospinal-fluid protein was 297 mg. per 100 c.cm. Russell (1937) describes the pathological findings in three cases. She found perivascular and ring haemorrhages, and also perivascular non-haemorrhagic areas of necrosis and demyelination in the central nervous system. All three were serologically positive cases of syphilis in young adults, the eldest being 31 years old. Symptoms in two of her cases appeared shortly after the second injection of an arsenical preparation; in the third case symptoms followed the third injection. All three patients died within four days of onset.

Case Report

Male aged 22. No previous history of ill-health. Treated for acute gonococcal infection from March 4 to 12, 1942, in V.D hospital, and readmitted to the hospital on April 12 with multiple indurated ulcers on coronal sulcus. *Spirochaeta pallida* present on examination with dark-ground illumination. Treatment consisted of: April 11: novostab 0.45 g., chlorostab 1 c cm. April 14: neokharsivan 0.3 g. April 18: novostab 0.45 g., chlorostab 1 c.cm. On April 21 the patient felt out of sorts, hot, and flushed; temperature 102° F. During the next two days temperature varied from 100° to 102° F. He was depressed, but made no special complaint At 7 a.m. on April 23 he had an epileptiform convulsion and vomited bile-stained fluid; admitted to E.M.S. hospital.

Examination.—Temperature 98° F., pulse rate 78, respirations 20 Semi-comatose on admission; incontinent, with noisy moaning respirations; colour good. Pupils equal, circular, and contracted: reacted sluggishly to light. No neck rigidity, and Kernig's sign negative. All reflexes were exaggerated and ankle clonus was present; plantar responses doubtful flexor; abdominal reflexes present and normal. Other systems normal. Blood pressure 120/70. *Fundi:* Slight blurring of disk edges right side. Left side normal. *Urine:* S.G. 1030; no abnormal constituents; no red blood cells or casts. White cell count 12,000. Lumbar puncture at 11 a.m: cerebrospinal fluid not under pressure; fluid contaminated with blood. *Blood:* Wassermann reaction ++, Kahn negative Flocculation test, 1:16.

A few hours after admission plantar reflexes became extensor and respirations stertorous. By evening temperature had risen to 104° F. Pulse rate 118; respirations 40. Lumbar puncture repeated: cerebrospinal fluid clear; pressure 250 mm. water; cells 5 per c.mm.; Wassermann reaction negative; protein 230 mg. per 100 c.cm. By the following morning coma was deep, with marked venous congestion. Venesection performed and 14 oz. of blood withdrawn. Lumbar puncture repeated—10 c.cm. cerebrospinal fluid removed: pressure 260 mm. water; cells 5 per c.mm.; protein 270 mg. Kahn negative. By 2 p.m. on April 24 coma had deepened; temperature 104.8° F., pulse rate 108, respirations 32 Marked cyanosis, and at 6 p.m patient had two epileptiform convulsions. Lumbar puncture repeated. Thereafter coma steadily deepened, and after two further epileptiform convulsions the patient died at 3 a.m. on April 25.

Necropsy

Apart from the central nervous system, all organs were normal except for punctate haemorrhages on the upper surface of lower lobe of right lung.

Brain · Macroscopic Appearance.—Considerable congestion of the pia-arachnoid all over the brain, with several irregular haemorrhages—one on the upper surface of the left half of the cerebellum, one on the contiguous lower surface of the corresponding occipital lobe, and a third at the right temporo-sphenoidal lobe. Small cerebellar cone round the brain-stem. Section of brain revealed congestion of grey matter and small congested vessels in the white matter. After fixation, sections of brain revealed a fair number of petechial haemorrhages, more marked in the white matter. Macroscopically the grey matter of the brain was congested, giving a pinkish hue. Many small congested vessels in white matter.

Microscopical Examination.—The lesions present were not numerous, therefore careful searching was necessary. Some blocks of brain tissue did not reveal any lesion. No particular part of the brain was especially involved, the lesions being irregularly distributed throughout the brain substance. They were perhaps more obvious at the junction of white and grey matter than anywhere else in the cortex. Main lesions in intracerebral vessels, consisting of endothelial swelling associated with ante-mortem thrombi, partially occluding the lumen of the vessels. Some of the thrombi were infiltrated with polymorphonuclear leucocytes, many of them eosinophils Occasionally there was evidence of vascular rupture, with red blood cells and eosinophilic material in the Virchow-Robin spaces. No obvious change in nerve cells themselves, and there was absence of perivascular cuffing and other signs of encephalitis. Emulsions of the brain were injected into rabbits and mice with negative results.

Treatment

This consisted of repeated lumbar punctures. Adrenaline was given in doses of 1 c.cm. intramuscularly four-hourly, and sodium thiosulphate was injected intravenously. Venesection was also done. Treatment to be successful must be started as soon as possible, and therefore it is of great importance that this complication of arsenical therapy be quickly recognized. In every case of sudden cerebral disaster in a young adult the question of previous arsenical treatment should be considered.

Discussion

This picture conforms to the usual type previously described in the literature—severe cerebral symptoms, with coma and epileptiform convulsions. The onset generally occurs after the second or third injection of an arsenobenzene preparation, and can happen as readily in the healthy subject as in the unfit. The main features in the present case are the haemorrhages, and extreme congestion of vessels of white matter coupled with blocking of cerebral capillaries and occasional rupture. There was no evidence of non-haemorrhagic perivascular areas of necrosis and demyelination as observed by Russell in her cases. This may have been due to the fact that this patient did not survive long enough for these findings to develop. Two of Russell's cases in which these changes were present survived for four days after onset of acute symptoms. The third of her patients died within six hours; evidence of necrosis and demyelination in the central nervous system was scanty.

The causal factor in arsenical encephalopathy is unknown, and seems to be unrelated to the arsenic radical, as poisoning by arsenic in an inorganic form does not give rise to such cerebral symptoms. It also seems unlikely that overdosage is at fault, as in most recorded cases symptoms have arisen shortly after the second or third injection. It is apparently not of the nature of a Herxheimer reaction, because cases are recorded (Glaser, Imerman, and Imerman, 1935) in which cerebral complications followed arsenical therapy in non-syphilitic subjects.

As symptoms occur most frequently after the second or third injection of an arsenical preparation it seems possible that the cerebral phenomena may be in the nature of an allergic reaction, although this does not seem to be of a permanent nature, as Lees mentions a case in which treatment with an arsenobenzene compound administered intramuscularly was resumed after recovery from haemorrhagic encephalitis without ill effects. There appears to be some relation between purpuric eruptions due to arsenobenzene preparations and haemorrhagic encephalitis (Winter, 1940). It may be that both are due to a toxic action of the benzene radical on capillaries. Organic arsenicals are well known as a cause of thrombocytopenic purpura, and it is possible that in some cases of haemorrhagic encephalopathy the toxic action is due to disintegration of arsenobenzene compounds in the blood, with resulting thrombocytopenia and capillary damage. The case described by Winter in which purpura was a feature could fit in with such a theory. I have been unable to find any reference in the literature to the platelet count in arsenical encephalitis.

The raised cerebrospinal-fluid protein in this case, with a normal cell content, is unusual, as was the increase in the C.S.F. pressure. In most cases described the protein has been normal and the pressure also normal. In the present case, as in others described, the Wassermann reaction was positive in the blood but negative in the C.S.F.

In most cases previously recorded, cerebral complications of arsenobenzene therapy are referred to as haemorrhagic encephalitis. In view of the clinical picture and pathological findings, encephalopathy seems a more fitting description to apply to this complication.

Summary

A case of arsenical encephalopathy with pathological findings is described.

Attention is drawn to the need for early recognition of this condition, as treatment seems unavailing unless instituted in the first few hours after onset.

A short review of the literature is given. No adequate aetiology has been found to account for cerebral complications following arsenobenzene therapy.

I wish to thank Lieut.-Col. G. L. Montgomery, R.A.M.C., Assistant Director of Pathology, Scottish Command, for the post-mortem findings in this case, and Dr. A. A. F. Peel for advice and criticism; also the Department of Health for Scotland for permission to publish this report.

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ETHYL CHLORIDE ANALGESIA

BY

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The term "analgesia" implies the loss of pain sense without the loss of consciousness or the sense of touch (Guedel, 1937). It is generally accepted that during induction of anaesthesia by inhalation a phase of analgesia is passed through (Guedel, 1937). This phase starts at the beginning of induction with a relative blunting of the sense of pain (relative analgesia), and passes to a complete state of analgesia (total analgesia). The analgesic phase ends with the loss of consciousness of the patient, some drugs giving a longer and better analgesic period than others. These drugs have been used for a variety of purposes: chloroform analgesia in obstetrics; trichlorethylene analgesia for the relief of pain in tic douloureux (Striker *et al.*, 1935) and more recently for painful dressings; nitrous oxide in combination with air or oxygen in midwifery and dental work (Minnitt, 1934).

The limitation of the method is the difficulty of maintaining the analgesic state without slipping into the second and most dangerous stage of anaesthesia with its attendant risk of ventricular fibrillation. Lincoln (1941) has made an advance in the production of analgesia by using ethyl chloride in combination with nitrous oxide by the nasal route. It was considered that it might be of advantage to investigate the effects of ethyl chloride alone without using nitrous oxide. This we have done with success in 90 cases, the majority being dental extractions. All these patients were soldiers, many of whom are anaesthetic-resistant subjects.

The Method

The apparatus required is two tubes of ethyl chloride, a dental prop, some vaseline, and a roll of gauze. The lips are smeared with vaseline and a dental prop is inserted. An oblong of gauze, about 2 in. by 6 in., is crumpled and placed between the teeth, but not so far back as to cause gagging. The patient is asked to breathe to-and-fro through his mouth alone. He is told that the vapour will not put him to sleep but will prevent pain. Ethyl chloride is then sprayed on to the gauze on and off for 45 seconds. The amounts we have used vary between 4 and 9 c.cm., the average being about 6 c.cm. If the eyelids are seen to flicker the patient is ready; otherwise it is better to rely on the time period entirely. The gauze is pushed aside and the operation completed. The gauze is then removed and the patient asked to take one or two deep breaths; by the time he has rinsed his mouth out he is ready to leave the chair.

Of the 90 cases 70 were dental extractions and 20 were minor operative procedures, mainly incisions of abscesses. In all cases analgesia was achieved; there were no post-operative complications. The dental cases were not confined to single extractions of upper and lower incisors, as 33% were molars or pre-molars. In several cases a number of teeth were removed, in one case seven. The majority of cases were those in which local anaesthesia was contraindicated. Many of the cases were those in which the patient was a difficult subject, being uncooperative and fearful, as this was his first visit to a dental surgery.

Comment

The advantages of ethyl chloride are many. It is a safe and rapid agent (Hewer, 1930) requiring no apparatus. The method is simple to learn and easy to apply. By Lincoln's (1941) technique of oral breathing induction is pleasant; there is the psychological benefit of having no mask, and there is no struggling—not even by the anaesthetic-resistant patient.

Total analgesia lasts from 60 to 120 seconds; recovery is as rapid as with nitrous oxide. There are no after-effects: we have had none, and in a series of 2,200 cases only 6 complained of nausea (Lincoln, 1941).

It would seem that ethyl chloride analgesia might be useful, particularly in wartime, in the painless extraction of teeth and for such simple operative procedures as opening superficial abscesses. It is cheap, safe, and portable, with rapid induction and rapid recovery.

Summary of Conclusions

Ethyl chloride alone by oral breathing will produce analgesia—that is, a loss of sense of pain with the retention of consciousness.

The method is simple, safe, and rapid, and can for short procedures compare in every respect with nitrous oxide analgesia.

We wish to thank Dr C. Langton Hewer, without whose assistance this article would not have been published; and Lieut.-Col. Ashley Daly, Adviser in Anaesthetics to the Army, for permission to publish it.

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Medical Memoranda

Post-scarlatinal Thrombophlebitis Migrans

Thrombophlebitis following scarlet fever is a rare event. The last reported case appears to be that of Rolleston and Ronaldson (1940). Previously Huenekens and Siperstein had recorded a case in 1923. These authors give a full review of the literature, in which they could find only 9 cases reported since 1882.

CASE HISTORY

A boy aged 11 was admitted to the East Malling Isolation Hospital on Feb. 13, 1942. He had complained of a sore throat for the past two days, and on admission showed the usual signs of mild scarlet fever. The temperature was 100°, the rash was typical, and there was marked circumoral pallor. The throat was sore, with exudate on the tonsils, and some cervical adenitis was present. The next day his temperature was normal, and he made a rapid recovery from the acute stage. He began to peel on the thirteenth day.

On Feb. 25, 12 days after admission, the cervical glands became more enlarged and there was slight pyrexia. He was given sulphapyridine 2 days later, and the temperature became normal in 48 hours. The sulphapyridine was continued for a further 5 days until a total of 11 g. had been given. At the end of this time the swelling of the glands was much less and the general condition satisfactory. Two days after this, on March 7, his temperature rose again, but there were no signs or symptoms to account for it. However, 48 hours later a painful red swelling appeared on the dorsum of the left foot, extending from the base of the great toe for 3 in. upwards. This was 25 days after the onset of the rash. He was again given sulphapyridine. Three days later inflamed veins could be seen and felt extending from the inflamed area on the left foot up to the knee. The leg was oedematous below the knee, and the popliteal vein was tender. The tongue became furred and the boy looked ill. The next day the patient was better. The temperature was normal and there was less oedema of the left leg. A further 11 g. of sulphapyridine had been given, and the dose was reduced to 0.5 g. t d s.

Twenty-four hours later, however, on March 14, the temperature rose again to 100°. On examination the left leg was still improving, but the right popliteal vein was tender and there was obvious phlebitis of the superficial veins below the right knee. On the following day there was oedema of the right leg below the knee, and the right internal saphenous vein was tender below the groin. The temperature rose to 101° and the patient was seriously ill. Anti-scarlatinal serum, 3,000 U.S.A. units (B.W. & Co.), was injected intramuscularly. The next morning he was better, having had a good night, and his temperature had fallen to 100°. The left leg had recovered, but the whole of the right leg was oedematous. The girth of the middle of the right thigh was 2½ in. greater than that of the left. The right internal saphenous vein was tender and inflamed along the whole of its course, and there was tenderness in the right iliac fossa.

The patient by now had taken 33 g. of sulphapyridine since the beginning of his illness, and a blood count was made by Dr. Griffiths of the Kent County Laboratory. This showed: R.B.C., 3,860,000; Hb, 71%; C.I., 0.92; W.B.C., 15,800—polymorphs 90%, lymphocytes 7.5%, monocytes 2.5%. A blood culture proved sterile. Sulphapyridine was continued (3 g. a day), and on March 18 the girth of the right thigh was 3 in. greater than that of the left. The oedema had spread upwards over the right iliac fossa and the right loin. Enlarged superficial veins were seen over this area. The next day the patient was better. The temperature was falling and the tongue was getting cleaner. Three days later, on March 22, the temperature was normal and the oedema over the right loin and iliac fossa was much less.

On March 24 sulphapyridine was discontinued after a total of 41 g. had been given in 3 weeks without toxic effect. The patient was improving rapidly. The tongue was clean, and there was no pain or tenderness in either leg. The girth of the right thigh was only 3/4 in. greater than that of the left. A fortnight later all oedema had gone and the patient was very well. After a further fortnight's convalescence he was allowed to get up, having had a normal temperature for a month. He went home one week later, on April 28, having been in hospital 10½ weeks.

When seen on Oct. 7, 1942, he was in excellent health. The only complaint was an occasional feeling of "heaviness" in both legs, especially the right, but he was able to run and play games. There was no oedema, but the girth of the right thigh was still 1/2 in. greater than that of the left.

COMMENT

A case of thrombophlebitis migrans occurring on the twenty-fifth day after scarlet fever is described. The veins of both legs and the right external iliac vein were involved. Improvement was noted after the administration of antiscarlatinal serum, but sulphapyridine in the doses given did not appear to modify the course of the disease.

West Malling, Kent J. VINCENT BATES, M.B., B.Ch.

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An Unusual Retrocorneal Phenomenon

The following note on an unusual occurrence may be considered interesting enough to warrant publication.

Having removed a foreign body from the *left* cornea of a man aged 33, my attention was drawn to his *right* eye, where I saw a bright pink globule of about 1.5 mm. diameter, situated in the middle of the posterior surface of the cornea, the eye otherwise being quite normal. On examination under the slit-lamp the globule had—to my surprise—disappeared, but instead there was a faint reddish glow at the limbus about 12 o'clock. When the patient was asked to lie down again the spot was seen migrating slowly from the limbus towards the middle of the cornea, and always rose to the highest point of the anterior chamber as the eyes were turned in different directions.

The patient's record card showed that he had attended the hospital in Sept., 1942, when a foreign body deeply embedded in the stroma of the *right* cornea was removed and perforation with escape of aqueous occurred. Prontosil ointment 1% was instilled and a pad and bandage applied. The eye developed a mild iritis but healed in a week's time. A month later the patient complained again of photophobia and irritation, which quickly settled.

It would appear that owing to the pressure of the bandage a small portion of the prontosil ointment was forced into the anterior chamber, where it remained undissolved and unchanged without causing any trouble or inconvenience to the eye up to date (eight months). Neither the patient nor his friends have ever observed this striking appearance, since it is not visible when the patient stands upright.

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Reviews

PROBLEMS OF TRAUMA

The Pathology of Trauma. By Alan Richards Moritz, M D (Pp 386; 117 engravings 28s.) London: Henry Kimpton.

The name of the author of this work and of Prof. Wolbach, mentioned in its preface and elsewhere, and the illustrations depicting specimens in the famous Warren Museum, recall happy memories of a recent visit to Boston during this war, an academic sojourn in a famous hospital associated with Harvard University, and the privilege of meetings with the above two distinguished pathological savants. The mere mention of Harvard in connexion with this work is a sure hall-mark of its excellence; the assembling of the material contained in the book, together with the comprehensive bibliography, has for its purpose the lightening of the labours of clinicians and pathologists confronted with problems associated with trauma, and must be considered a timely contribution to the literature of this period of violence and force, which reign throughout the whole world just now.

This work is for the graduate rather than for the medical student, and is not likely to replace such popular textbooks of forensic medicine as Dixon Mann, Smith, or Glaister in the British undergraduate library. Those who have lived through the days of heavy air bombardment of this country will be gratified to find reference to the renal failure associated with crush injury of the extremities; and mention is made of the work of Bywaters and Beall, of Belsey, and of Patey and Douglas Robertson of Middlesex Hospital in this connexion. Blast injuries of the lungs have not escaped the notice of the author. There is an informative section dealing with the less well known subject of cardiac contusion, to which subject Moritz has himself made other contributions. One is glad to note that he has culled material from Sir George Makins's classical work on *Gunshot Injuries of the Blood Vessels,* which was based on that famous surgeon's experience in the South African War and the war of 1914-18.

An abdominal surgeon not unnaturally turns to those pages which deal with injuries of the abdominal viscera, and a certain surprise is felt at the failure to find amidst an extensive bibliography pertaining to traumatic lesions of this region any reference to the work and enormous experience of such British surgeons in the casualty clearing zone in the last great war as Sir Cuthbert Wallace, John Fraser, Hamilton Drummond, Owen Richards, H. H. Sampson, Gordon Bell, or Richard Charles. The total experience of these surgeons embraces a mass of material from which valuable information might surely have been gleaned.

The pathology of the ruptured intervertebral disk is included in the pages of the book, as might be expected of a condition which owes its recognition to the work of transatlantic surgeons. The section devoted to injuries of the female genital tract, including rape, occupies many pages and should satisfy the most critical medico-legalist or gynaecologist. There is a discussion as to a traumatic origin of hydrocele of the male tunica vaginalis, but no mention is made of traumatic rupture of vaginal hydrocele, a definite clinical entity which has attracted the notice of British and French writers.

The illustrations in the book are numerous; the microscopical reproductions are excellent and illuminating, and the diagrams are particularly helpful.

G. GORDON-TAYLOR.

INTERNAL MEDICINE: A MISCELLANY

Advances in Internal Medicine Volume I Editor, J Murray Steele, M.D (Pp. 292. 21s) London, William Heinemann

In previous reviews we have questioned the wisdom of books of this kind, which bring together topics whose only unity is their novelty. A man who tries to keep abreast of current literature —and we can imagine no other man reading a book of this kind—finds need of books to bring order and perspective into the many facts he has stored up or forgotten. Hence useful books must confine themselves to a single sector or allied sectors of the field of advance. The present book supplies something for all tastes and is therefore likely to satisfy none.
The ten different articles it contains deal with the Mille
tube, diabetes, the sympathetic control of the periphera
sulphonamides, urinary infections, influenza, hype
nephrosis, and riboflavin deficiency. Of these, the ar
the use of the Miller-Abbott tube in the diagnosis and t
of disorders of the gastro-intestinal tract by Osler
and on modern conceptions of arterial hypertension
and Corcoran, will be the most welcome to British
For they are by master hands and they deal with su
which the Americans have gone further than we, large
to the circumstances of the war. It was in 1909, ap
that Scheltema, "observing one of his barnyard fowl l
to complete the ingestion of a piece of string, the firs
of which had already traversed the gut and reappearec
successfully attempted the same feat on a child b
of a rubber tube. From this has developed a techniq
is of great value in the diagnosis and treatment of ob
of the small intestine and the proximal colon, and
more would have been heard in this country had
embryo Hunterian professors and Goulstonian lectu
preoccupied with other affairs of State. It must be
too, that the subject of hypertension is one that the A
both North and South, have made their own. F
Corcoran review the whole subject of experiment
tension in animals, the tests designed to measure
reactivity in man, and treatment by operation, by thi
and by kidney extract. The field is full of promise,
is still much spade-work to be done.

FIRST AID TO DIAGNOSIS

Symptom Diagnosis: Regional and General. By Wallace Mas
M D, M S Fourth edition. (Pp. 900. 50s cloth.) New
London: D. Appleton-Century Company. 1942

When a textbook, which is introduced with the spec
ment that "there is nothing original in the mate
only its arrangement, reaches its fourth edition it ha
justified itself. *Symptom Diagnosis* was originally
(and that is the correct term) by the late Dr. Wilfred
and Prof. W. M. Yater, and has now been carefull
by the latter. It is not designed for study but f
reference; not for the library but for the desk. Th
expressed a threefold purpose: (1) to aid the busy pr
in diagnosis by allowing him quickly to reduce the
of possibilities, (2) to prevent the overlooking of i
considerations; and (3) to focus attention on the cha
symptoms of disease. Properly used, no doubt such
may be helpful, though naturally it does not fulfil
of a textbook of medicine. Each symptom is a
described; then follow those diseases in which the
is a prominent or constant finding, in order of im
This is followed by a list of the chief signs and sym
each disease mentioned, or a reference is given to a
which they may be found. Laboratory findings are not
as the volume is designed merely as a first aid to
This laborious task appears to have been painstaki
competently carried through, and the book will doub
tinue to give help to those minds that work along th

REGIONAL ANALGESIA FOR ABDOM OPERATIONS

Regional Analgesia for Intra-abdominal Surgery. With Special
to Amethocaine Hydrochloride. By Norman R James, L R C
D A. (Pp 57; illustrated 6s.) London: J and A Churchill

There is some evidence that local, regional, and spin
thesia are becoming rather more popular in this
there are certainly so many cases in which their
indisputable advantages that the technique of ac
tion should be of interest to every surgeon and an
Under the title *Regional Analgesia for Intra-abdomin*
Mr. Norman James has produced a booklet with the
concentrated into 57 pages. While many different a
be successfully used in this way, the author's pre
for amethocaine hydrochloride, which he claims giv
found analgesia and relaxation of at least three hours
without toxic effects. As in the case of many other a
agents, there are unfortunately several synonyms
product—pantocain, butethanol, decicain, pontocain
etc. For the sake of safety one would like to see l
to compel uniformity of nomenclature in these matt

The injection of the analgesic solution, in strengths of 1/1,000 and 1/2,000, is preceded by an intravenous administration of omnopon in sufficient dosage to produce "a light state of narcosis," in place of the more usual barbiturates. The technique advocated for the thoracic nerve block and the subsequent posterior splanchnic block is the orthodox one which has been widely tested and almost universally adopted as satisfactory. Certain modifications are described for use in special operations—e.g., cholecystectomy, nephrectomy, gynaecological operations, etc.—and several good photographs amply illustrate the technical details.

Although short, this book will give the novice enough information to enable him to start his experience of this interesting and important branch of anaesthesia.

Notes on Books

A Tropical Medical Manual, by Dr. PERCY E. TURNER, was prepared for the use of Salvation Army officers, and a third edition is published at 3s. 6d. from International Headquarters, 101, Queen Victoria Street, E.C.4. This little handbook gives useful hints for lay persons called upon to care for themselves or others in tropical climates when stationed far from a doctor or a hospital. The first part deals with general hygiene and simple preventive measures against disease and insect pests; a chart of physical exercises for the maintenance of fitness is included. The second section describes simply but adequately the more prominent features and treatment of the commoner diseases that may be encountered. The instructions are not meant to replace skilled attention, but should prove valuable to those so situated that they must rely upon their own resources.

A fifth edition of *Fevers and Fever Nursing,* by Miss EVELYN C. PEARCE, sister-tutor at the Middlesex Hospital, which appeared first in 1930, is published by Faber and Faber at 6s. Some alterations have been made and three new charts added to include information on diseases the danger of which is enhanced under war conditions—bacillary dysentery, undulant fever, and glandular fever—and also on the louse-borne infections, which are dealt with in a new chapter. Infective jaundice also forms the subject of a new chapter.

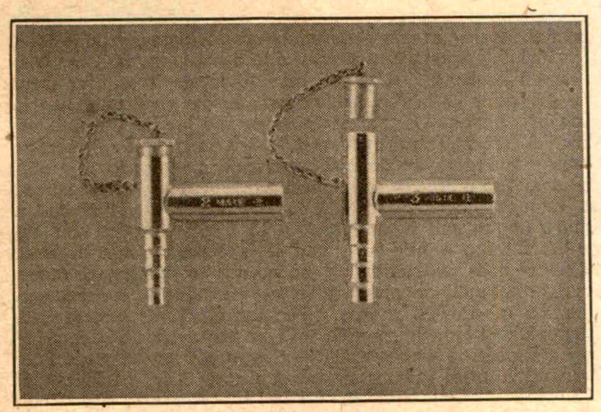
Dr. Julius Bauer's book *Constitution and Disease,* mentioned in our leading article entitled "The Constitutional Factor" on April 24, will be issued in this country during June by Heinemann Medical Books Ltd. at 21s.

Preparations and Appliances

A SUCTION ENDOTRACHEAL UNION

Dr. W. A. COBB, D.A. (Hurstwood Park Hospital), writes:

During endotracheal anaesthesia it not infrequently happens that mucus enters the tube and causes more or less embarrassment to respiration, the degree of which may be out of all proportion to the amount of mucus present, increasingly so with smaller sizes of tube. This factor may not be of much importance in short operations, but in the longer ones, and, in particular, intracranial and thoracic, it is of real significance. Much can be done, by proper timing and dosage of the pre-operative atropine or scopolamine, to reduce the secretion of mucus, but when for any reason this fails recourse must be had to endotracheal suction.



An endotracheal union, through which a suction catheter can be passed, is available, but is so cumbersome that it is only likely to be used when its need has been expected. My object has, therefore, been to make a union differing so little from the normal that its use could be routine, and suction could be applied to any case should the need arise.

The union is a modification of Rowbotham's pattern and is made in sizes 2, 3, and 4; size 1 is too small to allow the passage of a catheter. The vertical limb has been carried upward about 1/4 in. beyond its junction with the horizontal limb, and its upper end closed with a small metal stopper, attached to the union by a short length of chain. At any time during the operation this stopper can be removed and a rubber—or, if preferred, gum-elastic—catheter can be passed, and suction applied. Size 2 will take a No. 6 catheter, and Sizes 3 and 4 a No. 9. These three sizes of union can be used for all anaesthetics where an equivalent size Magill or Rowbotham union would normally be used. A further advantage is the greater ease of cleansing, owing to the absence of blind corners.

The unions have been made for me by Medical & Industrial Equipment Ltd., 12, New Cavendish Street, London, W.1. The photograph reproduced is about half natural size.

PELVIC BINDER

Dr. PAUL F. McGOEY (Canadian Orthopaedic Unit) writes:

This simple type of pelvic binder has been designed for use during examination and treatment of orthopaedic patients. It is small yet adequate. The material is towel cloth, and the string is standard orthopaedic cord (No. 6). Approximately one square foot of cloth and seven or eight feet of cord are required. The binder is easy to make, inexpensive, compact, readily laundered, and fits snugly and comfortably. It is tied with a single knot, does not impair movement, gives satisfactory exposure, can be applied over trousers, and is easy to remove from beneath plasters.

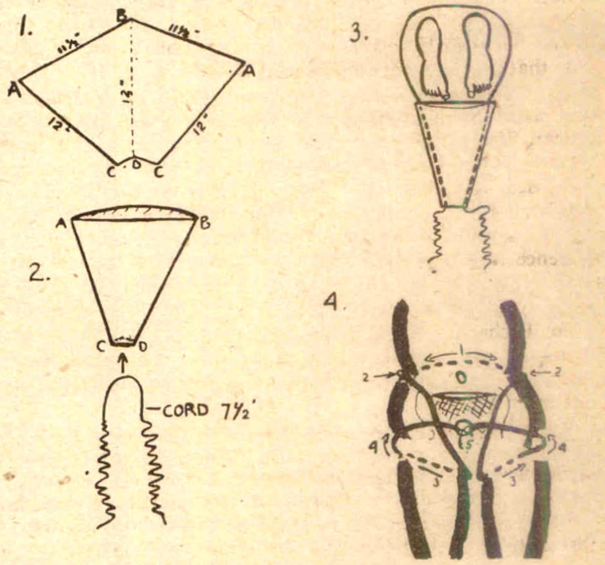


FIG. 1

The index to the diagram (Fig. 1) is as follows:

1. "Kite-shaped" pattern. Fold along line BD; sew AC to AC; leave AB and CD open so as to form a funnel-shaped bag as in diagram 2.
2. Insert hand into top open end (AB) of funnel, and draw through a loop of the cord sufficient to encircle patient.
3. Illustrates position of patient.
4. Binder in place: (1) Centre point of cord corresponds to midline posteriorly; (2) cord runs along the top of iliac crest and down through "funnel"; (3) cords emerge and encircle the buttocks in the gluteal folds; (4) cords pass around the hips; (5) single knot is tied in front of binder; technique of application can be modified to suit various positions of patients.

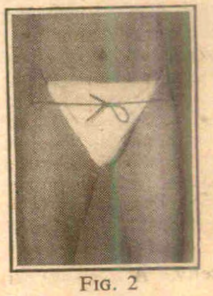


FIG. 2

I am indebted to Matron A. B. Hunter and Dr. L. M. Hampson for help in the preparation of this description.

Nova et Vetera

THE FIRST MEDICAL BULLETIN

Dr. C. E. Lakin, in his annual oration to the Medical Society of London on May 10, traced the first medical bulletin very far back in the world's history. The bulletin was an oral one, given, like Mussolini's pronouncements, from the window of a Roman palace; its author was a woman, and it was false. The wife of Tarquinius Priscus, the fifth of the early kings of Rome, had a female slave who gave birth to a son, and as there were flames around his head and other supernatural manifestations, the queen adopted him, and on reaching manhood he, Servius Tullius, married the king's daughter. The sons of the former king, Ancus Martius, whom Tarquinius had supplanted, resolved to seize the crown, and hired two shepherds to assassinate Tarquinius in his palace, which they did. Thereupon the queen ordered the palace to be closed, caused the shepherds to be arrested before they could escape, bade her adopted son Servius Tullius play the man, and herself went to the open window and declared to the Roman citizens that the king had only been stunned by a blow, that the weapon had not penetrated deeply, that the wound had been examined and the blood wiped away, that the symptoms were favourable, and that, the king having recovered consciousness, he desired that Servius should act for him until he was fully restored. By this clever bulletin, false though it was, she defeated the designs of her enemies, who, hearing that there was every prospect of the king's recovery, fled from the city, and by the time the king's death could no longer be concealed Servius was in unquestioned authority. The word "bulletin" in such a connexion is, of course, a comparatively modern use. Meaning an official statement as to the health of an invalid, it appears to date from 1765, when Horace Walpole wrote from Paris that the Dauphin (the son of Louis XV) was at the point of death. "Every morning the physicians frame an account of him, and happy is he or she who can produce a copy of this lie, called a 'bulletin.'"

MEIGS'S SYNDROME

Recently there have been a number of case reports of a syndrome comprising the combination of ovarian fibromata, ascites, and hydrothorax. The condition was first fully described by Dr. J. V. Meigs of Boston, and the syndrome has become known by his name.

Lawson Tait's Case

It is the purpose of this note to make more generally known another example of this syndrome described by Lawson Tait (*Trans. med.-chir. Soc.*, 1892, **75**, 109). The article is entitled "On the Occurrence of Pleural Effusion in Association with Disease of the Abdomen"; it has not been mentioned in any of the recent literature. There is first described a typical malignant case with ascites and pleural effusions from secondary deposits. His second case, by contrast, is of the non-malignant condition.

The patient was a lady of 36 years whose abdomen was noted to be becoming larger in June, 1889. This steadily increased—very rapidly during Dec., 1889. In Jan., 1890, there were an evident left hydrothorax and all the signs of ascites; on deep pressure through the fluid a large rounded solid tumour could be felt, apparently moored in the pelvis and floating freely in the ascitic fluid. Ninety-five ounces of blood-stained fluid was removed from the left pleural cavity, and a few days later fluid was found and aspirated from the right pleural sac; it too was blood-stained. It was thought that there was a malignant tumour in the abdomen with secondary deposits on the pleural surfaces, and she was sent home to die.

A fortnight after her return home her left pleural sac was again tapped, and 80 oz. of pale yellow fluid was removed. In Feb., 1890, the abdomen was tapped and 11 quarts of pale yellow thin ascitic fluid was removed. From this time until Feb., 1891, her abdomen was tapped over 30 times, from 8 to 14 quarts of clear yellow fluid being removed. The pleural effusions did not recur.

The patient was readmitted to hospital in March, 1891. On opening the abdomen a large quantity of ascitic fluid escaped. The tumour was found to be a large solid growth of the right ovary; on removal it weighed 2 lb. 2 oz., and was found microscopically to be a fibroma. Recovery was complete.

Lawson Tait remarks: "The lesson in this case is in my opinion a very valuable indication that no set of conditions in the abdomen, however apparently unfavourable, are sufficient to justify us in an absolutely unfavourable condemnation in any particular case."

Newcastle-upon-Tyne. R. B. Thompson, M.B., M.R.C.P.

THE STATUS OF THE NURSE

Lord Addison presided over a luncheon given under the auspices of the Professional Nurses and Midwives Conference, when the principal speaker was Lord Horder. In a general reference to post-war planning, Lord Horder said that his slogan was "Do it now," and this should apply to an endeavour on the part of the medical profession to raise the status of their nursing colleagues and to make the vocation of nursing economically attractive to girls of the type who were particularly suitable to exercise it. If girls could receive efficient training and the opportunity to pursue a profession which carried its proper prestige and afforded economic security for the future, something would have been achieved without waiting until "after the war." Paper planning was all very well, but were they not sometimes, Lord Horder asked, "more planned against than planning"? The State-registered nurse was the centre of the situation. Her career should be freed from embarrassment and obscurantism by making it perfectly clear to the public what distinct status was implied by the hall-mark of the State certificate. He suggested that there should be a roll of assistant nurses, and that in future no one should be able to pose as a nurse who was not either a State-registered nurse or enrolled as an assistant or student nurse. There were certain small special groups of nurses who did not come within either of these categories, and their particular cases must be considered. Dr. Haden Guest, M.P., in thanking Lord Horder for his speech, while confessing that he himself could not see beyond the armistice, suggested the greatness of the field which would await both the medical and the nursing services immediately after the war.

SALARIES OF NURSES IN SCOTLAND

The Scottish Nurses' Salaries Committee, of which Prof. T. M. Taylor is chairman, has issued a second report. This reprints much of the earlier one, now to be regarded as superseded (*Journal*, Feb. 27, p. 264), and recommends maximum salaries for matrons and sister-tutors (omitted from the first report) and salaries for all other nursing personnel except those in mental hospitals and public assistance institutions, and assistant nurses. The salaries recommended in the earlier report—namely, £40 in the first year of training, rising to £70 in the fourth year, when the student becomes State-registered, and £100 to £120 a year for staff nurses, and £130 to £200 a year for ward sisters—form the basis for those now suggested for nurses in other than general hospitals. In approved general training schools the salaries of matrons will be from £250 to £700 a year according to the size of the hospital, and of assistant matrons from £200 to £400. In general hospitals which are not training schools the salaries will be from £200 to £325 for assistant matrons and from £200 to £525 for matrons. Similar salaries with minor differences will apply in fever and sick children's hospitals. As an incentive to nurses to come forward for tuberculosis institutions the committee recommends salaries £5 or £10 higher than elsewhere. Salaries in maternity hospitals, too, are to be £20 higher, the additional sum being payable for the extra midwifery qualifications. These salaries are to be regarded not as minimum but as standard national scales applicable to the whole of Scotland, and should come into operation as from April 1 last.

MASS RADIOGRAPHY IN LONDON

The London County Council expects delivery in the near future of one of the transportable mass miniature radiography units for early detection of pulmonary tuberculosis in accordance with the Minister of Health's scheme. It is proposed to locate it at four places in turn—hospitals or health centres—two in the north and two in the south of London. In the early stages the use of the unit will be limited to the more urgent demands, but in time it will be possible to make extensive systematic examinations of selected groups of persons. The officer in charge will work in close collaboration with the borough tuberculosis officers. The cost of the staff and maintenance of the unit is estimated to be £2,100 for the year 1943–4, and £3,020 for a full year, and it is expected that at least 100 additional beds will ultimately be needed in respect of each mass radiography unit, involving a total expenditure for bed accommodation of £23,000 a year. The L.C.C., in agreement with the metropolitan borough councils, will be responsible for carrying out the assessment of proposed allowances to patients who are found to be suffering from pulmonary tuberculosis. The machinery of the tuberculosis dispensary will be utilized to the greatest possible degree in connexion with the inquiries, and the actual giving of financial assistance will be made through the dispensary organization.

"Operative" dental treatment—i.e., extractions, fillings, and gum treatment—is to be provided at all the larger Royal Ordnance factories. A charge of 2s. 6d. will be made for each visit irrespective of its duration, but the dentist will see workers only on the recommendation of the medical officer.

BRITISH MEDICAL JOURNAL

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SATURDAY MAY 29 1943

SLOW UNION OF FRACTURES

During the past year or so there has been more than one reference to the impression held by many that fractures are taking longer to unite than formerly. If this were true it would, under present conditions, be a matter for serious concern, for fractures exert a drain upon man-power both in industry and in the Services. Of greater concern is the quality of the functional recovery that fracture cases now show by comparison with those of former days, whether or not the rate of union is slower. About this we have as yet no satisfactory statistical evidence. So many of the statements on these matters are based upon impressions rather than upon facts that one hopes that many more statistical inquiries of the kind reported by Watson-Jones and Coltart[1] will be made available. These writers have investigated the rate of union in 804 fractures of the tibia and femur treated in the Royal Air Force and at the Liverpool Royal Infirmary, though not all of the cases were treated throughout by the surgeons of either.

A clear distinction must be drawn between the biological process of fracture healing and the modifications in this due to the methods of treatment used. There is little evidence that the biological conditions are any different now from those of thirty years ago. As there is little complaint about fractures other than those of the femur and tibia, the problem would seem to be a local one, which would hardly be so were there in existence any widespread dietetic or other biochemical error. Burns[2] thinks that the delaying factors came into force suddenly some years before the war—in fact in 1930—and naturally there has been a tendency to interpret this as being the result of a sudden change in methods of treatment. Skeletal traction and unpadded plaster splints are suspect. The introduction of the former goes back at least twenty years further to Codavilla and Steinmann. Although Hey Groves,[3] who did so much for the advancement of the technique of fracture treatment, was using skeletal traction in 1916, nevertheless it would seem still to have been somewhat of a novelty in London in the 1920's. The year 1930 coincides with the great wave of enthusiasm for pin traction and unpadded plasters popularized by Böhler in his book published the year before. In spite of this it would be very wrong to blame the great Viennese surgeon, whose writings and methods have been plagiarized by so many of us. What also happened about 1930 in this country was a reawakening of surgical conscience about the treatment of fractures—an awakening which the investigations of various committees, leading up to a recent British Orthopaedic Association memorandum,[4] show still not to be complete. There is no doubt that since 1930 there has been a more critical evaluation of results occasioned by the setting up of fracture clinics prepared to deal with the problem in a very thorough manner. Such critical study has meant that the standards of union have come more and more to be based upon radiological rather than clinical evidence. Furthermore, recovery has been regarded in terms not of the patient's discharge from hospital but of his ability to return to normal occupation. Such considerations indicate how difficult it is to compare the time factors and results of to-day with those of thirty years ago.

Watson-Jones and Coltart quote writings from this *Journal* of 1912 by Robert Jones[5] and others to support their strongly held view that uncomplicated fractures treated by simple manipulation and plaster are uniting as quickly to-day as in former years. The factors causing delay are interrupted immobilization, traction and distraction, infection, persistent angulation, too early weight-bearing, and loss of blood supply. In skilled hands operative reduction does not cause delay. The decision to use this method for unstable fractures should be made early rather than as a last resort. These writers state that the greater use of skeletal traction accounts for the recent increase in the frequency of slow union. Statistically we doubt the justification for this conclusion on the evidence that they have put forward; in fact it rather seems to be guesswork, for they have compared cases treated in this way only with others treated concurrently by different methods which cannot justify a comparison dependent on time. Whereas their figures, though small, indicate the very real danger of distraction, yet we are inclined to quarrel with the writers in condemning traction. Their figure of 32 out of 199 fractures of the tibia treated by traction is altogether too small for any satisfactory deduction to be drawn therefrom. And the figures for cases treated by traction show only a moderate definite trend as compared, for example, with the very much clearer trend, though in a smaller group, of cases treated by frank distraction. The figures for distracted fractures are certainly the worst. Presumably many of them were cases of special difficulty. The measure of such possible difficulty has not been adequately considered, nor is there any estimate throughout the work of the influences of age, type of patient, or quality of the surgical team controlling treatment. We suspect that some of the poor results may be related to this last factor, and that many of the bad results in fracture treatment are the consequence of bad fracture treatment. The lack of evidence in the report in relation to age and condition of patients is open to criticism, as it is apparent that the 804 fractures studied were only partially in one homogeneous group—namely, those in the Royal Air Force, and the number of these is not given. Nevertheless, the weight of evidence of Watson-Jones and Coltart is impressive. It agrees with the conclusions of A. W. Allen[6] that "the incidence of delayed and non-union appears to be less than is ordinarily supposed." In the same treatise Parsons and Wilson report the incidence of delayed union of the tibia in 61 cases treated by skeletal and adhesive traction to be 20%. The total number of fractures treated by all methods was 114.

It is worth noting that the bad results of fractures were exercising the minds of surgeons as long ago as 1912. A Fracture Committee of the B.M.A.[7] was sitting then, as in 1938. In 1912 it was not so much a question of slow union as of mal-union. It will surprise most people to read that of 3,000 fractures investigated no less than 42%, or 1,276 fractures, suffered from mal-union, of which 896 had bad function (i.e., 30% of the total). Even in the anatomically good results (1,736 fractures, or 58%) there were 160 cases with bad function. Of 3,000 fractures, therefore, the functional bad results numbered 1,056, or 35%. Hey Groves, discussing these figures in 1916, said: "They form a mine of information and an authoritative standard by which all subsequent fracture work can be measured and with which it can be compared." When more is known about the functional results of a similar present-day group of fractures we shall be in a position to judge how valuable modern methods are. It is to be hoped that further statistical inquiries will be made: it would not be surprising to find emerging from such an inquiry the fact that it is often the grosser errors of treatment and the faulty application of principles that in uncomplicated cases are the causes of slow union, mal-union, and poor functional recovery.

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[1] *Brit. J. Surg.*, 1943, **30**, 260.

[2] *Lancet*, 1942, **2**, 299.

[3] Hey Groves, *The Modern Treatment of Fractures*, 1916 (first edition), Bristol.

[4] "Accident Services," B.O.A. Memorandum, *Lancet*, 1943, **1**, 409.

[5] *British Medical Journal*, 1912, **2**, 1589.

[6] *The Management of Fractures*. Edited by P. D. Wilson. 1938, Lippincott, Philadelphia.

[7] Fracture Committee Report, *British Medical Journal*, 1912, **2**, 1505

"IN THE DISCARD"

Just over two months ago a statement by the Secretary of the B.M.A. about the consultations to take place between the Government and the medical profession was published in this *Journal* (March 20, p. 359). It was said that an undertaking had been given that discussions would proceed not on the basis of any preconceived plan of the Minister's, but "from the ground." The meaning of this rather obscure phrase is now becoming clear. The Representative Committee during its brief two months of existence has met several times both as a committee and in discussion with the Ministry of Health. Quite recently it had placed before it a memorandum from the Ministry which made it plain just how far off the ground the Ministerial plan had got. Owing to an indiscretion on the part of someone who had attended the discussions, the lay press got an inkling of the Ministerial plan. The disclosure of one item in this made it impossible to continue concealing the rest. At a largely attended meeting of the Metropolitan Counties Branch on May 16 Dr. Charles Hill, the Deputy Secretary of the B.M.A., in a vigorous and well-marshalled speech, told the audience of the substance of the exchanges of views between the Representative Committee and the Ministry of Health. Those who did not read the account of the meeting in our *Supplement* for May 22 would be well advised to refer once more to last week's *Journal*. The suggestions that have been put forward are, of course, non-committal—that is to say, the Government is not committed to take any action on them. But they are committal in the sense that they show clearly the direction in which the Ministerial mind is moving and its conception of what should happen to the profession of medicine in this country. Put briefly and bluntly it is this, that medical men should cease to exist as freely practising doctors and should become instead whole-time employees of local authorities. If this happens, then doctors will no longer constitute an independent, learned, and liberal profession, but will instead form a service of technicians controlled by central bureaucrats and by local men and women entirely ignorant of medical matters.

As was to be expected, the Minister has rejected the idea that medicine should be administered by a corporate body. A special compartment of the present Ministry would be set up to run the show, with the Minister—a political figure with a high degree of insecurity of tenure —responsible to Parliament for the health policy of the nation. Professional advice at the centre would be secured by a Medical Service Council, three-quarters of whose members would be nominated by the profession. This would be a statutory body with the right to make public its recommendations and proposals and to issue reports. A Central Medical Board would have executive authority over domestic matters, and would act as an appointments bureau for the whole-time State salaried domiciliary service. At the periphery local authorities, for health purposes, would be grouped by means of joint boards. General practice would be based on health centres staffed by, say, a dozen doctors working on a whole-time, salaried, pensionable basis with no right to treat private patients outside the service: men who had been in practice for a given time before the beginning of the scheme could exercise an option for part-time service in it. Practitioners newly qualified would have no such option, but would be compelled either to enter the service on the whole-time basis or stay out of it. Compensation for loss of practice would be paid. After qualification and preliminary house-officer experience the doctor would enter the service at a salary of £400 a year, at which rate he would remain for three years, thereafter rising by yearly increments of £30 to a salary of £1,200 a year. Thus a man who qualifies at the age of 24 would not ordinarily be earning £1,200 a year until he is 46. The proposals for a consultant service are as yet vague, but the appointment of consultants and specialists would be by the local authority, and would be whole-time or part-time "according to circumstances."

The Representative Committee faced these proposals with dismay—dismay that the Government Department officially connected with health should treat the much-vaunted comprehensive medical service in such a parochial manner. The absurd anomalies of splitting up health functions among different Government Departments is, for example, to remain, and the mental health services are excluded altogether from the scheme. Locally, confusion is added to confusion. The joint boards to be set up are to be responsible only for some of the local health services —for domiciliary practice and certain hospital services. The health of the school child will be looked after by the local education authority. Rural, urban, and county borough councils will share responsibility for environmental hygiene. The possibility of unifying the administration of health services both centrally and locally is ignored.

As Dr. Hill said on May 16, "Why the hurry?" It appears to many that political expediency has dictated the hurried—and, from the profession's point of view, ill-considered—moves that have been made by the Ministry of Health, as a direct outcome of the Beveridge report. The least politically dangerous move would be to act upon Sir William's Assumption B. Is this an attempt of the Government to win quick popularity with an impatient electorate by saying: "We have nationalized the doctors, and so given effect to Assumption B"? Has the Minister not noticed that the word "comprehensive" appears before "health service"? It is more than probable that immediately this war is finished the public, especially those returning to civilian life, will take a lively interest in Assumptions A and C. If, under continued pressure of public opinion, the Government then finds itself compelled to give that security against loss of income which is at the basis of the Beveridge proposals, it will naturally have to keep a sharp eye on the amount of money going out of the Social Security Fund. An important item in this would be medical certification. It almost looks as though the Government wishes to gain absolute control of the general practitioner for at least one purpose—strict supervision of certification by the doctors. It is not surprising, therefore, that the Representative Committee informed the Minister and the Joint Parliamentary Under-Secretary representing the Secretary of State for Scotland on May 17 that further discussion on the basis of the Ministry's proposals would be unfruitful. Faced with the suggestion that a Royal Commission be set up to consider the whole question, the Minister agreed to withdraw the proposals, and observed that he was not bound to any time-table in the issue of a White Paper. He agreed to a re-examination of the whole position, and to look upon the proposals outlined above as "in the discard." This, we understand, is a term used in the game of poker. It is well to remember that cards in the discard are re-shuffled and find their way back into subsequent games.

CEREBRAL REACTIONS TO ANTISYPHILITIC THERAPY

Severe cerebral reactions during antisyphilitic therapy are fortunately rare but have a high fatality rate. Of these reactions the most important is so-called "haemorrhagic encephalitis." The name is not a good one, as the condition is mainly not inflammatory but rather one of increased permeability of the capillaries; in this it has features in common with purpura. Causation is unknown, but most observers agree that it is the toxic action of arsphenamine derivatives on the smaller blood vessels of the brain and possibly allergic in nature. Others consider that syphilis itself is the cause, but this is to some extent negatived by the observation that the condition has been recorded in other diseases treated with these drugs. Symptoms usually come on rapidly after the second or third injection, and are characterized by nervous irritability, headache, epileptiform convulsions, and unconsciousness. Treatment is likely to be successful only if energetic and undertaken without delay: venesection, repeated spinal fluid drainage, and injections of adrenaline are indicated—the last-named is probably the most important, and injection should be repeated as often as once every hour. The pathological features are congestion of the brain, with multiple haemorrhages and in some cases areas of necrosis. An increased protein content of the cerebrospinal fluid has been described, but otherwise the fluid is usually normal.

Two articles elsewhere in this issue record more or less typical cases. Halcrow describes a case which might be a textbook picture. He considers the cause to be a toxic action of the benzol radical on the capillaries and advocates the use of the term "haemorrhagic encephalopathy." Nelson and his colleagues describe 4 cases, 3 of them pregnant women, only one of whom recovered. They also regard the condition as due to a toxic action on the capillaries, but consider that syphilis itself cannot be excluded and that in pregnant cases toxaemia of pregnancy may be an additional factor. Thomas *et al.*[1] have reported 8 cases, 2 fatal, out of a series of 764 treated with massive dosage of mapharsen. It is generally agreed that haemorrhagic encephalitis occurs more frequently with intensive therapy than with the more time-honoured methods, but the fact that in the latter the condition usually comes on very early in treatment suggests that it is due to idiosyncrasy rather than to heavy dosage. Courville and Marsh[2] record 12 cases, in 7 of which multiple symmetrical foci of haemorrhagic necrosis were found and in one a gross haemorrhage into the brain; they regard the condition as due to a peculiar susceptibility to arsphenamine of certain blood vessels of the brain. In a case described by Lichtenstein[3] the parenchyma of the spinal cord was mainly affected—in fact a demyelinization. He regards the condition as due to sensitivity of the nerve tissues or the vascular bed to the arsenic. The demyelinization may be the result of vascular changes, but the author regards it as a direct poisoning of the nerves by the drug. This case appears to be in a different category from those already quoted.

Haemorrhagic encephalitis is fortunately very rare, occurring only once in some thousands of cases; all are agreed that it cannot be foreseen or provided against and that it may follow relatively small doses of arsenicals. Certain blood vessels of the brain appear to be susceptible to the toxic action of the drug, some individuals showing a particular idiosyncrasy. The walls of the capillaries give way, leading to haemorrhage and perhaps necrosis. The symmetrical distribution of the lesions bears out this theory. It is of interest to note that mapharsen, which is claimed to be generally so much less toxic than most of the arsphenamines, appears to be unduly so as regards this condition.

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[1] *Amer. J. Syph. Gon. V.D.*, 1942, 26, 529.
[2] *Arch. Derm. Syph.*, 1942, 46, 512.
[3] *Arch. Neurol. Psychiat.*, Chicago, 1942, 48, 740.

DIET AND TRINITROTOLUENE POISONING

The relation of diet to the manifestations of T.N.T. poisoning in human beings has not hitherto received close attention. If the results of animal experiments can be translated in terms of human reaction, some investigations recently carried out by Himsworth and Glynn[1] may make a most important contribution to the prophylaxis of T.N.T. poisoning in munition workers. In any case, they shed much light on the mode and site of action of T.N.T. in producing its well-known toxic effects. The development of toxic symptoms in rats after the administration of T.N.T. appears to depend to a remarkable degree on the nature of their diet: a high-fat diet is accompanied by severe symptoms and pathological lesions, while with a high-carbohydrate or high-protein diet these ill effects are slight or absent. The two most striking manifestations of T.N.T. poisoning in human beings—cyanosis and toxic jaundice—are not of course reproducible in rats, while the aplastic anaemia which has accounted for a certain number of deaths in T.N.T. workers is modified in rats into a severe erythroblastic hyperplasia of the bone-marrow. But lesions of the liver, comparable to those found in human cases of toxic jaundice, and the excretion of T.N.T. derivatives in the urine, point to a fairly close parallelism in the toxic process in both species. The "fat" diet on which the complete picture of chronic T.N.T. poisoning alone developed contained 50% of fat in the basic mixture, while the "protein" contained 60% of casein and the "carbohydrate" 90% of wheatmeal bread. The first and most striking manifestation of the toxic process was the appearance of a bright red pigment in the urine within half an hour of administration of T.N.T. mixed with the food. The composition of this pigment and its relation to the colourless pigment giving the Webster test in the urine of T.N.T. workers are uncertain, but the fact that it was absent from the urine of one animal with severe liver damage, just as the Webster test becomes negative when T.N.T. jaundice develops, suggests that the red pigment and the Webster chromogen may have a similar significance. The dependence of the appearance of the red pigment on the nature of the diet was shown by its specially prolonged excretion by rats on the fat diet. With very small doses of T.N.T. (0.01 g. per kilo body weight) none was excreted by rats on the fat or carbohydrate diet but a trace by those on the protein diet—a fact explained possibly by the diuresis always present on this diet and the consequent washing out of the pigment before it can be changed into a colourless compound. It is suggested that the pigment is formed at an early stage in the disposal by the body of T.N.T., and represents a dosage larger than the body can deal with.

The remaining features of chronic T.N.T. poisoning in rats are loss of weight, increased appetite, changes in the blood picture, hepatic lesions, and loss of hair. Loss of weight, in spite of a higher total food intake, was characteristic only of the rats on the fat diet, and, from experimental exclusion of other possible explanations, it is concluded that the fat diet in some way influences the animal's metabolism so that its ability to dispose of the T.N.T. within its tissues is impeded. The changes in the blood picture—a fall in the haemoglobin content, the appearance of normoblasts, reticulocytes, and polychromatic cells, and an increase in polymorphonuclear cells—were also more conspicuous in rats on the fat diet, while liver lesions were found only in these rats. The liver changes ranged from fatty infiltration to acute necrosis of the parenchymal cells. The severity of the lesion bore no relation to the amount of T.N.T. given, but a preliminary period of feeding on the fat diet appeared to predispose to the development of the more severe disturbances. Certain peculiar features of the incidence of hepatic damage similar to those in the incidence of toxic jaundice in T.N.T. workers were observed. Thus, there was a latent period between the administration of T.N.T. and the appearance of liver changes, and only very slight lesions occurred in rats surviving 30 days.

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[1] *Clin. Sci.*, 1942, 4, 421.

It has already been suggested by Voegltin, Hopper, and Johnson that the absence of cases of severe T.N.T. poisoning among workers in a factory studied by them might be due to the good quality of the diet provided. The results of this investigation appear to point to the same conclusion, with the corollary that a diet in which fat preponderates to a great extent is not to be regarded as one of "good quality."

HEALTH EDUCATION FOR GIRLS

One of the first results of the publication of *Our Towns*, on which we commented in a leading article on May 8, has been to direct closer attention of those responsible for or interested in youth organizations to the training they give in hygiene and healthy living. The National Association of Girls' Training Corps in its leaflet No. 6 already provides for a course of lectures in hygiene, the first three of which, to be given by a doctor, are concerned with (*a*) the body and its functions: minor ailments; (*b*) the skin and its functions: common skin troubles; and (*c*) general questions about the maintenance of good health. Dr. Sarah Roberts of Bedford has sent us a copy of her own scheme of lectures in social hygiene for girls from 16 to 18. The lectures fall easily into three groups. First comes personal hygiene, which covers roughly the same ground as the first three lectures of the Girls' Training Corps. Then there come two excellent groups of lectures on public hygiene and social hygiene. Dr. Roberts says that there is more chance of women using the public health services if they learn the "whys and wherefores" when they are young. She therefore explains the functions of maternity and child welfare clinics, nurseries, and school clinics, and discusses the work of district nurses, health visitors, and welfare workers. Immunization and vaccination, milk- and water-borne diseases, fumigation and sanitation, and institutional provision are other subjects in this section, the object of which is to bring home to the girls the value of and the reason for all these social services. In the lectures on social hygiene Dr. Roberts deals first with family life, particularly with the position of the mother as the hub of that circle. The mother should, she holds, have at least an elementary knowledge of the child's mind and body from childhood to maturity if she is to understand children at all. Next comes development, which includes anatomy, and discussions on puberty, adolescence, maturity, etc., followed by talks on pregnancy and childbirth. The final subject is hygiene of the community, including healthy living to produce healthy children, venereal diseases, tuberculosis, etc. Dr. Roberts says it is her aim to impart some worldly knowledge to these girls which will be of use to them through life and help to reawaken a more urgent sense of social responsibility. She advises simple language, using as few medical terms as possible, and has found the girls interested and orderly. She concludes with the suggestion that a course of this kind might be included in the syllabus for day continuation schools.

HYPOGLYCAEMIA AND THE BRAIN

Histological study of the brain in six fatal cases of hypoglycaemic coma by R. D. Lawrence, A. Meyer, and S. Nevin[1] has led them to conclude that a process akin to anoxia is concerned in this condition. Three of their cases were in diabetics and two in schizophrenics—all receiving insulin treatment—while in the sixth there was an adenoma of the pancreatic islets. Though there was some difficulty in estimating the duration and intensity of coma in these cases, the condition seems to have lasted for periods varying from three-quarters of an hour to 17 days. The histological changes differed somewhat in accordance with this variation. In cases in which coma had persisted for 36 hours or longer the cerebral cortex had undergone necrosis in many areas, with disappearance of numerous nerve cells. Selective involvement of the outer or inner laminae composed of these cells was particularly noted, also involvement of parts of Ammon's horn, an area known from Spielmeyer's work to be particularly liable to ischaemia. The corpus striatum and, to a less extent, the cerebellum were also affected, but the brain stem tended to be spared. There was widespread degeneration of neurones that had escaped complete destruction. Where coma had been of shorter duration earlier stages of the degeneration were present. These observations agree with certain others previously described both in hypoglycaemic coma and in conditions known to be of an anoxic character. An outstanding difficulty in the past has been to decide whether the basis of the disturbance may be primarily vascular, or whether there is a more direct action upon the neurones. Lawrence and his co-workers point out that in depriving the neurones of the glucose which forms the sole substrate for their oxidative processes a suspension of activity leading to degeneration and necrosis is entailed. Anoxia is not, strictly speaking, a correct term for this, and they therefore suggest a new word—oxyachrestia.

RESEARCH IN INDUSTRIAL MEDICINE

The Medical Research Council has arranged with the London Hospital for the establishment there of a department for research in industrial medicine. Dr. Donald Hunter, physician to the hospital, has accepted a part-time appointment to the Council's staff as physician-in-charge of the department, and the Council will appoint research assistants to work under his direction. The hospital is providing accommodation and facilities, and will be responsible for the treatment of cases under investigation. The primary purpose of the department is to undertake clinical researches into disorders affecting industrial workers, including both occupational diseases and others of a more general kind. This work will be done mainly in the department itself, but the staff will make visits from time to time to other parts of the country where special problems for investigation may be brought to the notice of the Council. The department will also be responsible for teaching and instruction in the subject. This arrangement supersedes that made last year for the appointment of a whole-time director of research in industrial medicine attached to the Council's headquarters. This post had become vacant through the appointment of Prof. A. W. M. Ellis to the Regius Chair of Medicine at Oxford.

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[1] *Quart J Med.*, 1942, 11, 181.

MEDICINE AND POLITICS

BY

GEOFFREY BOURNE, M.D., F.R.C.P.

In considering the future of Medicine in this country two separate and distinct issues are involved. One is the question of how adequate health services are to be financed; the other is the question of how they are to be organized and controlled. The former will obviously depend upon the economic state of the country after the war. A considerable extension of State financing will be necessary if and when direct payment out of earnings and voluntary efforts can no longer meet the existing needs or the increasing burden of essential future development. State financing of medical services may then be a duty and a benefit. But *political control* of medical practice and of medical science is another matter, and in my opinion this will always be unconditionally bad.

The Political and the Scientific Outlook

The politician differs from the doctor in training, qualification, and general outlook. The member of Parliament is trained for some activity other than the science of government, or else he is untrained. He is not qualified for his work by any necessary study of finance, economics, or even the technique of reasoning. The emotions of the populace are his guiding light, and it is dangerous for him to defy them. Playing upon the emotions is also the means by which he achieves his political ends. When political axioms are unpleasant or unpopular they may be disregarded or changed. The politician is often ignorant of science, and even if he is aware of the established scientific facts in such cases as diphtheria immunization or pasteurization of milk he is prepared to ignore them in order to avoid antagonizing vocal and ignorant constituents. "This might be the pate of a politician," says Hamlet, "one that could circumvent God."

The doctor, on the other hand, undergoes long, arduous, and intensive training, and his knowledge is thoroughly tested before qualification and practice. He has been taught to weigh evidence before forming conclusions, and knows that failure to act in accordance with scientific truth invites disaster. He learns to respect truth as such, and to value severe and unbiased criticism as a means of arriving at truth. Thus, a fundamental difference exists between political and scientific standards. Political policy is determined chiefly by opportunism and expediency; honest-mindedness and accuracy are essential in science. When scientifically trained individuals engage in politics they are usually forced by circumstances to judge issues by political rather than scientific standards. The science of medicine must never allow itself to be put in a position where its freedom is in the slightest degree curtailed by such political pretexts as the statement that a question of "policy" is involved. Complete freedom of speech, criticism, and medical practice must be retained. Any member of a State service must have the right to speak his mind about his political or professional superiors on any question of medical science, practice, or policy.

Science and Administration

The politician, in so far as he is altruistic, has one supreme aim—administration. To be a good administrator is his ideal. "The Administration," "the Executive," are self-explanatory terms. There is a connotation of supreme central power exercised through successive subservient grades. The politician, by adding "ad," has reversed the word's proper conception. He is fond of this minatory prefix; he adverts, he adheres, he adjures, and he admonishes. Ministration means service. Now, since what is unknown cannot be administered or ministered, the politician regards research as politically non-existent. Moreover, the political or electoral value of future discoveries is *nil*. The public attitude to scientific matters confirms the politician in his idea; for *vox populi vox Dei*. Medical service, to the man in the street, is something which can be "laid on, like gas and water." Politics can often be turned on like gas, but science cannot be turned on like water. Where uninstructed public opinion can directly influence medical organization, as in municipal councils, this blind worship of administration is shown by the fact that seniority in the medical services combines increasing administrative power, diminishing medical opportunities, and more pay.

The public, taught to worship and revere administrators, is prepared to receive their administrations without complaint at any given level of scientific ignorance. In 1920 hypothetical medical bureaucracies might well have stifled the research work which discovered insulin and the liver treatment of pernicious anaemia. In that case the public would have continued to die happily and respectably of these diseases with praises on their lips for the smooth efficiency of their bureaucrats. Medical discoveries are popularly regarded as dropping like ripe plums from trees. Politicians are prepared to exploit them when they do drop, but neither the politicians nor the public realize that a research worker requires adequate laboratories, freedom from interference, a completely fair intellectual field, and adequate remuneration. A scientific doctor has the same needs, and all good doctors try to be scientific. These requirements are not smiled upon by the administrator, for they fall into no preconceived pattern and smack of revolt and insubordination.

History proves that scientific freedom and research are of vastly greater importance to humanity than is administration. This is especially to be stressed because medical science is very young and has far to go. A bureaucratic medical administration may be highly efficient, but if it stifles initiative it will perpetuate the existing death rate of many diseases. Professional freedom, on the other hand, given the right atmosphere and opportunity, will reduce these death rates even if the administration is less good. Therefore, in terms of human lives, there is no doubt that the scientist is more valuable than the administrator. Innovators of all kinds are attacked by politicians of most parties; scientific innovators are equally attacked in medicine. But, in politics, the fate of the innovator may entirely depend upon money, newspaper influence, misrepresentation of facts, party combinations, or propaganda. In science the innovator is sooner or later accorded his rightful place when the truth or falsity of his claims is established by experiment, logic, and observed fact. The careers of President Wilson and of Lister provide significant examples of the two methods.

Concentration upon administration and lack of appreciation of real scientific needs are exemplified by the municipally controlled services, in which pathological and other special staffing is inadequate, except for bare routine. The voluntary hospitals, starved of money as they are, compare in these essential respects most favourably with their municipal sisters, who have, or should have, unrestricted financial support.

Intellectual activities are not encouraged by politicians. Education is the most important of all such activities, and the bureaucratic treatment of education by politicians, both in Parliament and in local councils, is of sinister omen. The initiative of teachers is damped centrally; they are poorly paid, and mercilessly overdriven as indicated by the size of classes in the pre-war period. The financial worth of the teacher to the community in many cases is assessed at a lower level than that of the bus-conductor.

Ideally, administration should decapitate itself and minister fully to science, thus allowing scientists and doctors full scope to serve the public. The great advances in American medicine in the last 25 years are probably largely due to the humble place generously and voluntarily taken by the administrators of such funds as the Rockefeller Trust. A similar attitude could be assumed by State ministrators in a British Medical Service. Wise generosity is a good investment.

The political risks inherent in State control of medicine are real enough when this is centrally directed. They become greater when the control is relegated to small local bodies. The local magnates, farmers, trade unions, and other interests will all bring pressure on the isolated medical bureaucrat. This latter, for the sake of the peace and quiet so desirable for steady Civil Service promotion, will almost inevitably try to keep his local doctors and scientists quiet and orthodox, and will tend to discourage those experiments and investigations necessary for advance in medical knowledge. In a State service the local liaison between the public and the profession should be designed to be non-political.

The muddle-headed thinker and the political fanatic will deduce or pretend that any criticism of politicians and administrators in this connexion is an attack upon the whole idea of State medicine. This is untrue and is founded upon false logic. The two issues, State financing of health services and autocratic political control over science, must be considered separately. A system which combines these is completely unacceptable. One in which science is free and finance is inadequate is better, for progress follows intellectual freedom. A system which combined financial support with complete intellectual and professional freedom would be ideal. If State financing of medical services is an economic necessity the wisest course would be to place it under a detached and sane body such as the Privy Council. In this way medicine might be saved from becoming the new electoral toy or the helpless prey of central and local party politics, and there would be some hope of preserving that individual initiative which both Mr. Herbert Morrison and Mr. Oliver Lyttleton have recently praised as being so valuable "in its proper place." No more proper place for this quality exists than medicine.

The medical profession can help to clarify the issue by determining solidly that, at all costs,

1. Medicine and science must not be political.
2. In any State service the administrator shall become the ministrator, the servant of the public and its doctors.
3. The profession must be controlled by itself—that is, democratically from within in respect of its medical affairs.
4. In any State service promotion must be by professional ability and not by seniority.
5. The public must not be fobbed off with a medical service which will be just adequate. The country must be prepared to pay for the best possible service.
6. Research and medical teaching must be intellectually free and generously financed.
7. Opportunities for reviewing and remodelling the system from within must be available.

The conclusion of this matter is of vital interest to all branches of science and therefore to civilization; for science is the sap of civilization. Medicine is the most powerful, politically, of any scientific activity. If it follows education into the political maw there will be little to prevent all other intellectual activities and freedoms from following. It is imperative, therefore, that freedom of scientific action, speech, and criticism be insisted upon quickly by all scientists, both for medicine and for themselves. The mind is greater than the body. Habeas Corpus was one milestone in human freedom; Habeas Mentem must be made the second.

Reports of Societies

NASAL ALLERGY

At the last meeting of the Section of Laryngology of the Royal Society of Medicine, Mr. V. E. NEGUS presiding, the discussion was on nasal allergy, excluding hay-fever.

Dr. **GEORGE BRAY** declared that the allergic nose accounted for at least one-third of the practice of the rhinologist. Allergy should be suspected in cases of persistent sneezing, running, blockage, and polyposis, especially if there was a family history of similar symptoms. In a person with allergic predisposition the first nasal discomfort usually occurred as a sequel to upper respiratory infection. The commonest time was early in the morning, following contact with a cold environment. The sequelae were cough, asthma, headaches, deafness, and formation of polypi. He gave the following list of specific sensitizing substances:

Inhalants: feathers and down, orris root, animal emanations, tobacco, dusts, drugs, insecticides, fungi, osmyls, and odours.
Ingestants: foods (wheat, eggs, milk, chocolate, tomato, nuts); drugs (aspirin, iodides, quinine).
Physical agents: cold, heat, light.
Infectants: bacteria rarely sensitizers
Non-specific irritants: strong smells, bright lights, tobacco smoke, petrol or oil fumes, sulphur fumes, chlorine in water.

Peeling new potatoes, cooking legumes, handling soap powders, and walking past a fried-fish shop had been known to induce attacks. Treatment should be primarily from the allergic aspect. General treatment comprised avoidance of fatigue and emotion, and irritants should be removed. Specific desensitization was of value; non-specific was useless. Among drugs, adrenaline, ephedrine, and benzedrine were useful; cocaine, menthol, and calcium should be avoided. Endocrines were often beneficial, especially thyroid in old people, and ovarian extracts at about the menopause. In surgical procedures conservatism was the keynote of treatment. Ionization was only temporary in its effects, and the value of diathermy and radium was questionable.

Pathological Aspects

Dr. **CYRIL POLSON**, after a brief history of the subject, discussed the findings in gastric analysis, blood sugar estimation, and liver function tests in allergy. Hypochlorhydria in these patients was usually associated with excess of mucus, and probably due solely to that cause. The mucus was more likely to be derived from the respiratory tract than from the gastric mucosa. A low fasting blood sugar concentration might occur in allergic patients, but the cause was not yet explained. Evidence of liver dysfunction in allergy was equivocal. Among naked-eye and microscopical appearances eosinophilia and oedema of the mucosa were the outstanding changes. The eosinophil leucocytes were derived from the bone marrow and conveyed to the nasal mucosa by the blood stream. The mononuclear type of eosinophil leucocyte was, for the most part, only a degenerate form of the polymorph cell. The cause of mucosal oedema was still unexplained, but oedema appeared to be an essential factor in the development of nasal polypi.

Lieut.-Colonel **MYLES FORMBY** said that the local manifestations of the clinico-pathological syndrome of nasal allergy often hid the dyscrasia which was the basic enigma, itself an anaphylactic phenomenon. About 400 cases of allergic rhinitis seen in the course of five years were analysed as follows:

	Males	Females	Total
Uncomplicated	48	67	115
With ethmoiditis	122	116	238
With polypi	29	14	43
Asthma (no nasal sign)	7	4	11

Allergic rhinitis had become increasingly common during the last ten years. Local infection played no important part until it had been grafted into the upper respiratory mucosa by surgical interference. It was then a secondary complication, not a fundamental aetiological factor. Under treatment he described a technique for applying radium to nasal polypi. It consisted of the application of 12 needles (6 on each side) for 7 hours, the dose being 546 milligramme-hours.

American Experience

Several officers in the U.S. Army Medical Corps gave their experience. Colonel **CANFIELD** said that in his American clinic the surgical approach was extremely conservative, and in very few out of 150 cases which he had taken was any major sinus surgery done. The congestion inside the nose had been relieved by removal of obvious polypoid material; and occasionally the ethmoid was opened if there was severe infection. In his view the polypoid condition occurred first, and then, because of obstruction, the nose became more susceptible to an infecting agent. Major **FOWLER** described allergic rhinitis as a manifestation of sympathetic or parasympathetic imbalance. Major **HOOPLE** said that the experience he had had with allergies had not been satisfactory enough to make him feel that these cases should be turned over to the allergist and discharged from the care of the rhinologist. Rhinologists must keep these cases in their own hands, realizing at the same time that they were cases of general disease. Captain **RICE** said that the simple fact was that not enough was known about this condition, and that by study of the local state not much more was going to be found out. Any more definite information was likely to come from the biochemist.

Mr. **MUSGRAVE WOODMAN** said that he had had good results from the old process of cauterization. Zinc ionization was not a cure-all, but many cases so treated went through the summer without hay-fever. He criticized Colonel Formby's use of radium. Colonel Formby put in a fairly large amount of radium for a very short time. The line now followed was to apply radium in smaller doses for longer time. He believed it most inadvisable to carry out any operation in the acute stage. Psychology was a very important factor in these cases, and he had had some good results from routine breathing exercises.

Mr. C. HAMBLEN THOMAS said that he had had some success with diathermy and also with intramuscular calcium injection. It did not, however, act in every case. Allergy was a peculiar condition and rhinologists must look to physicians and biochemists to help them out. The less they interfered the better. Dr. VERA WALKER suggested, on the basis of some dietetic studies, that a deficiency of eggs and milk might be a predisposing cause. Dr. T. B. JOBSON considered that these allergic cases were likely to get worse if inhalants were used. A common medication was mainly liquid paraffin broken up into very fine droplets which was inhaled into the lung, and after a time the alveoli became blocked up with fine particles, and a condition like silicosis occurred. During 15 years he had got better results from ionization in the nose than from any other form of treatment.

Major IRELAND had found some cases relieved by ionization. He did not like the idea of turning all these cases over to the allergist. Dr. F. A. PICKWORTH showed slides illustrating the eosinophilia in these cases. Dr. FRANCIS said that any operation which damaged or removed nasal mucous membrane made the patient worse. The most valuable surgical measure was submucous resection if there was a marked infection, but it should not be undertaken otherwise. Combined with nasal treatment, any measures which improved the circulation would be found to help in vasomotor rhinitis. Even by rubbing the back of the neck and the scalp the congestion of the nose was relieved.

Dr. BRAY, in reply, said that in desensitization it was usual for patients to react to several allergens. The patient was asked to avoid these as much as possible, but in the case of the more common allergens he was desensitized to the main substances to which he reacted. Nowadays concentrated solutions were used, adrenaline was added to the solution to prevent an immediate reaction, and the desensitizing solution was given several times a day. With this more concentrated and rapid course of injections the majority of these cases would improve.

Correspondence

Medical Reorganization: The Constitutional Position

SIR,—I attended the meeting of consultants and specialists at B.M.A. House on May 19 but was unable to stay long enough to ask a few simple questions which may have a profound bearing on the present situation. I should therefore be grateful if you would publish the following remarks and queries. There is no attempt to disparage the magnificent work done by the B.M.A. and its various committees; their deliberations and useful spade-work may prove invaluable in good time. For the present I should like to put the following up for consideration:

1. Did the demand for State control or drastic reorganization of the medical profession come from either the general public or the profession?

2. As the answer to the foregoing is clearly "No," has the present House of Commons any mandate to introduce legislation of this very advanced nature without reference to the electorate?

3. Is not the main feature of totalitarian rule the planning of the lives of the community on important issues without reference to the wishes of the populace?

4. Is not the present Parliament (elected on totally different issues, years ago, and only tolerated as a wartime emergency) proceeding far beyond the powers which are intended by the Constitution of this country in attempting to introduce such controversial legislation without reference to the electorate?

5. Does any emergency exist to demand the hurrying on of this legislation in such abnormal times? Would it not be more rational to postpone action until an already overworked profession has time and opportunity to determine its own rights and future calmly?

6. Has the subtlety of the way that this has been presented by the Government been realized? Have we not been told in fact that unless we devise some scheme for reorganization of the profession the Government will present its own scheme which we shall *have* to accept? Have the implications of this been grasped? If we do prepare such a scheme and submit it, cannot the Government then turn round and say, "We are forcing no legislation. Why, here is the doctors' own idea of a scheme for a State Medical Service"? By this means they could present an apparently constitutional case for a State Medical Service in the absence of an electoral mandate. "*Here are the doctors' own proposals!*"

7. Is not the wartime habit of unquestioning subservience to all legislation being used as a lever to make us believe that all proposals of the House of Commons are inevitable? Is this really the case in matters not relating directly to the war effort? Have we already undergone that degree of "Nazification" or does the chance still remain for us to cling on dearly to our constitutional rights? Is that not what this war is being fought for, and if we do not keep those rights does it matter very much which side wins?

8. Does anyone seriously suggest that the opinion of men on active service or with the Forces, living under abnormal wartime conditions, can really be regarded as their considered opinion of the future? Are not they and those now studying medicine the main portion of the profession whose whole future is at stake and which is being decided in their absence?

9. Would not any sane person say, "*Plan now, deliberate now,* but for the love of Heaven don't attempt to *legislate* in this paranoic atmosphere"?

10. Finally, as an old and ardent supporter of and worker for the B.M.A. I am bound to ask this: If it comes to a question of actual negotiation with the Government, has the B.M.A. any concrete sort of mandate from the profession as a whole to act on its behalf? I submit that before the profession is committed in any way it will be necessary to see that every doctor has an opportunity of voting individually on the proposals. Is not the whole question of handing over our profession to the State far too serious an issue to be handled without a proper referendum of our own? And if we are handed over to the State how shall we criticize the administration of affairs by officials? This is a very necessary procedure on occasions, as in the recent diphtheria prevention campaign, when, in the early stages, the Ministry of Health committed almost every conceivable major blunder because of the inexperience of its advisers on most of the practical and some of the technical issues. These howlers it was my privilege as a private independent worker to attack, and they have all been rectified. But who can expose idiocy when we are all in the asylum under the care of a loving keeper?

If any who read this letter should see any sense in my contentions and queries, would they draw the attention of others to the matter? There might even be food for thought as regards resolutions at Division meetings and queries to M.P.s on the constitutional issue.—I am, etc.,

London, S.E.5 GUY BOUSFIELD.

A Problematical Future

SIR,—As one no longer interested personally in the practice of medicine, but deeply concerned with the future of the profession, perhaps I might be allowed to place on record my views with regard to the Beveridge plan, so far as it affects medicine.

In a professional life which embraced the club system and the National Insurance Act (the latter of which I heartily sponsored), I have always regarded as a high privilege being to a certain extent my own master, and it is for that reason, among others, that I should advise a very careful consideration of all the implications which an acceptance of the scheme would involve. I willingly embrace the thesis that the welfare of the patient should be our first consideration, but I am not prepared to admit that his treatment will be materially better under the scheme than that afforded at present. In actual practice I have not found that team work—which is a feature of the scheme—yields better results than individual care coupled with invoking other advice when necessary.

Be that as it may, there can be little doubt that in the case of the seniors in the profession their financial position will be definitely worsened, though I would not stress that objection as being fundamental. Should there be any doubt on that point, it is only necessary to consult *Whitaker*, where the incomes enjoyed by civil servants in comparable positions to those prepared to work the scheme will be found less attractive than those enjoyed by the bulk of the profession to-day, and such amenities as pensions and liberal holidays will lose much of their attractive appeal.

Sir William Beveridge seems to show a disarming ingenuousness when he proposes to give substantial sickness allowances. No doubt in a guileless world this might be feasible, but in a world where "lax" certification is not unknown and the reluctance to return to work is, it points to a lack of knowledge in dealing with this aspect of the question. If we feel dissatisfaction on this point on which medical men can feel sure of their ground, a certain reluctance to accept his authority on other points not so accessible to us is not unreasonable.

I would therefore submit that we should be extremely chary of abandoning our present liberties for a chimerical future. To surrender the "glorious privilege of being independent" is not lightly to be undertaken. And above all let us remember that a decision once taken is irrevocable. There is no turning back.

> "Facilis descensus Averno,
> Sed revocare gradum . . ."

—I am, etc.,

Cheadle Hulme H. ELKINGTON SMITH.

Planning of Medical Education

SIR,—Prof. Francis Davies's article on the planning of medical education (May 1, p. 547) contains some excellent features, but certain suggestions must not pass without a challenge. Many of us will endorse his statement that "the better students take the present curriculum in their stride." It may be true to say "that too high a proportion are not up to the standard required." It is most certainly true to state that we have no desire "to bring down the standard or scope of the various subjects to the level of such students." Why, then, does Prof. Davies wish to dispense with the Second M.B. examination? Does he hope to raise or even maintain the present standard by such means? We are all painfully aware of the student, described by Prof. Davies, who can deal with his subject in small doses and yet is completely at sea when asked to correlate one fact with another. Surely the Second M.B. examination should be retained in its entirety if only to eliminate this very poor type of candidate as early as possible.

I cannot imagine anything more demoralizing than to require students to dissect the body in parts (which are purely arbitrary anyway), to examine them in detail on each separate part, and then to inform them officially that they can now forget what they have learnt. Are we never to test the student's powers of co-ordinating the anatomy of the body as a whole? By such a procedure, we are told, "we could get rid of the premium at present placed on mere feats of memory." Would Prof. Davies please tell us who *is* placing a premium on such feats? If he is referring to the present-day examiner in anatomy it is a most serious reflection upon his colleagues and one likely to be hotly challenged.

Surely Prof. Davies is a little out of date in asserting that students are allowed "to descend from degree to diploma" and to "crawl along the curriculum." I would remind him that in these days every student, if he is to retain his place in the school, has to be certified periodically to the Ministry of Labour as making satisfactory progress. It is our bounden duty to see that we do not return to the bad old days after the war.

Among the reforms advocated by Prof. Davies is one stating that all candidates for entry should be interviewed by a committee "comprising representatives of all faculties," whose duty would be to examine the candidate, his history and achievements in some detail. Does Prof. Davies realize how long such an investigation takes per candidate? From my own experience I can state that it cannot be accomplished in less than 30 minutes. By the time the committee had worked solidly from 9 a.m. to 1 p.m. and from 2 p.m. to 5 p.m. they would have examined precisely fourteen candidates. If the selection is to be really worth while, then at least three times the number of candidates to be admitted would have to be interviewed. Thus for a school admitting 100 students Prof. Davies's committee would be in continuous session for rather more than four weeks. I can well imagine that Prof. Davies's enthusiasm would stand him in good stead in such trying circumstances, but his colleagues from other faculties might be excused if they alternated between irritability and lethargy. Has Prof. Davies faced the possibility of his colleagues demanding a *quid pro quo* for *their* entrance problems?—I am, etc.,

Birmingham C. F. V. SMOUT.

The Diet in Diabetes

SIR,—May I thank Dr Micks (May 15, p. 598) for his very welcome ventilation of this subject of diabetic restrictions. So far as I know it has never been shown that a high blood sugar *per se* ever did anybody any harm. Of the common complications, coma is now accepted as being due to ketosis, and arteriosclerosis is not unconnected with lipid metabolism. The lowered resistance to infection is often alleged to be due to a raised tissue sugar. May it not be caused by impaired blood supply and nutrition?

For the past three years I have treated all my diabetics by restricting their fats to some 50 g. per day. Otherwise they eat what they like. They are given sufficient insulin to abolish ketosis, maintain weight, and reduce their glycosuria to reasonable limits. They are seen at intervals and carefully watched for acetonuria. Moderate glycosuria is acquiesced in. So far they all remain well. Their insulin requirements tend to drop rather than rise. They are much happier, a not unimportant point. My only difficulty is to explain why I will not permit them to eat fat when the Government allows them an extra butter ration!—I am, etc.,

Portsmouth J. C. PRESTWICH.

Calorie Control Diabetic Diet

SIR,—The active correspondence elicited by the article of Dr. A. C. Crooke and Miss Ella Scott (Jan. 16, p. 64) on the "new" principle of caloric regulation in diabetes has apparently ignored the fact that the Rockefeller Institute monograph which I published with Stillman and Fitz in 1919 was entitled "Total Dietary Restriction in the Treatment of Diabetes." The powerful influence of total calories and body weight was established by animal experiments and clinical studies before the discovery of insulin. This law afforded control of cases which had never been controllable by restriction of sources of glucose alone. It is not invalidated by accidental fluctuations of tolerance in mild cases, or by the slowness with which the bad effects of caloric excess become manifest in such cases. That it was also not affected by the observations of Newburgh and Marsh, Petren, and other advocates of high-fat diet is shown by two facts. First, in the original Newburgh-Marsh publications it will be noticed that only the relatively mild cases in older patients were dieted with high fat, and the severe cases were actually on low calories. Likewise, no one else has ever taken a series of cases which were severe according to our standards in the Rockefeller and Physiatric Institutes and kept them controlled for years without insulin on high caloric diets. Secondly, the slower influence of total calories and body weight in milder cases is so potent under right methods that Newburgh has now gone further to the opposite of his former position than most clinicians can follow, by asserting that mild diabetes with marked obesity often is not a true diabetes, or can be actually cured by reduction of total diet and body weight.

Immediately after the advent of insulin the varying insulin requirements resulting from alterations of protein, carbohydrate, fat, total calories, and body weight were demonstrated precisely in the papers published by Sherrill and myself in the *Journal of Metabolic Research* for Nov.–Dec., 1922, and Jan., 1923. In short experiments the glycosuric and hyperglycaemic effect of carbohydrate is predominant. In the long run the extra need for insulin with high carbohydrate in comparison with an isocaloric diet with low carbohydrate is relatively slight, as we proved with carbohydrate allowances up to 250 g. Later this fact was "discovered" and abused in the period of excessive carbohydrate diets, which are feasible but usually inconvenient and productive of undue blood sugar fluctuations. On the other hand, if most of the carbohydrate in any diet is replaced by its glucose equivalent of fat, thus greatly increasing the total calories, the immediate result may be a slight fall in insulin dosage, but as the body weight gradually rises the insulin requirement becomes increased and may finally be multiplied. In suitably prolonged tests the insulin requirement created by the most extreme disproportion of carbohydrate is trivial compared with the huge requirement created when a severely diabetic patient is fattened by a long-continued high caloric diet of either high or low carbohydrate content.

Insulin has covered a greater multitude of sins and fads than any other known remedy. The dietary principle of total caloric regulation furnishes the basis for an elastic and efficient control of all types of diabetes, with adaptation to the need and comfort of each individual. An explanation of the puzzling scientific fact may be opened up by the experiments of C. N. H. Long (*Proc. Amer. Diabetes Ass.*, 1942, **2**, 99). The fact itself—namely, the demonstrated predominant role of total calories and body weight and the relatively minor influence of total glucose value of the diet—has stood unshaken since the decade 1914-23, and can be confirmed by anybody who chooses to repeat our early experiments.—I am, etc.,

New York City FREDERICK M. ALLEN.

Aviation Medicine

SIR,—May I write in defence of my book on *Aviation Medicine*, which your reviewer (March 6, p. 287) does not like and on which he has, so I believe, not fairly reported? First of all, he has failed to say that, in contrast to existing textbooks of the same title, my book is not addressed to the medical specialist of aviation but "to members of the Air Forces, medical men, teachers, and everybody else who takes an intelligent interest in flying." At the time of writing my book such a publication was not in existence. There is, of course, an urgent need to acquaint lay people, and more particularly flying personnel of the Air Forces, with certain aspects of aviation medicine. This became obvious to me first during the years before the war when I was actively engaged in flying, and this conviction was emphasized during the first two years of the war when I had to give lectures on aviation medicine in various Air Force camps in this country. More recently I have devoted my time exclusively to physical education, being the medical consultant in this subject to the Northern Command of the South African Defence Force. But I am, as no doubt you are too, aware that the need for supplying air crews with information on medical aspects of flying has now been generally recognized by virtually all Allied Air Forces. Thus I think there is room for a book written for this purpose presenting aviation medicine in a form which non-medical men and medical non-specialists will understand. I have good reason to believe that many air crews as well as medical officers consider that this aim has been attained.

It appeared to me that a bibliography should not be attached to such a book, a point for which your reviewer has taken me to task. Writers like H. G. Wells, Julian Huxley, and Hogben, who also hold that technical information is not the monopoly of the specialist but that it should be placed at the disposal of those who apply it as well as of the ordinary man in the street, have done likewise. No apology is needed for not referring to "knowledge which has accumulated in the past four years, but which will not be available for publication until after the war." I considered, and still consider, it essential that a book of the kind I have written should be available to our flying men *during* this war. Books for the "more conservative" ones who wish to read about all scientific experiences collected since 1939 will undoubtedly be published after the war is won.—I am, etc.,

Johannesburg E. JOKL.

Indian Army Medical Corps

SIR,—In the article on the foundation of an Indian Army Medical Corps (May 8, p. 575) there is the phrase "slow-moving East," which apparently means that there is some characteristic in the Eastern climate and in the people there which is responsible for the delay in the institution of this medical body for the care of troops. A reference to the report of the Royal Commission on the Administration of Expenditure of India, 1896 (vol. 1, p. 378), will show that Dr. K. N. Bahadurji in his evidence advocated the formation of an Army Medical Service and a separate Civil Medical Service on grounds of economy and efficiency. The Indian Medical Service (I.M.S.) was, in the words of the letter of the Government of India, primarily military, whose officers were lent to the civil medical department to fill all the higher-grade posts in colleges and hospitals, and who were to return to military duty when wanted by the Army Department, and not, as you say, "originally a civilian service which provided doctors for the Army."

This matter was referred to by me in letters published in your columns and by numerous questions through friends in the House of Commons in the time of Lord Morley and Mr. E. Montagu. It has also been brought to the notice of the Government in the public press and on platforms in India. The opposition to this reform came from the India Office. You had neither the good will nor courage in those days to support the efforts of Indian doctors; you were under the influence of I.M.S. officers of the Military and Naval Committee of the B.M.A. It is gratifying, therefore, to see a departure from that policy of reserving the higher-grade appointments on the civil side for military officers. I see, also in the *Journal* of May 8 (p. 583), that Dr. S. R. Naidu, a civil doctor, is chemical examiner to the Government of Madras, a post which was before reserved for I.M.S. officers. —I am, etc.,

London, S.W.12 V. P. GONSALVES.

Abortus Fever

SIR,—Dr. Alasdair McI. Smith (April 3, p. 425) refers to the "almost certain" increase in the incidence of abortus fever in the human population as a result of the vaccination of non-pregnant cattle with living vaccines of *Br. abortus* and to the policy of the Ministry of Agriculture concerning vaccination. A statement of this kind may lead to a serious misapprehension of the position.

In cattle naturally infected with contagious abortion (*Br. abortus* infection) there is a tendency for the organisms to become located in certain organs, including the udder, with the result that the milk of such animals often contains virulent *Br. abortus*. The disease is so prevalent among cattle in this country that, generally speaking, it is impossible to control it by methods of segregation. There is, however, a growing volume of evidence in the United States, in this country, and elsewhere that it can be successfully controlled by immunizing cattle with vaccines prepared from living cultures of *Br. abortus*. There is as yet no satisfactory evidence that equally successful results can be obtained with dead vaccines. We are, in fact, in the same position in controlling contagious abortion in cattle as in controlling small-pox in man: we have to use living vaccines prepared from strains of attenuated virulence.

The Agricultural Research Council, following an extensive series of trials in cattle and an examination of the evidence in this country and in the United States, has recommended that two specified strains of *Br. abortus* should alone be used for the preparation of living vaccine. The Ministry of Agriculture is now producing vaccines from these strains for use in the scheme for the control of diseases of dairy cattle, and also, to a considerable extent, in the control of contagious abortion in herds not included in the above scheme. Long experience has shown that these strains are of such a reduced virulence that they neither set up the disease in cattle nor render them infectious, but they retain their immunizing properties. This state of reduced virulence is maintained by the method of preservation adopted.

A large number of careful experiments have failed to give any evidence that either of these attenuated strains, after injection into cattle, is excreted in the milk. From the public health point of view the position is, therefore, as follows. If these vaccines are not used the public run the risk of drinking milk infected with fully virulent *Br. abortus*. Where the disease is controlled by the use of these attenuated vaccines this risk is considerably removed. It is not even replaced by the much smaller risk of drinking milk infected with an attenuated strain. In view of these findings the Ministry of Health approved the use of these vaccines, and last year amended the conditions of the Milk (Special Designations) Order so that it is now permissible to vaccinate with these vaccines cattle in T.T. herds in which *Br. abortus* infection is present.

It will thus be evident that far from there being a likelihood of an increase in abortus fever following the use of *Br. abortus* vaccines issued by the Ministry of Agriculture, the resultant control of contagious abortion in cattle by this method should go a long way to minimize the risk of infection in the human population.—I am, etc.,

Weybridge. T. DALLING.

The Contaminated Injection

SIR,—Your article "The Contaminated Injection" (May 15, p. 608) raises a new point in this vexed matter of the dangers of infection by hypodermic injections. I have enjoyed immunity from any kind of trouble in this connexion for 20 years, during which a very great number of all kinds of injections have been given, and I attribute this to a routine by which the asepsis of syringes and needles is maintained with certainty. The evidence of aerial infection is particularly disquieting, for it obviously raises a legal point of great importance.

Since it is authoritatively stated that the introduction of air into a phial, the contents of which are to be injected later, *may* be dangerous and even fatal, it seems to me that in law a prima facie case of culpable negligence would lie against any registered medical practitioner who used for injection any preparation kept in bulk. It is plain that, no matter what precautions are observed, any phial can become infected by the inevitable entry of air (through the needle hole in the cap) due to the reduction of pressure within the vessel which results from the withdrawal of fluid into the syringe. This air entry being a fact, it follows that anyone using that phial for a second injection does so with full knowledge that its contents may be infected and dangerous, and I do not see how he could possibly rebut a charge of failing to exercise "a reasonable amount of care." It thus appears that the only thing we can do is to cease to use preparations in bulk and confine ourselves, as many of us already do, to sealed ampoules containing single doses.—I am, etc.,

Sunderland. A. KEFALAS

Calcium Intake in Pregnancy

SIR,—It is a pity that Dr. H. M. Sinclair did not immediately retract or modify publicly the brief extract of his paper reported in a January issue of this *Journal*. Like Dr. Sinclair, I also have had to write to colleagues, since the abstract of his paper appeared, emphasizing the importance of a high calcium intake in pregnancy.

As stated in my previous letter, I have been unable to trace any work which supports the belief that a *high calcium intake* prolongs either pregnancy or labour. *The abstract of Dr. Sinclair's paper dealt specifically with this aspect.* Abel's work, which Dr. Sinclair cites, refers not to the *intake of calcium* but *to vitamin D*. It is important not to confuse their different actions.—I am, etc.,

J. DOUGLAS ROBERTSON.
Courtauld Institute of Biochemistry, Middlesex Hospital, W.1.

Pertussis Antigen

SIR,—In your issue of May 8 (p. 562) Dr. R. S. W. Baker gives a summary of his results in the treatment of whooping-cough with Lederle's pertussis antigen. A personal experience in my own family, using this preparation as a prophylactic, may be of some interest.

About the middle of May, 1942, I gave two injections of 0.5 c.cm. at an interval of one week to my son aged 2 years. (The recommended prophylactic dose was three injections of 2 c.cm. at weekly intervals, but I thought I would reduce the dosage.) Towards the end of the second week the boy developed a cough which became spasmodic by the end of fourteen days. At the beginning of June I took my family to Scotland, rejoining my daughter, aged 3½, who had been evacuated there since November, 1940. During the first week of June the boy's cough became more severe and he vomited frequently after coughing. He had a mild attack of whooping-cough which lasted about fourteen days. We returned after three weeks, the boy being almost over the illness. Within ten days I learned that the girl had a severe cough, which in another few days proved to be a moderate attack of whooping-cough. She was ill for a period of six weeks and lost considerably in weight.

There are no other children in either household, the girl living with her grandparents, and the assumption was that the girl had been infected from the boy. Her illness was much more severe. The method of infection could not be proved, but the evidence was rather presumptive of the potency of the pertussis antigen.—I am, etc.,

Birmingham. A. WILSON RUSSELL.

Treatment of Malignant Tertian Malaria

SIR,—Dr. J. E. Murray (May 15, p. 613) seems surprised that the case recorded by Drs. W. L. Anderson and D. B. Bradshaw (April 24, p. 508) had responded to quinine. The League of Nations Malaria Commission has already pointed out that the strains of *P. falciparum* vary in different places, and that the West African strain is the most susceptible to quinine therapy. How susceptible is not generally realized, especially by doctors who deal with the resistant types elsewhere.

In 1928 I was accompanying a patient convalescing from hyperemesis gravidarum from the Gold Coast to England. The morning we sailed the patient developed a temperature and large numbers of *P. falciparum* were found in the blood. That night, on board, 6 gr. of quinine were given intramuscularly, and this was repeated in 48 hours. No further treatment was given on account of the hyperemesis. The patient made a complete recovery (on 12 gr. of quinine), and has had no recurrence of malaria.—I am, etc.,

Epsom O. G. WILDE.

Direct Inguinal Hernia

SIR,—I was interested in Surg. Lieut. M. R. Ewing's letter (May 15, p. 612) describing a special type of direct inguinal hernia, as I have recently encountered a similar case. The patient was a man aged 61 admitted with a strangulated right inguinal hernia, which was diagnosed pre-operatively as being of the indirect type. At operation it was found that the hernia was of the direct type, the sac protruding through an oval opening (1/2 in. long and 1/4 in. wide) in the fascia transversalis, the strangulation being caused by the narrowness and inextensibility of this opening. The bladder did not form part of the wall of the sac in this case. After reducing the hernia and excising the sac, a repair was made by suturing the opening in the fascia transversalis and uniting conjoined tendon with Poupart's ligament. He made an uneventful recovery.

In view of the mechanism of this hernia, strangulation should be a common complication. However, I can find only one reference to strangulation in the literature—one of Mr. W. G. Gill's cases described in the *Journal* of Feb. 11, 1939 (p. 263), was a strangulated Richter's hernia.—I am, etc.,

Liverpool. R. A. C. OWEN.

Interstitial Emphysema during Labour

SIR,—Mr. Vaughan Pendred's remarks on a case of interstitial emphysema during labour (May 8, p. 582) are interesting, especially the passage that a Queen Charlotte's consultant who was called in to see the case declared that he had never seen the like, thereby showing how rare the condition is. When resident medical officer at Queen Charlotte's Hospital in 1914 I published a case of this condition in the *Lancet* (1914, **2**, 445) and therein gave the cause of the disability as explained by the late Sir Francis H. Champneys. The emphysema in these cases is due to rupture of an air vesicle on the anterior surface of the root of the lung, the air escaping under the pleura into the anterior mediastinum and then up beneath the cervical fascia to the neck and chest.—I am, etc.,

Hendon, N.W.4. EDWARD SMEED.

SIR,—Your correspondents have recently drawn attention to cases of interstitial emphysema occurring during labour, and the suggestion was made by Dr. Phillips (May 1, p. 552) that it might result from the entry of air into the tissues of the face through a rent in the lining of the lacrimal duct. I do not think the association is unduly rare, as most obstetricians see such cases from time to time. The last which occurred under my care may throw some light on its mode of production.

The patient was a primigravida aged 28 with a slight degree of general contraction of the pelvis, the diagonal conjugate measuring 4½ in. The presentation was an LOA, and she was submitted to trial of labour. This was successful, and after a labour lasting 22 hours, and characterized by strong and regular pains and good co-operation on her part, a living female child, 7 lb. 14 oz., with marked moulding and caput succedaneum, was born at 10 a.m. On the evening of the day of delivery the characteristic crepitus of surgical emphysema became apparent beneath the skin of the neck, face, and upper thorax. By the next day it had spread to the shoulders, arms, and costal margins, and on *x*-ray examination the mediastinum was seen to be extensively involved. The emphysema reached its maximum distribution on the 4th day post partum, after which it lessened and became impalpable on the 9th day, although the radiological appearances of the mediastinum were not normal until the 14th day.

This case would seem to indicate that it is a ruptured pulmonary bulla which permits the entry of air into the interstitial tissues of the lung, whence it passes to the neck and adjoining regions via the mediastinum. So far as I know, no harmful effect results from the condition, though transitory cyanosis and dyspnoea have been noted.—I am, etc.,

Stockport. C. W. F. BURNETT.

Collapse Therapy

SIR,—I agree with much of what Dr. Patrick Heffernan has to say in the last paragraph of his letter (May 8, p. 581), but from his opening remarks I gather that his experience has been unfortunate. Most of us will not agree that the number of cases of tragic results following artificial pneumothorax is appalling.

Dr. Heffernan states that "at one time not so long ago" I abandoned the procedure of adhesion section. May I take this opportunity of correcting him. I am a strong upholder that whenever adhesions are interfering with the effectiveness of A.P. collapse the intrapleural condition should be examined through a thoracoscope, and the adhesion divided if benefit is likely to ensue.—I am, etc.,

Ruthin, North Wales. H. MORRISTON DAVIES.

SIR,—Lest the thought be disseminated that there is general uneasiness about the value of the widespread use of artificial pneumothorax in the treatment of pulmonary tuberculosis, one cannot let Dr. Patrick Heffernan's letter pass without comment.

Our lamented friend Dr. Chandler is beyond the reach of controversy, but my distinguished colleague, Mr. Morriston Davies, has hitherto lacked neither the ability nor the inclination to speak for himself, and it would be a superfluity if not an impertinence on my part to take up the cudgels for him and explain why he abandoned "at one time" collapse therapy or whether it was because of the complication mentioned in Dr. Heffernan's letter.

Far from there being too much "physical interference" in many sanatoria throughout the country, there is not nearly enough. Artificial pneumothorax, adhesion cutting, and other measures such as extrapleural pneumothorax and thoracoplasty, may not be without their risks, but the risk of not doing them is far greater. Patients are allowed to rot behind the walls of sanatoria quite as surely, although perhaps more pleasantly, than did general patients in the dreary wards of medieval lazar houses. Ask the superintendent of a modern sanatorium to give some simple statistics of what happens to patients possessing cavities where no pneumothorax has been done or where an unselective collapse has been produced. Without further "physical interference" (for instance, before the time when division of adhesions was introduced at the North Wales Sanatorium) my own survey showed that 90% died within five years, and about 80% in less than this time.

The subject is far too big to discuss adequately in the scope of one letter or one article. Time spent in one of the progressive sanatoria where the medical superintendent and his assistants confer freely with the visiting surgeons will convince the observer that the invigorating breezes of carefully assessed and planned "physical interference" stimulate and revivify everyone concerned, and dissipate the miasma of inertia and complacency that all too often settles down upon and suffocates those whose lives are spent in the administration of sanatoria and the care of tuberculous patients.—I am, etc.,

Liverpool. HUGH REID.

*** This correspondence is now closed.—ED., *B.M.J.*

Unity in the Profession

SIR,—Dr. Donald Watson (May 8, p. 579) revealed an attitude which is very worrying. Because he considers that certain members of the medical profession are "of a different ideology" from that to which he considers he belongs, he wishes that their right to express their views as doctors be suppressed. In fact, he wishes to "liquidate" them politically in order to gain his own ends. One of the most undesirable features of Nazism is its practice of "liquidating" its opponents in order to gain its own ends—a practice which most thinking people deplore. Is it possible that Dr. Watson's desire to render salaried medical officers politically sterile is a reflection of their political virility?—I am, etc.,

E.M.S., Sector 6, London. H. E. VICKERS.

The Government's Proposals

SIR,—It was a real tonic to be present in the Great Hall at B.M.A. House on May 16 to hear Dr. Charles Hill deliver his masterly survey of the present position in the talks now going on between the Minister of Health and representatives of the profession. On account of leakages of information which have appeared from time to time in the national press, it was only right and proper that a full and frank statement should be given to those people most intimately concerned.

It is unthinkable that the profession should be governed by the local authority; I cannot imagine a worse arrangement. This speech will go a long way towards clearing the air, and will demonstrate to the profession that the three things most needed now are clarity of thought, decisive action, and, above all, unity of purpose.—I am, etc.,

West Harrow. E. W. MEURIG WILLIAMS.

SIR,—At the meeting of the Metropolitan Counties Branch of the B.M.A. on May 16 Dr. Hill made a clever speech and played skilfully on the prejudices—political and others—of that large gathering. The Government's proposals are tentative only, and admittedly many details, especially in regard to administration, leave room for adjustment and modification. Taken as a whole, however, these proposals constitute a new charter of life for the profession. They would lift medical practice out of the mire of commercialism and they would for the first time enable doctors to engage in their noble profession without the distraction of money considerations or the urge of pecuniary gain and profit.

On the financial side, too, the Government's proposals are adequate and even generous. I have no hesitation in asserting that, judged purely on their merits and freed from political bias and sectional influences, these proposals would be welcomed by the large majority of medical practitioners as greatly to their advantage and in every way an improvement on the present conditions of work and remuneration. There is indeed one particular freedom which would be appreciated by all of us more than any other so-called freedom, and that is freedom from anxiety, insecurity, or financial and business entanglements in our daily work.

We of the rank and file are looking to the B.M.A. for guidance, and we expect that guidance to be liberal in outlook and free from diehard irreconcilable bigotry. In face of the present great issues which are bound up with the life-work of every one of us, the B.M.A., in taking up an uncompromising attitude to the proposals made by the Government, is doing the public as well as the profession a great disservice. In a matter so vitally affecting the well-being and conditions of work of every one of us, I suggest that the B.M.A. should abstain from one-sided propaganda. Let a plebiscite be taken from the profession on the particular and specific issues involved, and let every one of us have the choice of free reflection and free decision.—I am, etc.,

London, N.W.6. SAMUEL GRASSE.

Hans Selye and S. Albert (*Proc. Soc. exp. Biol.*, N.Y., 1942, 49, 227) find in experiments on rats that androstenediol and pregnenolone, when given with testosterone, prevent the atrophy of the testis which is produced by small doses of testosterone alone. They point out that the gonad-protecting power of a steroid is independent of its testoid action.

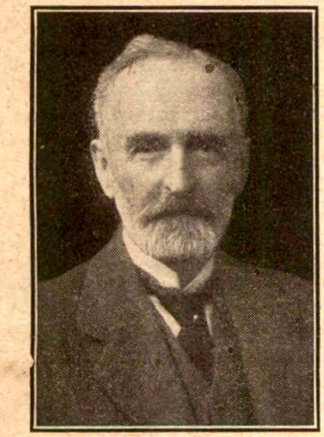
Obituary

SIR ARTHUR NEWSHOLME, K.C.B., M.D., F.R.C.P.

Formerly Principal Medical Officer, Local Government Board

A distinguished career in public health is recalled by the death on May 17 of Sir Arthur Newsholme, who was Principal Medical Officer to the Local Government Board until its absorption in the Ministry of Health.

Arthur Newsholme, a Yorkshireman from the Pennines, was born in 1857. His father, who had been churchwarden at Haworth to the Rev. Patrick Brontë, father of Charlotte, Agnes, and Emily, died when Arthur was a young boy, but his mother's prudence in straitened circumstances enabled him to receive a grammar school education, and he matriculated at sixteen. Afterwards he became dispenser and assistant to a Bradford doctor, and in 1875, with the help of a small legacy, he paid his entrance fees at St. Thomas's Medical School. Realizing the importance of registering quickly, he took the L.S.A. after three and a half years' training, in 1880 obtained the London M.B., and a year later the M.D., qualifying for gold medal.



Press Portrait Bureau.

After service in some hospital posts he started in private practice in Clapham, and in 1884 was appointed part-time medical officer of health for that parish or subdistrict, his salary being £80 a year. In 1888 he was chosen from among fifty candidates for the post of M.O.H. for Brighton. The salary was £500, which was less than the proceeds of his growing practice, but public health work fascinated him. When he left Brighton nineteen years later his salary was £1,000. In the largest seaside town in England his energetic work in such matters as the prevention of milk epidemics, control of scarlet fever, diphtheria, and typhoid fever, earlier administrative control of tuberculosis, and care of infancy and childhood marked him out among his fellows, and in 1908 he transferred his activities from local to central administration.

John Burns, who had become President of the Local Government Board in 1905, had a great admiration for Newsholme, and quotations from the reports of Brighton's medical officer of health, especially on the social aspects of the health of the child, figured from time to time in Burns's public speeches. Presently Burns asked him if he would be a candidate for the position of Principal Medical Officer to the Board, shortly to be vacated by Sir William Power. Thus Newsholme came to the desk first used by Sir John Simon. He left Brighton amid many expressions of regret.

During his period in Whitehall three great additional services were initiated and developed, largely with the aid of Treasury subsidies—namely, maternity and child welfare schemes, tuberculosis medical services, and the special service for venereal diseases. Maternity and child welfare was always close to Newsholme's heart. In taking part in the forward movement to that end during his earlier years at the Local Government Board he prepared four special reports which were national studies of the whole subject. He was active also in the creation of the tuberculosis services, and attended as Government representative an international congress at Washington on this subject.

Coming changes in public health administration were casting their shadows before. On the day before he took up his appointment at the Local Government Board Newsholme gave evidence before the Royal Commission on the Poor Law. One passage from his evidence is noteworthy: "It seems to me necessary, for the maximum economy as well as efficiency, that every man should have the right to call for gratuitous diagnosis, treatment, and provision of medicine." That was several years before contributory sickness insurance, with medical attendance, as a kind of halfway house to the goal, had appeared above the horizon. Newsholme was at the Local Government Board during the passage of the National Health Insurance Bill. The war of 1914-18 was a harassing time for his Department, itself in the throes of change. Looking back on the war, he saw as a relatively slight offset to its overwhelming devastation the intensification and hastening of scientific investigation and its applications which had resulted, and he rejoiced in the immense impetus given by the war to direct work on behalf of mothers and infants. He resigned his post in Whitehall in February, 1919, a few months after the armistice and just before the coming into force of the Ministry of Health Act. His last year of office was marked by the epidemic of influenza, which in its world-wide incidence claimed as many victims as the war itself.

Immediately after his retirement Newsholme travelled to the chief cities of the United States, attending a series of conferences to promote child welfare, and he remained in Baltimore to lecture on public health administration at Johns Hopkins University and to inaugurate a new school of hygiene and public health. During this visit to America he learned, at the age of well over sixty, to drive a car, and wrote amusingly of his adventures on the American roads. One signpost which he saw gave him his text for future addresses on preventive medicine. It reads: "Say it with brakes and save flowers." During his travels in America he came into close touch with American pioneers in public health, and himself undertook a large programme of public speaking. This was not always in university halls. Another labour in still later years was a survey of medical work in various European countries; this took him into Italy, Hungary, Yugoslavia, Poland, and Scandinavia. Then came a visit to Soviet Russia; on his return in 1933 he collaborated in the writing of a book entitled *Red Medicine*. His own impressions of Russia at that time were very mixed. He saw it with some misgiving "going baldheaded" into a completely socialized medicine, a policy and action towards which nearly every Western country was advancing but by slow degrees.

Among other positions which Sir Arthur Newsholme filled at various times were those of examiner for the Universities of Oxford, Cambridge, and London. He was Milroy lecturer to the Royal College of Physicians in 1895, and he served on the interdepartmental committees concerned with tuberculosis and with dental registration and on the Army Sanitary Committee. From 1910 until 1919 he was a member of the General Medical Council. He was president of the Society of Medical Officers of Health in the opening year of this century, and first president of the newly formed Section of Epidemiology and State Medicine of the Royal Society of Medicine in 1907, when his presidential address was on poverty and disease as illustrated by typhus fever and phthisis in Ireland. He was made Companion of the Order of the Bath in 1912 and Knight Commander in 1917. He was a prolific writer, and in the section of public health of any medical library several volumes bearing his name will be found on such subjects as medicine and the State, vital statistics, the prevention of tuberculosis, and the evolution of preventive medicine; while papers from him on the history and affinities of rheumatic fever, the origin and spread of epidemic diphtheria, vital statistics of Peabody Buildings, a national system of notification and registration of sickness, the spread of enteric fever by sewage-contaminated shellfish, the causes of reduction in the death rate from phthisis, and a score of other subjects testify to his alert and interested mind.

He married in 1881 Miss Sara Mansford, a Lincolnshire lady. She died in 1933. Their marriage was ideally happy. Lady Newsholme was her husband's companion in his travels and collaborator in his work. She was herself a speaker of considerable ability.

Sir ARTHUR MACNALTY writes:

It is thirty years since I entered the Local Government Board as a medical inspector and was welcomed by Sir Arthur Newsholme. We were a small and happy medical fraternity in those days, and each one of us was in close relation with our chief. He never spared himself, and he was always ready to discuss our problems with us and to give us the fruits of his long experience. In the ten years that Sir Arthur was Principal Medical Officer he laid the foundations of the national health services, which have so greatly expanded in recent times. He planned and organized the medical side of the tuberculosis, the maternity and child welfare, and the venereal diseases services. All this he did in spite of the interruptions to progress enforced by the war of 1914–18. He made a notable contribution to the war effort by seconding some members of his staff to the War Office to effect close liaison between the military and the local authorities in the provision for camps and hospitals and the treatment of epidemic disease. When the Ministry of Health was established and he left the public service he had the satisfaction of knowing that others would carry on the work which he had ably begun. In the years of retirement his facile pen was seldom idle, and he visited many countries in order to study health conditions and to advise on their problems. Newsholme had much affection for the people of the United States and greatly admired their work in medicine. He lectured at Johns Hopkins University and always welcomed Americans in his English home. His physical powers only waned within the last two years, but his mental energies were unabated. A charming host and a witty talker, he was always interested in his old colleagues and the progress of public health and medical work. Above all he was a good man who earnestly desired to leave the world better than he found it. Newsholme's name will ever be writ large in the history of public health.

We regret to record the death in his 77th year of Dr. William Summerskill of Blackheath, father of Dr. Edith Summerskill, M.P. for West Fulham. He studied medicine at Leeds and at St. Mary's Hospital, London, and had been a member of the British Medical Association continuously since 1889. When Dr. Summerskill qualified some 54 years ago, writes E. J. S., his first appointment in his native Yorkshire was one which had previously been filled by a coachman. He retained no reverence for those exciting days in medicine, although they provided him with a wealth of grim memories. The growth of medical science was most fascinating to him, and he was never known to miss reading the *B.M.J.* from cover to cover. Apart from a passion for travel and literature, he was completely absorbed in medical practice, in which he was extremely active until his heart began to fail last year. He refused to recognize the seriousness of his illness and saw patients almost until the end.

Medical Notes in Parliament

In moving the thanks of the House of Commons on May 18 to all ranks of the victorious Forces in Africa Mr. Attlee said he must mention the work of the medical service, of the doctors, the nurses, and all the non-combatant services. The motion was carried unanimously, as was a similar one moved in the House of Lords on the same day by Viscount Cranborne.

Food Supplies for Greeks

Mr. Harvey asked on May 11 whether the Parliamentary Secretary to the Ministry of Economic Warfare could give information of the shipment of food supplies, especially of dried milk and vitamins for children, which were being sent to Greece; and whether the neutral authorities supervising their distribution continued to be satisfied that no abuse had occurred.

The Ministry's spokesman said that food supplies which had reached Greece during the last three months comprised 28,703 tons of wheat, 8,561 tons of pulse, and 1,096 tons of condensed milk. Further shipments which had left Canada but which had not yet arrived at Greek ports included approximately 32,000 tons of wheat, 6,000 tons of pulse, and 600 tons of condensed milk. It was not yet known whether these cargoes included vitamin tablets, though their inclusion had been agreed to. As regards the state of nutrition in Greece, recent reports had shown a considerable improvement as compared with a year ago, especially in Athens.

Sir Frank Sanderson asked on May 19 whether the Government would permit dried milk and vitamin concentrates to be sent to Greece, France, Belgium, and Poland to provide children under 16 and nursing and expectant mothers with a daily ration sufficient to ward off the worst deficiency diseases, seeing that the money, supplies, and shipping were available, and that the International Red Cross would be able to provide for full control of the distribution.

It was stated in reply that, after the fullest consideration and with the deepest sympathy for the Allied peoples of Europe, the Government were convinced that a general action of the kind described would inevitably be exploited by the enemy for his own advantage. Moreover, such action could hardly be confined to the countries named in the question, and the provision of foodstuffs for children and nursing and expectant mothers throughout occupied Europe would involve a very serious breach in the blockade.

Bread and Milk

Opening a discussion on May 13 about the work of the Ministry of Food, Mr. Mabane said the national milk scheme and the milk in schools scheme had increased the consumption of liquid milk far above the peacetime level. The claim of children and expectant mothers on milk came first. That was not their only priority. Whatever they needed for an adequate and full diet Lord Woolton was determined to supply. That attitude had the full support of Parliament. Stringency demanded that the nation should squeeze the last calorie and the ultimate vitamins out of the food it had.

Mr. David Adams complained that there was no Government Department charged with seeing that the milk supply was pure. In London diseases which were milk-borne occurred despite the general pasteurization of milk there. That was due to mishandling of milk which had been properly pasteurized. Recently Prof. Ryle had visited Newcastle during his survey of hospitals for the Ministry of Health. He had said that in Cambridge his children had been affected by milk-borne diseases. The milk was said to be pasteurized but the apparatus was found to be antiquated and the milk was not really pasteurized. Newcastle-upon-Tyne Corporation found in 1942 that 24.1% of designated milk was unsatisfactory on bacteriological tests and 33.2% undesignated milk. In the North of England tuberculosis was on the increase among children.

Sir E. Graham-Little said that in most parts of the country 95% of the food of the larger part of the population consisted, by quantity, of bread. The loaf was of a heterogeneous composition and of no fixed standard. Of the germ which was extracted 99% was applied to proprietary articles. He appealed to the Ministry to raise the extraction percentage from wheat. Ten other diseases beside tuberculosis were constantly carried by milk. The next in frequency to tuberculosis was undulant fever. Last year 500 cases had been reported. These were a mere fraction of what occurred. This was an insidious complaint, seldom diagnosed. Something like ten milk-borne diseases were not revealed by the tuberculin test. Pasteurization was necessary to protect the public pending the production of milk which was free from a number of infections.

Mr. Mabane said the demand was not adequate to enable all T.T. milk to be sold as such. It was not the case that medical officers of health had been deprived of some right they previously had to reject milk. Consumers could purchase whatever type of milk which the supplier with whom they were registered provided, but if he did not provide T.T. milk they were not permitted to transfer their registrations to another dairyman in order to obtain T.T. milk. Efforts were being made to encourage and to assist dairymen to provide T.T. milk for customers who required it.

In an earlier debate Mr. Mabane had said that it was not in the national interest to publish the total gallons of milk consumed daily, but that from 60 to 65% was pasteurized. Milk supplied to schools did not all fall within one category, but must be approved as to source of supply and quality by the appropriate medical officer of health.

Protection of Practices Scheme

Mr. Groves asked on May 13 how the Minister of Health proposed to reconcile the protection of practices scheme with the Medical Benefit Regulations and terms of service, having regard to the limitation of lists, the obligations upon deputies and partners, and the responsibility of the practitioner for the insured persons whose names were included in his list. Mr Ernest Brown answered that under the National Health Insurance (Medical Benefit) Amendment Regulations, 1942, doctors who undertook to attend the insured patients of another doctor during the latter's absence on whole-time national service, under a voluntary protection of practices scheme, had the responsibilities of principals as well as deputies in respect of those patients. The provisions of the Medical Benefit Regulations and terms of service as to limitation of lists and deputies and partners accordingly applied, including provision for augmentation of the lists with the Minister's consent. In the case of statutory schemes a practitioner attending absentee practitioners' patients was in the position of a principal to whom the provisions of the Regulations and terms of service similarly applied.

Regulation 33B

Replying on May 13 to Dr. Summerskill, Mr. Brown said information received from all but a very few authorities in England and Wales showed that 36 men and 475 women had been reported to medical officers of health as alleged sources of venereal infection, of whom 1 man and 27 women had been the subject of more than one report, which was necessary before Regulation 33B could operate. Of these 28 persons two women had refused treatment, one expressly and one by default, and had been prosecuted and imprisoned. No civilian voluntarily undergoing treatment for venereal disease was subject to compulsion to complete it. He did not agree that the Regulation operated unfavourably against women.

Food Rationing Advisory Committee

Sir JOHN ANDERSON said on May 18 that the Food Rationing (Special Diets) Advisory Committee of the Medical Research Council had held fourteen full meetings in all. Owing to the decrease in the number of questions referred to the committee, and particularly of questions involving new principles, it had not so far been necessary to convene a full meeting in 1943, although a subcommittee met. Minor questions arising between meetings were circulated in the form of memoranda and the opinions of members obtained in writing. The other bodies consulted on behalf of the committee since the beginning of this year, in addition to Government Departments specially concerned, were the Royal College of Obstetricians and Gynaecologists, the Joint Tuberculosis Council, and the Tuberculosis Association.

Notes in Brief

Mr. Brown has recently taken the opportunity of asking local authorities to concentrate attention upon cleanliness in methods of production, treatment, and distribution of milk.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* during the week there were considerable fluctuations in the trends of infectious diseases. Rises occurred in the incidence of whooping-cough 585 and dysentery 58, but decreases were reported for measles 3,014, scarlet fever 225, acute pneumonia 161, cerebrospinal fever 25, and diphtheria 24.

Measles was down by 351 in Glamorganshire, 260 in Lancashire, 259 in Derbyshire, 215 in Essex, 210 in Kent, 177 in Suffolk, 165 in London, and 109 in Yorks West Riding. A few counties recorded a rise in incidence, the largest being Wiltshire 29, and Northumberland 28.

The downward trend of whooping-cough during the past month was interrupted by a sharp rise to the highest level of the past 20 months: though greatest in the North, it was general throughout the country. The largest increases were recorded in Lancashire 131, Yorks West Riding 67, Warwickshire 54, Derbyshire 27, London 27, Staffordshire 26.

The notification figure for scarlet fever touched the lowest level for 9 months. The biggest variations within the counties were decreases in Surrey 29, London 27, Staffordshire 26, Cheshire 24; and a rise in Essex of 20.

For the fifth consecutive week diphtheria has continued to decline slightly, and this disease is now at the lowest level since last August. The biggest reductions were in Yorks West Riding 32, Durham 26, Gloucestershire 20; whilst the largest increase was that of Lancashire 33.

A further large rise in dysentery, 58 cases, was reported, and the total is now three times that of a fortnight ago. Fresh outbreaks occurred in Lancashire, Blackburn C.B., 33 cases, and Essex, Chelmsford R.D., 22 cases; and in Staffordshire, Stoke-on-Trent C.B., where 45 cases were reported last week, there were 61 new cases.

In *Scotland* notifications of measles rose from 340 to 657, and of whooping-cough from 145 to 350. The city of Glasgow recorded a rise over the preceding week of 290 cases for measles and 169 for whooping-cough. In Edinburgh 84 cases of measles, a drop of 20, were notified.

In *Eire* diphtheria notifications fell considerably, and the total of 70 recorded was the smallest weekly total during the present year.

In *Northern Ireland* notifications of measles went up from 38 to 88: 71 were recorded in Belfast C.B. and 17 in Lisnaskea R.D., where a large outbreak of 207 cases was reported during the week ending April 10.

The Week Ending May 15

The notifications of infectious diseases during the week in England and Wales included: scarlet fever 1,748, whooping-cough 2,106, diphtheria 602, measles 8,032, acute pneumonia 712, cerebrospinal fever 62, dysentery 98, paratyphoid 4, typhoid 4.

No. 18

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended May 8.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	61	2	32	5	1	149	11	45	4	11
Deaths		—	3				—	1		
Diphtheria	643	35	154	70	20	713	28	197	45	28
Deaths	12	—	2	4	—	22	2	5	3	—
Dysentery	193	11	36		—	101	6	53		—
Deaths		—	—	—	—			—	—	—
Encephalitis lethargica, acute	2	—	—		—	3	—	—		—
Deaths		—					—			
Erysipelas			40	10	2			43	10	2
Deaths		1					—			
Infective enteritis or diarrhoea under 2 years				46					57	
Deaths	45	3	7	11	5	38	8	8	5	5
Measles	10,090	605	657	42	88	4,725	451	667	180	159
Deaths	7	4	1	—	1	10	—	4	—	2
Ophthalmia neonatorum	101	9	14	1	1	90	6	32	1	1
Deaths										
Paratyphoid fever	7	—	—		—	7	—	5		—
Deaths	1	—	—			—	—	—		
Pneumonia, influenzal*	745	9	12	4	2	1,096	44	14	8	12
Deaths (from influenza)	15	1	1	—	—	30	1	5	—	—
Pneumonia, primary ..			189	21				320	27	
Deaths		—		11	7		—		8	11
Polio-encephalitis, acute	1	—				1	—			
Deaths		—					—			
Poliomyelitis, acute	3	—	1	—	—	4	—	—	1	—
Deaths		—					—			
Puerperal fever	—	1	11	2	—	175	11	25	3	2
Deaths		—					—			
Puerperal pyrexia ..	138	11	14		1	—	—	26		1
Deaths										
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,458	137	226	32	37	1,145	73	184	40	37
Deaths	1	—	—	1	—	—	—	—	—	—
Small-pox	—	—	—		—	—	—	—		—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever†	12	2	10	9	1	12	3	4	6	1
Deaths	—	—	—	—	—	1	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths			—	—	—			—	—	—
Whooping-cough	2,225	142	350	31	28	1,641	176	58	59	15
Deaths	16	2	3	—	1	14	4	2	2	1
Deaths (0–1 year) ..	341	46	64	29	22	387	387	88	32	31
Infant mortality rate (per 1,000 live births)								1		
Deaths (excluding stillbirths)	4,261	623	590	205	127	4,811	647	699	231	135
Annual death rate (per 1,000 persons living)			13 3	13·5	‡			15·7	15·4	‡
Live births	6,887	802	982	390	320	6,181	679	985	381	274
Annual rate per 1,000 persons living ..			20 0	25·6	‡			20·4	25·4	‡
Stillbirths ..	221	20	34			232	22	45		
Rate per 1,000 total births (including stillborn)			33					44		

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* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Paratyphoid A and B now notified separately in Northern Ireland.

‡ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Medical News

The next meeting of the Biochemical Society will be held in the Department of Medical Chemistry, Edinburgh University, on Saturday, June 5, at 2.30 p.m. Tea at 4.30 p.m.

A one-day conference on casualty service has been arranged by the Citizens' Guild for Civil Defence for Thursday, June 10, at Victory House, Leicester Square, W. The address of the Guild is 20, Buckingham Street, Strand, W.C.2, and tickets for the conference may be had from the secretary.

The next meeting of the Liverpool Medical Institution on June 3 at 4.30 p.m. will be devoted to surgery of the chest. Dr. Robert Coope and Mr. Morriston Davies will read papers upon the early recognition and diagnosis of and possibilities of intervention in diseases of the lungs, with special reference to bronchiectasis and carcinoma. Between 4 and 4.30 a number of specimens collected and presented by Dr. Joy Cronin Lowe and Mr. Ronald Edwards will be displayed. Tea at 4.15 p.m At the conclusion of the meeting Mr. Hugh Reid will show a colour film illustrating an operation for lobectomy.

At a meeting of the Physical Society on Friday, June 4, at 5 p.m. in the Lecture Theatre of the Science Museum, Exhibition Road, S.W.7, Prof. F. C. Bartlett, F.R.S., will give the Thomas Young Oration on " Some Current Problems in Visual Functions and Visual Perception."

A sessional meeting of the Royal Sanitary Institute will be held in the National Museum of Wales, Park Place, Cardiff, on Saturday, June 5, at 10.30 a.m.

The Medical Research Council of Ireland (address: 85, Merrion Square, Dublin) has awarded grants to Dr. Stephanie Whelan, Dr. H. E. Counihan, Dr. S. J. Boland, Dr. N. Falkiner, Drs. F. Geoghegan and E. de Valera, Dr. P. L. Brennan, and Prof. W. J. E. Jessop; and seven earlier grants have been renewed for further periods.

Dr. T. A. Divine, Malayan Medical Service, has been officially reported prisoner at Singapore, and Dr. R. S. Hardie of Kuala Lumpur, F.M.S., prisoner of war in Thailand. Dr. O. E. Fisher of Fryston, Castleford, and of the Malayan Medical Service, is safe and in Japanese hands on Singapore Island.

Local authorities are required by the Ministry of Health (Circular 2818) to make a return of their public health and school medical staffs, to notify the Minister of vacancies, and to get his approval before they fill a vacancy and of the candidate proposed. It is pointed out that doctors engaged whole-time in public health and school medical work who are of military age are reserved in the posts they now hold, and if they wish to apply for other posts they must first obtain the Ministry's permission. Similar permission is necessary in the case of married women who, if they were not married, would be liable for military service. Written application for permission should be sent through the Regional Medical Officer of the civil defence area in which the doctor is working. Local authorities' advertising vacancies in the *Journal* are asked to indicate that the appointment advertised has been approved by the Ministry.

A cancer centre is to be developed at the London Hospital, Whitechapel, from the deep therapy department.

Universities and Colleges

ROYAL COLLEGE OF SURGEONS OF EDINBURGH

At a meeting of the College held on May 18, with Mr. J W. Struthers, President, in the chair, the following, having passed the requisite examinations, were admitted Fellows:

R. C Baird, D B. E. Foster, R C J Hill, R C Howard, R. V Liddell, A. R. Murray, G. N MacFarlane, C. B. O'Carroll, T. E. Rutter, R. A. Smith, D. C. Wiseman.

The Henry Arthur Dalziel Ferns Bursary was, after a competitive examination in organic chemistry in its application to medicine, awarded to Thomas Dale.

The Bathgate Memorial Prize was, after a competitive examination in materia medica and therapeutics, awarded to A. M. Kinghorn.

Correction.—In our announcement of the conferring of the honorary degree of D.Sc. by the University of Oxford on Dr. Joseph Trueta, the Wingfield-Morris Orthopaedic Hospital at *Headington*, near Oxford, was wrongly described.

The Services

CASUALTIES IN THE MEDICAL SERVICES

Capt. **William Richard Cyrlas-Williams**, who is reported as killed in action in North Africa, was the youngest son of Mr. and Mrs. W. Cyrlas-Williams of Porthcawl. He studied medicine at Cambridge and at University College Hospital and qualified M.R.C.S., L.R.C.P. in 1941, soon afterwards receiving a commission in the R.A.M.C. His widow is Dr. Ruth Cyrlas-Williams.

Reported Missing.—Capt. G. S. Hodge, R.A.M.C.

Missing, Singapore, now Officially Reported Prisoner of War, Thailand.—Capt. V. W. J. Hetreed, R.A M.C.

Killed in Action in Tunisia.—Lieut. G. F. Barnes, R.A.M.C.

Missing, Presumed Killed.—Temp. Surg. Lieut. T. P. Storey, D.S.C., R.N.V.R.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, London, W.C.1.

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B.M.A. Scottish Office: 7, Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

Normal Temperature Range

Q.—*A patient continually records a temperature of 99.4° to 99.6° F. taken in the late afternoon or early evening (4.30 p.m. to 5 p.m.). Can this be looked upon as being a normal temperature for this patient? Below what level is a temperature considered as being pathologically subnormal?*

A.—The limits of the daily rhythm of body temperature were set by Gessler in 1928 at 36.5° to 37.5° C., which is equivalent to 97.7° to 99.5° F., and since then these values have been pretty well established. These values were obtained with a deep rectal thermometer, and they are approximately one degree higher than those obtained by placing a thermometer in the mouth. The lowest temperature is found between 2 and 4 a.m., and the highest in the early afternoon. The latter persists from about 1 to 7 p.m. and is usually found again at 11 p.m. Two groups of people appear to be exceptions to this rule: first, newborn babies, who have a much smaller diurnal range; and, secondly, the very aged, whose mean value is lower and in whom the daily rhythm may be reversed. The variations appear to depend more on the absolute time than the occupation, and are obtained even when more sleep is taken by day than by night Strenuous exercise causes a temporary rise in body temperature of from 1° to 4° F. If the temperature of the patient in question was taken by mouth, it must be regarded as abnormal and must be attributed to some degree of toxaemia, even though this may not easily be detected by other means.

Signs of Spinal-cord Constriction

Q.—*If a constriction, such as an organizing blood clot, were applied to the spinal cord, which cells or tracts would be likely to be affected first?*

A.—This is a most important question. Clinical misdiagnoses in cases of compression of the spinal cord may occur in the early stages, just when operation is most required and radical cure most possible. Many medical men assume that a sharp " sensory level " is always an early and constant sign of spinal-cord compression and do not think of this diagnosis unless they find such a level. Sensory loss below the level of compression is a constant sign only at a comparatively advanced stage; as a result, successful removal of the cause of compression gives only too often a disappointingly small amount of relief. When the cord is subjected to a generalized pressure all round its circumference, at one level, and this pressure slowly increases, then the tracts which are nearly always first affected are the pyramidal, with the insidious appearance and progression of spastic paraplegia. There may for a long time be no sensory changes, so that a misdiagnosis of some progressive system disease such as disseminated sclerosis, amyotrophic lateral sclerosis, or subacute combined degeneration, may be made. As the pressure increases the afferent tracts, the posterior columns, usually succumb next. They commonly do so in a characteristically peculiar way that may deceive the clinician—namely, in an ascending manner, so that the lowest part of the body is first affected. This may lead to some form of ascending infection being thought of, such as polyneuritis or ascending myelitis.

The moral is that whenever a case of spastic paraplegia without sensory changes and of insidious onset and with a tendency to progression is seen, of which the cause is not obvious, then cord compression from some such cause as tumour or granulomatous infection should at once be thought of. Fortunately, a rise in cerebrospinal-fluid protein often confirms the diagnosis, but it may be necessary to perform myelography by cisternal injection of lipiodol to determine the level of compression as well as to confirm the diagnosis, and no hesitation should be felt about carrying this out.

It should be remembered that in some cases of compression sensory roots may be involved at the level of the lesion, giving rise to root-pains of a segmental distribution at this level. These pains can be very deceptive, and, as they are a very early sign, they should not be overlooked. Many a case has been diagnosed in the past as fibrositis, neuritis, or even neurosis, and valuable time has been lost. Also there is no more deceptive syndrome in medicine than compression of the cauda equina in its early stages. The bladder is frequently paralysed early, and retention of urine may be the first symptom. A misdiagnosis of hysteria has sometimes been made in these cases. A first sign may also be uni- or bi-lateral sciatica as a form of sciatic root irritation.

Diet for Catarrhal Jaundice

Q.—*A child aged 9 years has catarrhal jaundice. I am at my wits' end to know what to advise the parents to give the child to eat. As you no doubt are aware, fish, chicken, and eggs are almost unobtainable. Can you suggest a suitable wartime diet for such cases?*

A.—The essential feature of the diet in catarrhal jaundice is reduction of the fat intake. For this reason eggs are undesirable. The modern tendency is to give a diet high in protein as well as in carbohydrate, and casein is regarded as particularly valuable. There is a suggestion that vegetable protein is better tolerated than animal protein, but it is doubtful if the prejudice against butcher's meat has any real foundation. Skim milk and "household milk" should be given generously in the form of potato and vegetable soups, or with cereals, arrowroot, and other farinaceous foods. Fruit and fruit drinks should also be used as freely as they are available. Glucose may not be well tolerated during the stage of nausea, and savoury flavours like "marmite" may be appreciated better. As soon as appetite recovers, it should be satisfied with bread and toast, jam, honey, and marmalade, lean meat, vegetables, salads, puddings made with skim milk, etc. Fat should be restricted for approximately six weeks, and it is wise to give liq. vitamin. A & D Conc. *B.P.* ♏ 3–5 b.d., and water-soluble vitamin K (acetomenaphthone) 2–5 mg. daily by mouth during this period to make up for the deficit of fat-soluble vitamins in the diet.

Food Priority for Pregnant Women

Q.—*There is a discrepancy between the practices of the borough and county food offices here with regard to the food priority certificates for pregnant women, and I wonder if you can tell me which is in accordance with the regulations. One insists on a fresh medical certificate every three months, and the other grants the expectant mother renewals every three months without any further certificates from the doctor. The officials at the former office say quite definitely that the regulations do not allow them to renew the expectant mother's priority milk permits, etc., without a new doctor's certificate.*

A.—The maximum period of validity of the first medical certificate to a pregnant woman entitling her to priority supplies of food is three months. Authority for the supply of these foods may be renewed for an additional period of three months until approximately one month after confinement on the production of a further medical certificate. A fresh medical certificate is therefore necessary every three months.

Chromosomes in Nerve Cells

Q.—*All textbooks I have consulted make the general observation that chromosomes are present in every somatic cell. Can it be definitely stated, however, that these bodies exist in the cells of the human brain and nervous system? It may be that, as with the nuclei of red blood corpuscles in man, they are present in earlier, but not in later, phases of development of the nervous system. If this is so, at what stage in the ontogenetical evolution of neurons do the chromosomes disappear?*

A.—Chromosomes can seldom be made visible except during nuclear division. Nerve cells do not divide later than the germinal stage; mitosis is never seen in neurones. Once the stage at which division can occur has passed, therefore, it is not possible, in the present state of knowledge, to discover whether the chromosomes of the nerve cell nucleus still exist as such or whether a process of regression takes place. As is pointed out in the question, this is not unusual once a cell has passed the reproductive stage and become specialized to perform a particular function.

LETTERS, NOTES, ETC.

Changing the pH

Dr. B. H. SHAW (St. Mawes) writes: Dr. Richard Kerry in his letter on changing the pH (April 24, p. 521) suggests that shock may be due to excess of potassium in the blood. Is it not more probable that the excess of potassium in the blood may be the result of shock? A. V. Hill states ("Chemical Transmission in Nerve," Liverside Lecture, 1932) that "when a nerve is stimulated to fatigue, K escapes during and for some time after stimulation," and suggests that the surface is rendered permeable during activity; Horton (1930) found that in an excess of potassium, muscle was much less irritable. Clinically, I have found very considerable benefit resulting from the use of potassium chlorate (5-gr. tablets dissolved in the mouth, night and morning) in states of anxiety and early schizophrenia, also in relation to the sedative effect of K on muscle irritability, good results following similar administration in bladder troubles so frequent in old people with prostatic enlargement.

Thirst at Sea

Surgeon Rear-Admiral V. G. THORPE writes: Apropos of our correspondence two years ago, and your note on "Thirst at Sea" in the *British Medical Journal*, July 26, 1941, I have the honour to draw your attention to an article in the May number of the *Reader's Digest* entitled "Survive at Sea by Eating and Drinking Fish." The writer (American) states that the raw flesh of a freshly caught fish contains a large quantity of a watery fluid which can be squeezed out of it by pressure or by wrapping it in a clean napkin and twisting the ends. It is a pink liquid, and tastes sweet, with only the slightest suggestion of fish about it. Two seamen volunteered to drink no water for ten days and live for that time on ordinary "abandon ship" rations and fish juices. They came through the test in perfect health. Alternatively the raw flesh can be chewed, and the solid matter rejected, which is the method the natives of Tahiti adopt. Apparently the United States Navy is taking up the idea, and is ordering life-boats and rafts to be fitted up with fishing tackle, nets, etc., so that no one in future need die of thirst so long as they have the means to catch fish.

Inaccurate Report in Newspaper

Prof. H. J. SEDDON (Clinical Director, Wingfield-Morris Hospital, Oxford) writes: On two occasions within the last six months the work of the Oxford Peripheral Nerve Injury Centre has been the subject of inaccurate articles that appeared in the lay press. On the first occasion the information was obtained through a hospital servant. On the second (May 13) we have not yet been able to trace how or when the reporter gained access to the hospital. The effect of these articles, published without the knowledge, consent, or approval of the hospital authorities, has been singularly unfortunate. People with all sorts of irremediable nervous disorders are writing asking for consultation or treatment.

Tanning for a Skin Lesion

Dr. L. WERTHEIM (Ashton-under-Lyne) writes: With reference to the letter on tanning for a skin lesion, by Dr. K. A. McCaughey (April 24, p. 519), it might be of interest to recall that the astringent effect of tannic acid on vesicular and "weeping" lesions of eczema (and dermatitis) has been known to dermatologists many years before the drug came into general use for burns. The late Prof. S. Ehrmann of Vienna, to whose school I had the privilege to belong, always recommended tannic acid as an excellent desiccant for certain types of eczema. He applied it in a 2% aqueous solution, occasionally also in a lotion or ointment. When in recent years preparations such as tannin jelly, etc., were introduced for the treatment of burns, I had no hesitation in taking advantage of their most convenient properties and in using them for the treatment of weeping eczema. The results were highly satisfactory in both infants and adults, especially in cases of weeping peri-anal eczema in babies.

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THE OPHTHALMOSCOPE IN CLINICAL MEDICINE

THE INTERIOR OF THE LIVING EYE CONSIDERED AS A BIOCHEMICAL LABORATORY*

BY

A. MAITLAND RAMSAY, M.D., LL.D., F.R.S.Ed.

Until the ophthalmoscope was discovered the interior of the living eye was *terra incognita* to the physician. The ocular structures deeper than those visible in the anterior chamber were for all clinical purposes a sealed book, and our knowledge of the inner eye and its diseases had to be acquired from the observation and the interpretation of symptoms. That method of procedure is beset with many pitfalls, for it rests almost entirely upon the patient's own account of the disease, and very few of them can give a clear and connected description of the character, the site, and the duration of the symptoms. It is only when the doctor is able to analyse all the patient has told him that he can, by a few direct questions, separate the wheat from the chaff. When he does succeed in so doing valuable information is always obtainable; but the clinical value of such an examination depends almost entirely upon the surgeon's special skill and his personal experience. Nevertheless much useful information has been acquired and accumulated by the careful study of the symptomatology of disease, especially when a knowledge of medicine went hand in hand with literary culture. A striking example of what can be achieved in that way is seen in William Mackenzie's *Practical Treatise on Diseases of the Eye*, in which accurate medical observation is accompanied by such vivid clinical description that the reader almost sees the patient rising from the printed page.

The Clinician and the Laboratory

Clinical observations differ from laboratory investigations in medical practice, inasmuch as the latter are quite impersonal, whereas the former always regard the patient as an individual entity. That aspect of the position has tended to shrink into the background in recent years owing to the steadily increasing importance that is now attached to intensive laboratory research. In no circumstances, however, can the clinician be replaced by the laboratory worker. In a large number of cases both of them are required if the patient is to have the benefit of the highest medical skill; but when consultation is necessary the clinician must never allow himself to be supplanted by the laboratory worker. In the initial diagnosis of disease the clinician must always take first place. He works beside the patient, and ought to exhaust every means of examination at his disposal to reach a diagnosis by himself, and when he fails he ought always to know the kind of assistance he is requiring before he seeks help from his colleague in the laboratory. The best results are most likely to be got when both workers meet and discuss together the problem they are anxious to solve.

When clinical symptomatology is uncontrolled by objective examination, or by any form of experiment, patients who are not in the same category are apt to be grouped together. For example, before the introduction of the ophthalmoscope patients suffering from failing sight or loss of sight were all included under the general heading "amblyopia and amaurosis" Many attempts were made to reclassify those said to be suffering from amblyopia; but as vision becomes more impaired accurate diagnosis is wellnigh impossible, and when the stage of blindness or amaurosis is reached some with grim humour defined that condition as a state of matters in which the patient sees nothing and the surgeon sees nothing.

The laboratory worker always aims at scientific precision, and concerns himself for the most part with analysis and measurement. He puts his chief reliance upon chemical and microscopical tests, and upon experiments whose results can be tabulated in figures. The clinician requires something more. His education at the bedside has qualified him for dealing with human suffering; consequently he is able to make a character study of the individual patient, and knows how to help him with words of hope and encouragement. Our forefathers paid great attention to the study of human beings both in health and in disease, and they encouraged medical students to cultivate their power of observation and to train their sense of touch, but this personal training of eyes and hands is passing into the background. In these days we must be careful not to neglect the clinical tradition of the personal art and skill of mind and hand, without which a family doctor will find the most up-to-date scientific training in the laboratory insufficient in many of the situations he is called upon to cope with in the daily round of general practice. Modern medicine has become so highly mechanized that a medical practitioner is being tempted to rely more and more on the findings of an instrument and on a report from a laboratory. We are forgetful that the human brain, when it is highly trained, is the finest of all instruments; and when we employ some mechanical apparatus to do its work, and save ourselves the trouble of thinking, we must be careful that we do not sidetrack our own intelligence.

The Laboratory of the Eye

Among the instruments on which a medical student is taught to rely in his clinical work, the ophthalmoscope is in a category by itself. The ophthalmoscope enables us to see the nervous and vascular structures of the fundus oculi and to study physiology and pathology during life. For our immediate purpose we may liken the interior of the living eye to a fully equipped biochemical laboratory, in which Nature herself performs all the experiments. With the help of the ophthalmoscope we can look into this laboratory through the window of the pupil and watch Nature at work; and as Nature's ways throughout the body are everywhere consistent, we are justified in concluding that what we can see in the eye is an index of what is taking place hidden from view in other regions of the body. The fundus oculi therefore affords a unique opportunity for the clinical study of vital processes, and is a convenient place for the clinician to meet the pathologist. In the laboratory of the eye the patient can never be forgotten The pathologist working in his own department examines and furnishes a report on the specimens that have been sent to him, but he does not need to have seen the patient or to be interested in the human aspects of the case; the clinician, however, always has to deal with a patient behind the disease.

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* An address, illustrated by lantern slides, given to the Bute Medical Society, University of St. Andrews.

Notwithstanding his skill and the perfection of his laboratory methods a chemist's experiments are not invariably successful, and in the laboratory of the human body Nature's experiments are also followed by success and failure. When Nature's experiments are successful we are quite unconscious of the functioning of our bodily organs. Everything seems to go with the precision of clockwork. We have a supreme sense of well-being. We enjoy good health, and feel quite fit for our daily duties. When, on the other hand, Nature's experiments are unsuccessful we at once become conscious of abnormal sensations, which we recognize as symptoms of disease. In some instances an ophthalmoscopic examination enables us to detect disturbance of metabolism in its earliest stages. The physician who neglects the routine use of the ophthalmoscope in general practice misses a great deal. The original models of the instrument were difficult to manipulate, but the modern electric ophthalmoscope enables us to examine the eye as easily as we can take the temperature, auscultate the chest, or apply chemical tests to the urine. Before the medical practitioner can understand what he is looking at, however, he must be able to correlate the ophthalmoscopic appearances with the microscopic anatomy of the fundus oculi. Each of the three tunics of the eyeball contributes to produce the ophthalmoscopic picture of the eye ground. The sclerotic may be regarded as the white canvas on which the picture is painted. The blood in the capillaries of the choroid and retina is responsible for the red colour, while the transparency of the retina gives it a peculiar lustre and characteristic translucency.

The Fundus Oculi

In every organ of the body there is a wonderful adaptation of structure to function. In the eye perfect transparency is the primary requisite, and that has been secured for all the structures especially concerned with vision by an almost complete impermeability of the intra-ocular capillaries to the passage of colloidal substances. In a state of health water, gases, and crystalloids readily escape from the retinal capillaries, but colloids for the most part are retained in the blood. As a result of this retention of colloids a peculiar translucency is the outstanding characteristic of the normal fundus oculi, and at the onset of disease that translucency is the first thing to be lost. The capillaries are very sensitive to the quality of the blood. The least taint of toxaemia causes them to dilate rapidly, and, by damaging the endothelium of their walls, allows colloids to escape. Congestion of its capillaries, and its infiltration with colloids, quickly impair the normal transparency of the retina, which can be recognized clinically by lack of translucency in the ophthalmoscopic appearance of the fundus oculi. Instead of its normal characteristic brilliance the fundus looks like glass which has lost its lustre after having been breathed upon. At the outset the departure from the normal is very slight; but clinically it is one of those variants situated on the borderline separating the physiological from the pathological.

The ophthalmic surgeon occasionally sees those cases among patients suffering from eye strain sent to him by colleagues. All of them suffer from headache due to an error of refraction, and the great majority are at once relieved by the use of suitable spectacles; but a few get no benefit from optical treatment alone. These patients form a group by themselves, and all of them present the pathognomonic sign of lack of translucency in the ophthalmoscopic picture of the fundus oculi. There is no deterioration in the patients' usual acuity of vision, but some complain of attacks of misty sight accompanied by black spots floating in front of the eyes or by sparks and flickering lights dancing in the field of vision. These subjective symptoms are supposed to be due to increase of blood pressure in the central artery of the retina, and although they may be premonitory they are quite distinct from those signs accompanying an ordinary sick headache or an attack of migraine. An important concomitant sign is that although the quantity of urine passed in 24 hours is somewhat less than usual, the specific gravity is not increased in the same ratio, and when a specimen is kept overnight in a urine-glass there is almost invariably a deposit containing numerous minute crystals of calcium oxalate; but there is no interference with the excretion of urea. It is probable that, in the case of those patients, waste products which ought to have been excreted in the urine have been retained in the blood, and have caused a mild form of toxaemia by dilating the capillaries both of the retina and of the glomeruli of the kidney. That hypothesis gave the clue to the successful treatment of those patients. More than 50 years ago a similar condition in general medicine was described by Sir Andrew Clark in his papers on renal inadequacy, and by Charles Murchison in his book on functional derangement of the liver. These authors have demonstrated, from a clinical standpoint, that in both the kidney and the liver the disorder is functional, and that healthy action can be restored by the use of eliminant remedies. When, in addition to the use of the glasses required to correct the error of refraction from which the patients we are considering suffered, a course of eliminant treatment is prescribed relief from the symptoms is speedy and permanent. The normal ratio between urine volume and the specific gravity is restored, the oxaluria disappears, the retina recovers its normal transparency, and the headache is cured.

The Fundus and the General Circulation

The circulation can be studied in the fundus oculi as an integrated whole, and as the circulation of the blood in the eye is governed by the same rules as those which regulate its distribution to every organ of the body it gives a reliable clue to the state of the general circulation. The intra-ocular circulation is peculiar inasmuch as it has to be carried on under the pressure of the intra-ocular fluids, and the smooth steady flow of blood throughout the retina depends upon an accurate balance being maintained between blood pressure on the one hand and the pressure of the intra-ocular fluids on the other. By the usual method of ophthalmoscopic examination pulsation is seen in the veins as they pass over the optic disk, but no pulsation is visible in the arteries unless there has been a breakdown in the physiological adjustment of those two pressures. For example, if there is a sudden fall in the diastolic systemic pressure, as occurs in aortic regurgitation, or an increase in intra-ocular pressure as in glaucoma, pulsation in the main branches of the retinal artery can always be seen with the ophthalmoscope. Venous pulsation therefore is physiological, but arterial pulsation is always pathological. The walls of the vessels in a state of health are so transparent that arteries are distinguished from veins by the colour of the blood. When used by the direct method the ophthalmoscope acts as a low-power microscope, and gives a magnification of 15 diameters. We are thus able to see arterioles during life which we cannot see with the unaided eye in a post-mortem specimen.

Ocular Manifestations of Disorders

In what follows I shall limit myself to a consideration of the ocular manifestations of the injurious effects of disordered metabolism upon the cardiovascular–renal system. In the act of living there is a constant manufacture of toxic products, which, if health is to remain unimpaired, must either be destroyed at once or removed from the body with the least possible delay. Our bodily life therefore seems to be very much a matter of chemistry. It is only at the level of the capillaries that exchanges in both directions take place, for the purposes of metabolism, between the blood and the tissues. By that means the physiological processes of assimilation and elimination are conducted and the nutrition of the body is adequately maintained. The capillaries are very sensitive to the presence of impurities in the blood, and high blood pressure is the usual accompaniment of toxaemia due to the absorption of metabolic waste products; but so long as the walls of the blood vessels remain healthy there is little danger of hypertension causing rupture and haemorrhage. That is a fact which should not be forgotten, because so many are said to be suffering from high blood pressure nowadays that the subject is a common topic of conversation far beyond the bounds of the medical profession. As a rule the general trend of all such conversations is unnecessarily gloomy. It is well known that in some families there is a hereditary predisposition to a state of high blood pressure in late middle life; but it is not always remembered that although increase of blood pressure is frequently an accompaniment of advancing years it is not in itself a disease. Very considerable variations are quite compatible with ordinary life and health, and probably also with normal expectation of life. Ellis is of the opinion that in more than 90% of the patients the hypertension is benign. Allbutt describes this condition as hyperpiesia, which often exists unaccompanied by symptoms, and is sometimes discovered in the course of a routine medical examination for life insurance. Those who suffer from a benign form of increased blood pressure ought to be discouraged, therefore, from taking too much interest in their high blood pressure.

In practical medicine undue attention ought never to be directed to any single sign or symptom. It is the association of symptoms that is of value in prognosis, and as a rule the ophthalmoscope and the sphygmomanometer ought to be used together. The clinical value of the actual number registered by the latter instrument can only be properly assessed after careful digital examination of the pulse, testing the urine, and thorough interrogation of the cardiovascular system as a whole. Unless there is some sign of cardiac weakness or of cerebral disturbance the restrictions placed upon the patient's general mode of life have as a rule little, if any, influence on the hypertension; but by interfering with the enjoyment of life and curtailing usefulness they create an anxiety neurosis which is far more harmful than the increased blood pressure. It is even worse still when on the supposition that the patient is suffering from dangerous disease he is sent to a spa, where strenuous measures are taken to lower blood pressure. Such treatment may be followed by disastrous results. A sudden fall in systolic pressure is apt to be accompanied by a relative increase in the diastolic, with engorgement of blood in the capillaries. One of the first signs of the upset in the physiological ratio of the systolic–diastolic pressures is the occurrence of haemorrhage from the capillaries of the retina. When that happens the prognosis is very serious, because it is often the prelude to a complete breakdown in general health. A disturbance in the physiological ratio between the systolic and the diastolic pressures is of much worse prognosis than a far higher hypertension in which the normal ratio is maintained and both pressures run parallel. When the hypertension is malignant the prognosis is grave. In these circumstances a form of Bright's disease is almost certainly present, the downward course of which is very rapid. The condition is invariably fatal, and death with uraemic symptoms usually occurs within a year. According to Ellis, in his Croonian lectures for 1941, the pathognomonic sign of malignant hypertension is the occurrence of papilloedema in both eyes, and in some cases the ophthalmoscope also reveals retinitis and haemorrhages.

When toxaemia and high blood pressure are of long duration the ophthalmoscopic picture of the fundus oculi becomes so lustreless that it resembles red velvet, and when the toxin is of special virulence loss of transparency and oedema of the retina become so very pronounced that capillary haemorrhages are usually seen scattered irregularly all over the eye ground. For example, the toxin due to pregnancy excites a very virulent reaction, and attacks eyes and kidneys simultaneously. Acute inflammation of both the retina and the kidneys is present from the outset, and the pathological changes seen in the eye with the ophthalmoscope are an index of what is taking place in the kidney. The inflammation of the retina appears suddenly, runs a violent course, and is characterized by such intense oedema that detachment may occur. Multiple capillary haemorrhages are always present. Both eyes are affected, and sight is impaired, and it may be lost very early in the course of the disease. In patients who have had no ante-natal supervision loss of sight may be the first warning of the approach of danger. The symptoms are often so overwhelming that the case may well seem hopeless; but the experienced physician knows that complete recovery is to be expected after the child is born. No better illustration could be given of the clinical aphorism that when a disease is due to toxaemia a favourable prognosis can always be given if the toxic agent can be wholly eliminated before organic disease of the blood vessels takes place. Unless that occurs, and the toxic agent is eliminated, recovery will be far from complete, and hypertension and albuminuria will persist. In these circumstances blood pressure is likely to remain high, and in course of time arteriosclerotic changes will appear in the retinal arteries and renal function will steadily fail.

Early Signs of Pathological High Blood Pressure

One of the earliest signs of pathological high blood pressure is constriction in the calibre of some of the branches of the retinal artery, and the degree of constriction is a reliable guide to the height of the systemic arterial hypertension. The constricted vessel usually takes a straighter course than is the case with a normal branch of the retinal artery, and when spasmodic constriction is accompanied by straightening of the course of the vessel it is as a rule evidence of organic disease. Loss of transparency of the wall of the retinal artery is another of the early results of persistent pathological hyperpiesia; consequently when spasm occurs in a branch of the retinal artery the outline of the vessel wall is clearly visible, and when spasm is complete the function of the retina supplied by the affected vessel is lost, and will not be restored until the spasm is relieved and the circulation of the blood is re-established. An analogous state of matters can occur in the circulation of the lower limbs—intermittent claudication: severe cramping pain in the muscles of the calf follows exertion, and compels the patient to rest until the arterial spasm passes off. Whenever that takes place the pain is relieved and the patient is able to walk. In both the eye and the leg an underlying constitutional state has existed long enough to produce vascular changes sufficiently serious to cause temporary obstruction of the circulation. When these vascular symptoms are persistent they are usually premonitory of the onset of arteriosclerosis, which is always pathological. Old age of itself will not cause it.

Arteriosclerosis

The earliest signs of arteriosclerosis are often seen in the fundus oculi; therefore in many instances we are able to study them in considerable detail during the patient's lifetime. When sclerosis occurs in the retinal vessels it is a fairly sure sign that it is also present in other organs of the body. Arteriosclerosis, however, is a most capricious disease. One organ may be affected dangerously while others escape.

Arteriosclerosis of the retinal blood vessels is similar to the arterio-capillary fibrosis of Gull and Sutton, and the ophthalmoscopic appearances have been admirably described by Marcus Gunn. The arteries are irregularly contracted, abnormally tortuous, and even the smallest exhibit a brightness of the central light streak which is very characteristic. The artery loses its transparency and becomes hard and rigid; consequently when it crosses a vein it not only conceals the latter from view, but also mechanically exerts so much pressure upon its walls that the flow of blood is hindered, and any sudden rise in blood pressure is apt to precipitate rupture and haemorrhage. In these circumstances the use of the ophthalmoscope is our best guide to the state of the cerebral blood vessels. There is a close relationship clinically as well as anatomically between the retinal and the cerebral blood vessels. Both of them arise from the internal carotid artery. When, therefore, arteriosclerosis develops both sets of vessels are likely to be affected simultaneously, but not necessarily to the same degree. Serious cerebral haemorrhage is more frequent than severe retinal haemorrhage. The vessels in the brain which rupture most frequently are of larger size than any in the retina. In the great majority of cases the true essence of retinal haemorrhage is capillary dysfunction rather than increased blood pressure acting upon a sclerosed artery. When, however, either retinal haemorrhage or cerebral haemorrhage occurs during sleep the patient has probably been dreaming, and the excitement of the dream has caused a rise in the general blood pressure. In these circumstances the haemorrhage is probably due to the rupture of a sclerosed artery either in the eye or in the brain, or in both simultaneously.

The Warning of Retinal Haemorrhage

Haemorrhage from the blood vessels of the retina is always evidence of disease and ought to be taken as a warning. Its causation should be investigated as thoroughly as would be the case after haemoptysis or haematemesis, but it is a mistake to take too gloomy a view of its significance. As an isolated sign it is not likely to increase the gravity of the prognosis regarding the patient's life, but if the bleeding is extensive the delicate structure of the retina may be injured so seriously that sight is gravely endangered.

Danger to sight depends upon the size and the site of the haemorrhage. In the great majority of medical cases the capillaries are probably the starting-point of retinal haemorrhage; but, when arteriosclerosis is advanced, rupture of an arteriole will determine a copious and destructive bleeding. When blood escapes into the inner layers—i.e., the conducting fibres—of the retina the clots are broken up by the nerve fibres. As a rule they are of bright red colour, small and flame-shaped. They generally disappear by absorption in about three weeks' time, but, unless the underlying toxaemia is eliminated, bleeding of this nature, once it begins, is prone to continue, and fresh haemorrhages take the place of those which have become absorbed. In this situation haemorrhages give rise to so few subjective symptoms that the patient may be unaware that anything is seriously wrong until his eye has been examined with the ophthalmoscope. When, on the other hand, the outer bacillary layer—i.e., the functioning unit—is implicated sight is seriously threatened from the outset by damage to the rods and cones, and the probability is that vision will be permanently impaired, if it be not altogether lost. These haemorrhages are deep-seated, and do not disappear quickly. They are dark red, and more or less circular. When the macula itself is involved central vision is obliterated, and the patient is unable to read or to recognize a friend on the street. Recovery of sight is not probable if the haemorrhage is deep-seated, and in any case vision is sure to be distorted—metamorphopsia—because of disturbance in the regular mosaic of the cones in the macula.

Types of Retinitis

High blood pressure, arteriosclerosis, and haemorrhage are the pathological forerunners of retinitis: but it is the quality of the blood that determines the distinctive aetiology in an individual case. Pathologists have described many varieties of inflammation of the retina; but the three most important clinical types—viz., the arteriosclerotic, the albuminuric, and the diabetic—are easily differentiated by an examination of the urine.

1. *Arteriosclerotic Retinitis*.—The ophthalmoscopy of this disease has been carefully described by Foster Moore, who was the first to suggest that it is a clinical entity distinct from albuminuric retinitis. In this form of disease persistent high blood pressure is always accompanied by extensive sclerosis of the retinal arteries. Its chief clinical characteristic is that the urine contains no albumin and there is complete absence of oedema. The patients are usually in late middle life, and are as a rule of stout build, of a fresh ruddy complexion, and of active habits. They enjoy speaking about their good health and often boast that they never require a doctor, while all the time their constitution is being steadily, though silently, undermined by the furtive advance of arterio-capillary fibrosis. Unless he has used the ophthalmoscope the family doctor may easily be put off his guard by the absence of albumin in the urine, and he is greatly taken aback when his patient is struck down suddenly by apoplexy or by a cardiac seizure. Mahomed insisted that high blood pressure rather than albuminuria is the pathognomonic sign of certain forms of Bright's disease, and some regard arteriosclerotic retinitis as a sign of chronic nephritis in which only the merest trace of albumin is found occasionally in the urine.

The ophthalmoscopic appearances vary according to the stage reached by the disease. Its onset is characterized by a reduction in the calibre of the arteries and by a loss of transparency of their wall. As the disease advances the veins are crushed where they are crossed by an artery, and many of the arterioles, especially those in the region of the macula, become twisted like a corkscrew. In the early stages the optic disk is pink from capillary congestion, but as the disease progresses it becomes pale and atrophic from sclerosis of its vascular supply. Small punctate haemorrhages, usually increasing in size and number, are seen scattered irregularly over the eye ground, and in addition there are numerous small circular hard-looking white spots situated for the most part in the central area of the fundus. The walls of the larger arteries become more and more opaque until at length the column of blood is concealed and the vessels resemble silver or copper wire. As time passes the lumen of the artery becomes almost obliterated and is now little more than a fibrous cord, and the area of the retina dependent upon it for its blood supply is starved, with the result that in the later stages of the disease patches of atrophy appear in the eye ground, and vision becomes permanently impaired.

2. *Albuminuric retinitis* can only be diagnosed after toxaemia, high blood pressure, and the presence of albumin in the urine have all been established. Both eyes are usually affected, but as a rule not to the same extent. The pathogenesis of the retinal changes depends upon high blood pressure and spasmodic constriction of the arteries; therefore the retinitis ought not to be regarded as a separate entity, but as an important and visible part of the general degenerative processes which are taking place in the kidneys. It is usually said that the patient is not likely to live more than two years after retinitis develops; probably that is true when applied to hospital patients as a whole, but there are many exceptions in private practice. The patient's general health does not become worse because his eyes have become affected, but the unfavourable prognosis after the discovery of the ocular signs is due to the fact that by the time the retinitis is detected the disease of the kidney is advanced and progressive. The earlier the retinitis appears, therefore, the worse the general prognosis, more especially if the disturbance in the eye coincides with the onset of uraemic symptoms.

Ophthalmoscopically the pathognomonic sign is oedema of the retina, and that is a sure indication that the reserve power of the kidney is being encroached upon. In the more acute cases white "cotton-wool" patches of soft-looking exudate are scattered over the fundus. The veins are distended and tortuous, and there are always signs of arteriosclerosis, accompanied by haemorrhages varying in both size and shape. They are scattered irregularly over the fundus, and are more numerous in the region of the macula. Lastly, one of the most characteristic features of renal retinitis is a star-shaped arrangement of minute white glistening spots round about the macula. This stellate arrangement of white dots, although very characteristic of albuminuric retinitis, is not pathognomonic of the disease, because it may occur in any form of acute neuroretinitis in which there is much oedema of the retina round about the macula

3. *Diabetic retinitis* occurs for the most part in the elderly—more especially in those who suffer from a comparatively mild form of glycosuria complicated by high blood pressure, by an appreciable degree of arteriosclerosis, and by the more or less persistent presence of a trace of albumin in the urine. It is almost never seen in the young, who are the chief sufferers from the acute forms of diabetes. The ophthalmoscopic picture differs from that of albuminuric retinitis by the absence of oedema and the "cotton-wool" patches of exudation. There are, however, in a typical case round yellowish-white plaques, situated for the most part between the papilla and the macula. As the disease advances these patches tend to coalesce and ultimately to form a ring surrounding the whole macular region. Haemorrhage is the outstanding feature of diabetic retinitis; consequently the ophthalmic surgeon is more concerned about the sight than about the life of the patient. The degree of vascular degeneration is the most important factor in the prognosis. The vascular changes are steadily progressive, and for the most part they fall upon the veins. Even the characteristic deep-seated punctate haemorrhages which are so suggestive of diabetes are apparently derived from venous radicles, and in some desperate cases massive haemorrhages from the veins flood the vitreous humour. These copious dense haemorrhages frequently occur during sleep, and the patient awakens to find himself blind in the eye affected. In some cases both eyes are implicated

Thrombosis of the central blood vessels of the retina is the ocular complication most to be dreaded when glycosuria is accompanied by albuminuria and when high blood pressure is persistent. Vision is lost suddenly, but several premonitory seizures usually occur before blindness becomes permanent. This condition ought always to be regarded as a serious warning of cardiovascular failure. The eye itself is also seriously compromised, because thrombosis is always accompanied by profuse retinal haemorrhage, which is often followed by the onset of secondary glaucoma. When that stage is reached the patient suffers from incurable blindness and more or less constant pain; consequently enucleation of the eyeball is the only treatment that can bring relief.

Commentary

To sum up very briefly, my endeavour has been to reach the following conclusions:

1. The interior of the living eye is a laboratory in which vital processes, both normal and abnormal, can be studied during the patient's lifetime.

2. Vascular changes such as capillary congestion, arterial degeneration, haemorrhage, and exudation can be seen with the ophthalmoscope; but the value of such observations in the prognosis of general disease cannot be properly estimated until they are correlated with such symptoms of general disease as high blood pressure, albuminuria, glycosuria, uraemia, and anaemia.

3. The debt which general medicine owes to ophthalmology cannot be fully appreciated until the physician examines the eye with the ophthalmoscope as habitually as he feels the pulse, interrogates the heart and lungs, and applies chemical and microscopical tests to the urine.

HAEMATEMESIS AND MELAENA

WITH SPECIAL REFERENCE TO BLEEDING PEPTIC ULCERS

BY

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This paper reports results of treatment by prompt feeding and liberal blood transfusions in 171 consecutive admissions for recent frank haematemesis and/or melaena, between June, 1940, and December, 1942. They were treated in the dietetic wards of a modern municipal hospital serving a large industrial and poor residential district of Greater London. A careful study has been made of the cause of bleeding and of the type of case which proves fatal.

Diagnosis

Selected cases were gastroscoped soon after the haemorrhage, usually within a week or less. No serious complication occurred, although it is generally believed that gastroscopy is dangerous when performed shortly after bleeding. A barium meal was given as soon as the patient could start getting up, usually in the third or fourth week. If cirrhosis hepatis was suspected a hippuric acid excretion test of liver function was performed. A detailed history and an examination were recorded in every case. The final diagnoses are listed in Table I.

TABLE I.—*Final Diagnoses*

	Admissions			Deaths
	No	Male	Female	
Chronic lesser curvature ulcer found by x-ray, operation, or necropsy ..	30	26	4	7
Acute gastric ulcer found by early gastroscopy but not visible when radiographed later ..	21	15	6	0
Acute gastric ulcer found at necropsy ..	1	0	1	1
Pyloric ulcer	2	2	0	0
Chronic gastric and duodenal ulcers ..	5	4	1	0
Duodenal ulcer	47	36	11	3
Duodenal ulcer with gastro-enterostomy	6	6	0	0
Jejunal ulcer (gastro-enterostomy) ..	2	2	0	0
Localized jejunitis	1	1	0	0
Probable peptic ulcer with thoracic stomach	2	0	2	0
Peptic ulcer of Meckel's diverticulum ..	1	1	0	0
Haemorrhage complicating perforated gastric or duodenal ulcer	7	6	1	3
Acute gastritis	2	2	0	0
Carcinoma ventriculi	4	2	2	0
Leiomyoma ventriculi	1	1	0	0
Portal thrombosis—gastrostaxis	1	1	0	1
Cirrhosis hepatis	4	1	3	2
Uncertain (6 patients not investigated) ..	34	21	13	0
Totals	171	127	44	17

Gastroscopy was performed in 38 out of 51 cases which clinical and radiological investigations failed to diagnose. In 21 of these cases an acute gastric ulcer was found, and in 2 an acute gastritis. The remaining 15 remained undiagnosed. That is to say, in nearly two-thirds of the cases in which other methods failed gastroscopy provided a diagnosis. It is thus obvious that gastroscopy is of great assistance in achieving accurate diagnosis. The chronic gastric ulcers which were shown by radiographs had a much higher mortality than the acute ulcers which were only shown by gastroscopy. These acute ulcers usually healed within three weeks, and are being reported in another communication.

At this hospital all peptic ulcers are admitted to the dietetic wards, including those that are perforated. Seven cases were observed with both haemorrhage and perforation. This combined complication presented a difficult problem in treatment, with a high mortality. Three of the seven patients died.

Age Incidence

Gastro-duodenal haemorrhage is more often fatal in the elderly patient, and the age incidence, which is given in Table II, must be taken into account in comparing these results with other series.

TABLE II.—*Age Incidence of Cases of Haemorrhage from Proved or Probable Peptic Ulcer*

Age	Male		Female	
	No.	Deaths	No.	Deaths
10–19	1	0	0	0
20–29	4	1	1	0
30–39	17	0	3	0
40–49	32	1	8	0
50–59	34	2	13	1
60–69	27	5	10	3
70–79	5	1	3	0
80+	2	0	1	0
Totals	122	10	39	4

The proportion of patients over 60 is considerably higher than in previous series of haemorrhage from peptic ulcer—e.g.:

	Hospital	Period	Total No.	No. over 60
Bulmer (1927)	Birmingham General Hospital	1902–26	467	9 (2%)
Hellier (1934)	General Infirmary at Leeds	1926–32	212	15 (7%)
Cullinan and Price (1932)	St. Bartholomew's	1926–30	105	11 (10%)
Burger and Hartfall (1934)	Guy's	1921–30	137	13 (10%)
Scott (1940)	Western Infirmary, Glasgow	1936–40	110	18 (16%)
Present series		1940–2	161	48 30%)

There are three possible factors which may account for the higher age incidence in the present series. First, many of the younger patients may be in the Services and so be referred to Army hospitals; but this would not account for the apparent absolute increase in older admissions. Secondly, wartime conditions may have caused an increase in peptic ulceration among the elderly, and this theory is supported by an analysis of the admission book at St. Bartholomew's Hospital (18% over 60 in 1940-2, against 10% in 1926-30). Thirdly, general practitioners tend to send the older and more decrepit patients to municipal hospitals, where admission is certain; and my own experience has shown that in these hospitals one is confronted with problems in treatment in the very elderly which are seldom to be found in the teaching hospitals.

Treatment

Treatment was along the general principles described by Witts (1937). A drip blood transfusion at 40 drops a minute was begun if it was thought that further bleeding might endanger life. If the patient showed evidence of anoxaemia the transfusion was usually given faster and oxygen was administered at 6 litres a minute with a B.L.B. mask. In general most patients were transfused if the pulse stayed above 120 a minute, if the blood pressure fell below 90 mm. Hg, or if the haemoglobin reached 40%; but it was not found possible to follow any fixed set of figures rigidly, and each case was judged according to its own particular circumstances. The transfusions were liberal, and usually two bottles (1,080 c.cm.) were given, being repeated if necessary. With persistent bleeding, four or six bottles were sometimes required. In 12 patients the blood volume (5,000 c.cm.) was replaced at least once. Using the M.R.C. gas-mantle set, it was seldom necessary to cut down on a vein. This was a great advantage because repeated transfusions could be given into the same vein, and the simplicity of the method was a boon to the nursing staff. The patients received two-hourly purée feeds. One-third normal saline was given to allay thirst. The feeds were usually well taken, but occasionally milk feeds would be given if desired.

Purée Diet

6 a.m.	Cup of milky tea
8 a.m.	Porridge and bemax; thin bread-and-butter and jelly marmalade; cup of milky tea
10 a.m.	Cup of milk and biscuit
12 noon:	Minced meat, chicken, or steamed fish; mashed potato; purée carrot or cauliflower
2 p.m.	Egg custard or cereal pudding or apple purée; orange juice
4 p.m.	Cup of milky tea; three slices of thin bread-and-butter; bramble jelly; sponge cake
6 p.m.	Vegetable soup or minced chicken sandwich
8 p.m.	Milk pudding or cup of milk
10 p.m.	Cup of milk and biscuit

Milk feeds during the night if awake

One-third normal saline as desired between feeds on first day

Morphine was given on admission and whenever further bleeding occurred, fersolate 3 gr. t.d.s. when melaena had ceased, and ascorbic acid 200 mg. t.d.s. for five days and then 50 mg. daily. Antacids were not given as a routine, but calcium and magnesium tribasic phosphate was allowed for pain. The patients were reassured about the invariable constipation, and an enema was given after four days if necessary. Laparotomy for arrest of haemorrhage was undertaken on only three occasions, but partial gastrectomy or gastro-enterostomy was performed during convalescence if indicated by economic circumstances or by the type of lesion.

Results

In these 171 cases there were 17 deaths (10%). This series includes gastric tumours, portal varices, and portal thrombosis. In 161 cases of bleeding from proved or probable peptic ulcer there were 14 deaths (9%). Miller and Nicholson (1941) have analysed 1,396 cases, treated by prompt feeding, with a mortality of 3.1%. In view of such previously good results this series is most disappointing, and indeed contrasts depressingly with my experience at another hospital (Jones, 1939a). Obviously, with the type of case admitted to this hospital, gastro-duodenal haemorrhage still carries a severe mortality, which demands a careful analysis to discern the type of case that continues to be lost and to assess the value of surgical treatment. The crux of the problem is shown in the following table. Out of 14 patients who died nine had severe complications, nine were over 60 years of age, and nine had simple ulcers more than 3 cm. in diameter.

Table III.—*Details of 14 Fatal Cases*

Age	Sex	Clinical Complications	Type and Size of Ulcer
51	F	Admitted moribund	Acute G.U.; 1 cm.
62	M	„ „	Chronic D.U.; 2 cm.
67	M	Perforation	Two chronic D.U.s; 2×1 cm., 1×0·5 cm.
56	M	„	Chronic G.U.; 7 5 cm.
67	F	„	„ „ 5×3 cm.
67	M	Lobar pneumonia	Chronic D.U.; 2·3×4.5 cm.
62	F	Bronchopneumonia	Chronic G.U.; 6 cm.
60	M	Perforated appendix with general peritonitis 12 days previously	„ „ ?,size
42	M	Ascites hypoproteinaemia (laparotomy)	„ „ 10 cm.
53	M	(Laparotomy)	Chronic G.U.; 3×5 cm. Acute G.U.; 1×0 5 cm.
65	M	„	Chronic D U.; 5×3 5 cm.
25	M	—	Chronic G.U.; 3×2 cm.
72	M	—	„ „ 5×3 cm.
63	F	—	„ „ 2×1·5 cm.

Two patients were admitted moribund, and neither would have survived laparotomy. It is doubtful whether the acute ulcer in one of these patients would have been found if operation had been possible. Six patients had such grave complications or such severe associated diseases that surgical arrest of the haemorrhage was hardly feasible. General peritonitis from a perforated appendix, perforation of a peptic ulcer, lobar pneumonia or bronchopneumonia are themselves serious enough in elderly patients, and much increase the hazards of a gastric haemorrhage. Laparotomy during active haemorrhage was performed in three cases, but the patients died. In the remaining three cases the treatment remains debatable, but it is doubtful if surgery would have saved any of them except perhaps one—that of a young man of 25. At this age death from gastro-duodenal haemorrhage is so rare that surgery was hardly contemplated, and probably his heavy alcoholism tipped the scales against him.

The literature on bleeding peptic ulcers gives such a diversity of results for medical and surgical treatment that it is difficult to formulate treatment from them. The confusion is probably due to important variables in the different series, especially the proportion of elderly patients, their nutritional state, the incidence of associated disease, and the proportion of acute to chronic ulcers. It seems reasonable to analyse the type of case coming under one's care and to draw up rules for their treatment—rules which do not necessarily apply where a different class of patient is being treated. The problem is whether to continue to give prompt feeding and liberal transfusions, and when operation should be advised.

Prompt Feeding and Liberal Transfusion

There is no doubt that the mortality from bleeding has been reduced. It is still uncertain whether recurrences of bleeding occur more often with a liberal diet or large transfusions th
they did with the older regime of starvation and only sm
transfusions. To study these points the series has been compar
with that recorded by Cullinan and Price (1932) fr
St. Bartholomew's Hospital (1926-30). This report includ
only admissions for haematemesis that could reasonably
attributed to peptic ulcer, but cases in surgical wards were n
included. For comparison with this series the following ha
been excluded: patients with melaena only, with surgical co
plications—e.g., perforations—with gastric tumours, cirrho
hepatis, and portal thrombosis. Cullinan and Price's cases w
treated on a very restricted fluid intake and occasional sm
transfusions (300 to 500 c.cm.). In many of the fatal ca
on this regime there was extreme dehydration (Jones, 1939

Age	Cullinan and Price, 1932		Present Series, 1942	
	No.	Deaths	No.	Deaths
10–19	1	0	0	0
20–29 ..	12	0	4	1
30–39	15	3	13	0
40–49 .. .	29	6	28	0
50–59	37	6	40	2
60–69 . ..	11	4	31	6
70–79	0	0	7	1
80+	0	0	3	0
Totals .	105	19	126	10

The total mortality has been more than halved, althou
the scales are heavily weighted against the present series
the higher age incidence. It will be seen that below the a
of 60 the mortality has fallen from 15 in 94 cases to 3
85 cases. Above 60 the mortality has improved from 4 dea
in 11 cases to 7 deaths in 41 admissions.

Death usually occurs after recurrent bleeding and seld
with the first haemorrhage. The reduction in mortality m
have been effected either by decrease in the incidence
recurrent bleeding or by making the patient better able to wi
stand further haemorrhage. It is necessary to know the eff
of early feeding and liberal transfusion in the incidence
recurrent brisk bleeding. Again this series has been compa
with Cullinan and Price's figures.

Recurrent Haemorrhages

	Cullinan and Price, 1932		Present Series, 1942	
	No.	Deaths	No	Deatl
All admissions for haematemesis from probable peptic ulcer, excluding surgical admissions	109	19	126	10
Those which recurred . .	39	16	35	6,
Those which recurred more than once	21	12	23	6

With early feeding and big transfusions the incidence
recurrent haemorrhage has appreciably diminished, and neit
feeding nor transfusion can therefore be accused of promot
further bleeding. The reduction in mortality has been effec
partly because recurrent haemorrhages are less frequent
partly because when they do occur the patients are better fi
to withstand them. There seems every reason to continue
give prompt feeding and liberal transfusions.

Surgical Treatment

Cases in which surgical treatment is likely to be conside
fall naturally into two groups: first, when the cause
bleeding is certain; secondly, when it is obscure.

Known Causes

1. *Acute Gastric Ulcer.*—Although the haemorrhage from a
gastric ulcers can be exceedingly severe and protracted, the only
lost was admitted moribund, and died within a few hours. Fi
one cases of probable acute ulceration with only one death ar
against operation.

2. *Post-operative Cases.*—In patients with a previous gas
enterostomy the haemorrhage tends to be slow and persistent ra
than brisk, and probably in severe cases it may arise from a local
jejunitis. Such appalling difficulties may be found at laparot
that conservative treatment is justified.

3. *Haemorrhage with Perforated Peptic Ulcer.*—Haemorrhage with perforation accounted for 3 deaths among 7 cases which presented extreme problems in treatment. In one fatal case there were two kissing duodenal ulcers—one bled and the other perforated. If this combination is suspected at operation it would be advisable to perform a short circuit and pyloric occlusion, or a partial gastrectomy if the conditions are propitious.

4. *Duodenal Ulcer.*—There were 3 deaths among 47 admissions with duodenal ulcers. Only one could be considered as a death during treatment for haemorrhage. Again, with the great technical difficulties of operating on a penetrating duodenal ulcer a medical bias is justifiable, except when haemorrhage is extremely brisk or repeated and if the patient is over 50.

5. *Chronic Gastric Ulcers.*—The important mortality has been among the patients with chronic lesser curvature ulcers, with 7 deaths among 30 cases (23%). Considering the age, associated complications, and chronicity of the ulcers it is doubtful if any surgeon could have achieved a substantially lower mortality if all 30 cases had had early radical operation. Bohrer (1941) gives a mortality of 26% for bleeding gastric ulcers treated surgically. Nevertheless, it is in this group that timely surgery might save a few cases which would prove fatal in spite of continued transfusion. The clinical observations of grave significance are:

Thickened tortuous radial artery
Age over 50 years—5 deaths out of 18 (28%)
Severe pain preceding haemorrhage—5 deaths out of 12 (40%)
Pain persisting after haemorrhage—2 deaths out of 4 (50%)
Recurrent bleeding: once—6 deaths out of 12 (50%); twice—5 deaths out of 8 (60%)

By selecting cases which came partly or wholly within this group a reduction in mortality from bleeding chronic gastric ulcers might be effected by *early* operation, and this aspect is being further studied.

Diagnosis Uncertain

Sometimes one is confronted with an exsanguinated patient without a definite diagnosis, but the case will become operable only if it can be included in the indications given above. The length of history, the site of the pain, the food relationship, and the severity of the haemorrhage are all unreliable in deciding the position and nature of the ulcer. The necessity for continued massive transfusion is not in itself sufficient reason for operation. Four patients with acute gastric ulcers had repeated severe bleeding, and needed 11,340, 6,480, 5,940, 3,780 c.cm. of blood respectively, but with routine medical treatment the haemorrhage eventually stopped. A history of severe pain, especially for more than three weeks, is very suggestive of a chronic ulcer. The histories of the proved acute and chronic ulcers in this series have been analysed thus:

Recent Pain or Discomfort	Acute Gastric Ulcer	Chronic Gastric Ulcer
No pain or discomfort ..	8	1
Discomfort	7	2
Pain	7	15
Severe pain	0	12
Totals	22	30

It is legitimate in doubtful cases to try to clinch the diagnosis by screening with a thin barium emulsion or by gastroscopy. Therefore if the patient can be proved to have chronic gastric ulceration, or in exceptional circumstances chronic duodenal ulceration, and is over 50—and especially if there is thickening of the radial artery, history of severe pain, or pain persisting after admission or recurrence of haemorrhage—then operation may be advised. Nevertheless, to improve on medical treatment it is essential to have an exceptionally experienced surgeon, and a skilled anaesthetist available at short notice. If this is not forthcoming no physician need reproach himself for continuing with medical treatment.

Organization

To obtain the best possible results after haemorrhage from peptic ulcer, good organization is essential. The first requirement is an adequate blood bank. There is much to be said for nursing all cases in special dietetic wards, where the nursing staff can become very expert in all phases of treatment. The medical staff should be agreed on the routine management, and a treatment schedule in the wards is of value.

A follow-up of all proved chronic gastric ulcer patients is invaluable, for intractability can be discovered early and partial gastrectomy advised. In due course this must reflect itself favourably in the mortality rate for gastro-duodenal haemorrhage.

Summary

An analysis is presented of 171 cases of haematemesis and/or melaena personally treated by prompt feeding and liberal transfusions. There were 17 deaths (10%).

Peptic ulceration was the probable cause in 161 cases, among which there were 14 deaths (9%).

Early gastroscopy gave the diagnosis in nearly two-thirds of the *x*-ray-negative cases. Acute gastric ulcer is a relatively common cause of bleeding, but acute gastritis is rare.

Of the peptic ulcer subjects 30% were over 60 years of age —a much higher proportion than in previously published series.

Old age, severe complications or associated disease, and large ulcers were important factors in causing death.

Prompt feeding and liberal transfusions have decreased the incidence of recurrent bleeding.

The indications for surgery are discussed.

My thanks are due to the North-Western Blood Transfusion Depot for their liberal supplies of blood, to Dr. H. Pollak for his able assistance, and to Dr. R. Asher for his valuable suggestions.

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PRIMARY BRONCHIAL CARCINOMA AT THE AGE OF 4 YEARS 4 MONTHS

BY

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AND

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Primary carcinoma of the bronchus is a condition that has attracted much attention in latter years, particularly on account of the increasing number of cases seen. Many authors have collected series of cases in attempts to discover whether this increase is absolute or only apparent. Those who hold that the rising number of cases observed is apparent invoke refinements of diagnosis—e.g., radiography, bronchoscopy, and biopsy—to support their contention; others maintain that the increase is absolute. Recently Menne and Anderson (1941) have published observations upon two series of necropsies in America, which they cite as evidence for the increasing frequency of bronchial carcinoma. In all probability there is both a real and an apparent increase in the incidence of the condition.

The growth commonly occurs in the age period generally favoured by carcinomata but with maximal incidence between 50 and 59 years, whereas the frequency of other cancers is maximal at an older age (Simons, 1937). In the age group 20–29 cases are seen from time to time; in the decade 10–19 Simons found only 6 cases in his collected figures (total 2,796). The period 0–9 years in his table shows only one case, and this in a boy aged 5 years (Hirsch and Ryerson, 1928). Beardsley (1933) reported a case of carcinoma of the lung in a female aged 10 months; and McAldowie described the clinical and necropsy findings in a boy aged 5½ months with multiple nodular growths in both lungs, but no histological examination was performed. To these 3 cases we would add the one reported below (see Table), which was histologically an anaplastic carcinoma of the bronchus in a girl aged 4⅓ years.

Beardsley quotes Nuscheler (1875) as referring to a case of carcinoma of the lung in a girl aged 7 years; and McAldowie quotes Ebermann, who found one case in his series of 76, in a child under 9 years of age. These references are unobtainable and therefore cannot be included in the above series.

Both Beardsley's and Hirsch and Ryerson's cases were notable for the fact that secondary lesions were found, in the lumbar region in the former and in the tibia in the latter, before lung mischief was diagnosed. In our case the lung condition attracted immediate attention, and it was not until the pre-terminal phase that secondary metastases were found clinically. The particular interest of our case lies in the age of the patient, the anaplastic nature of the growth, and the possibility of accurate diagnosis in the living.

Reported Cases of Carcinoma of the Lung for the Age Period 0–10 Years

Authors	Age at First Attendance	Sex	Duration of Illness from Onset of Lung Symptoms	Clinical Findings	Necropsy	Histology
McAldowie (1876)	5½ months	Male	5½ months	Wasting since birth	Multiple nodules in left lung involving pleura, with many adhesions. Multiple nodules in right lung without pleural involvement. Secondaries in mediastinal glands	No report
Hirsch and Ryerson (1928)	5 years	Male	5 months	Secondary tumour appeared in right tibia 16 months before lung symptoms	Primary carcinoma of right lower lobe. Secondaries in mediastinal glands, left lung, right upper lobe, and thymus, also left tibia	Bronchogenic carcinoma
Beardsley (1933)	10 months	Female	2 months	Secondary growth in lumbar region appeared one year before chest symptoms	Primary carcinoma in left lung involving pleura, with adhesions	Adenocarcinoma of left lung
Field and Quilliam (Reported below)	4⅓ years	Female	2½ months	Dyspnoea produced by large blood-stained pleural effusion. Terminally the neoplasm involved the rib spaces and anterior chest wall	Nodules of growth in collapsed right lung involving visceral and parietal pleura and chest wall. Metastases in bronchial, mediastinal, right supraclavicular, axillary, and coeliac axis glands	Anaplastic carcinoma of bronchus

Case Report

The child, a girl aged 4⅓ years, was admitted to hospital on Nov. 22, 1941, as an emergency case, having had an unproductive cough for 11 days and breathless attacks in the mornings for the last week. For 10 days she had had attacks of abdominal pain with nausea and vomiting. On admission the child was pale, with some cyanosis of the lips and nails and marked dyspnoea. Physical examination of the chest indicated the presence of a right pleural effusion, which was confirmed by radiographs. The effusion steadily increased, and aspiration gave 300 c.cm. of a deeply blood-stained fluid. Five further aspirations in the next seven days yielded 1,780 c.cm. of a similar fluid. The last aspiration was followed by an air replacement, which considerably relieved the cough and dyspnoea.

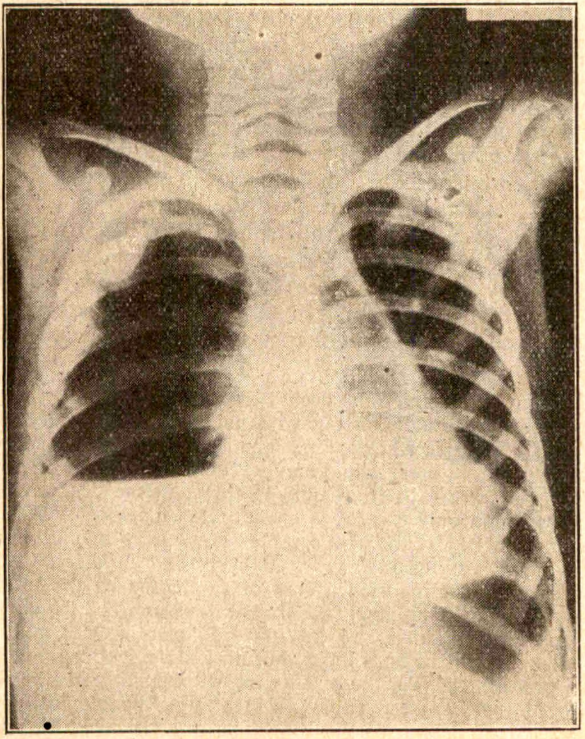

FIG. 1.—A radiograph of the chest taken after aspiration of the right side and air replacement, showing the right lung collapsed at the hilum and nodules of growth on the parietal pleura.

A radiograph of the chest (Fig. 1) now showed a fluid level on the right side at about the 7th thoracic vertebra, an artificial pneumothorax above this, the right lung collapsed at the hilum, and a nodular mass of growth at the periphery. So far no glandular enlargement had been detected and no mass felt in the abdomen.

On Dec. 13 thoracoscopy revealed the presence of numerous round, smooth, pink nodules of tissue of varying size up to 2 cm. in diameter, widely distributed over the parietal pleura. The lung was collapsed, and was covered with thickened but smooth pleura. A biopsy specimen was taken from one of the nodules.

Report on Fluid Withdrawn.—No tubercle bacilli were found. Guinea-pig inoculation was negative for Koch's bacillus. Culture was sterile. Examination of blood-clot showed a considerable number of cells in addition to red blood cells. Mesothelial cells predominated; some contained double nuclei, and an occasional mitosis was present. The remaining cells were mostly lymphocytes. The findings were suggestive of malignancy.

Report on Portion of Pleural Tumour.—The section showed an infiltrating anaplastic carcinoma with the histological features of a bronchial carcinoma. A neuroblastoma had been considered, but the characteristic " rosettes " were not present.

Progress.—A further aspiration and air replacement were carried out on Dec. 24 on account of respiratory embarrassment. The child's condition slowly deteriorated. The lower part of the right chest wall began to bulge and the rib spaces became filled in compared with the other side. Terminally, the ribs appeared embedded in the tumour mass. The final stage was marked by distressing bouts of coughing and dyspnoea. A week before death a fixed right supraclavicular gland was discovered; the day before death this gland was found to be further enlarged, and a gland was palpable in the right axilla. The child died on Jan. 28, 1942.

Pathological Findings.—The tuberculin patch test and the intradermal Mantoux test 1/100 were negative. Repeated red blood cell counts showed no marked anaemia, and 10 days before death the Hb (Haldane) amounted to 94%. The white cell counts showed a moderate polymorphonuclear leucocytosis, which increased terminally.

Post-mortem Examination

External.—Fairly well nourished. Right side of chest was enlarged and bulging anteriorly.

Respiratory System.—On reflecting the skin of the chest wall on the right side a firm white new growth was seen in all the intercostal spaces, infiltrating the subcutaneous tissue. It was continuous with tough white growth involving the whole of the parietal pleura, which was greatly thickened, measuring 1.5 cm. at its maximum width. In some areas the growth was soft and breaking down into creamy fluid. The right dome of the diaphragm was pushed down and invaded and greatly thickened by the neoplasm, which appeared on the under surface as large white nodules to which the upper surface of the right lobe of the liver was firmly adherent, but there was no infiltration. Behind the liver the growth extended downwards retroperitoneally to the level of the renal veins. This extension was formed chiefly by aortic lymph glands enlarged by growth. The heart and mediastinum were displaced to the left.

The visceral pleura of the right lung was similarly infiltrated to a maximum thickness of 1.2 cm., and the right lung was completely collapsed and fixed against the vertebrae. Four firm, broad, fleshy bands of the growth extended between the two layers of the pleura; they appeared like adhesions replaced with growth. On the cut surface of the right lung small areas of collapsed lung tissue were visible (Fig. 2), but the greater part consisted of white, somewhat soft growth. The bronchi contained muco-pus. Many bronchi were involved in the neoplasm, but this could not be seen actually arising from a bronchial wall. The hilar glands were much enlarged with white growth. The trachea and bronchi of the left lung contained muco-pus; the left hilar glands were not enlarged. Both lobes of the left lung were partly collapsed. Two small, flat, thin, round plaques were seen on the visceral pleura of the left upper lobe.

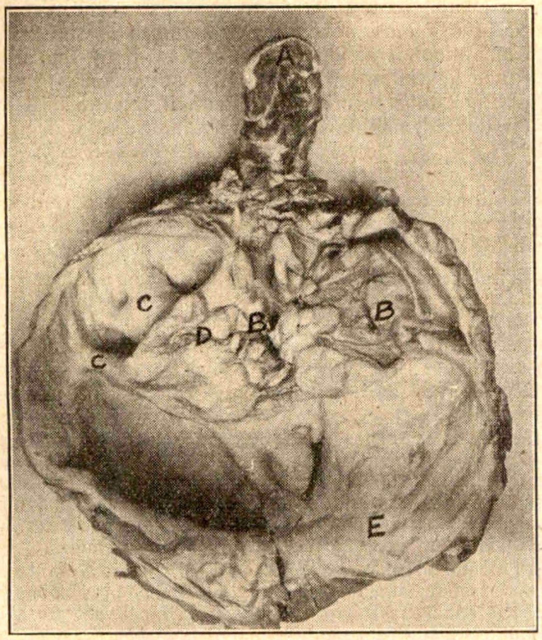

FIG. 2.—The neoplastic mass opened to show the collapsed lung containing nodules of growth, the parietal pleura greatly thickened and infiltrated, and bands of neoplastic tissue connecting the two. A, Tongue. B, Collapsed lung. C, Neoplastic bands. D, Nodules of growth. E, Parietal pleura.

There was considerable venous engorgement in the chest and neck veins. The lumen of the oesophagus was irregularly distorted by discrete mediastinal glands enlarged by secondary neoplastic deposits. The liver showed a pale mottling; its relation to the growth has already been described. Metastases were detected in the right bronchial, all the mediastinal, the right supraclavicular, one large right axillary, and the coeliac axis lymph glands. The right adrenal gland was displaced and partly surrounded by an extension of the neoplasm beneath the diaphragm, but the capsule of the gland appeared intact, a fact confirmed microscopically. The left adrenal was normal.

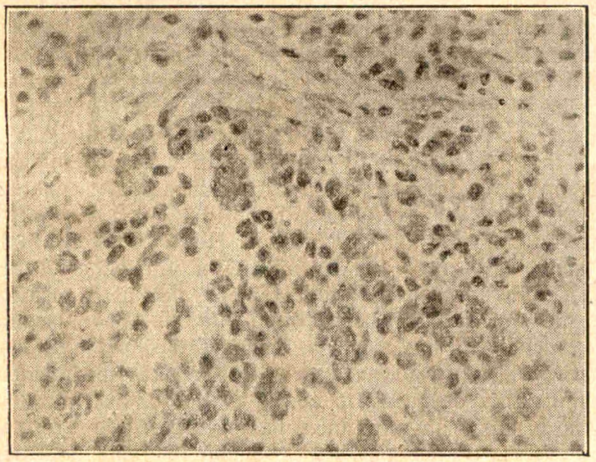

FIG. 3.—Photomicrograph showing masses of polyhedral cells and a few multinucleated giant cells.

Microscopical Examination.—Sections of the right lung and pleura and lymph glands showed a poorly differentiated carcinoma (Fig. 3) composed of masses of polyhedral cells varying in size and including multinucleated giant-cell forms in some areas. In many places where the tumour cells outlined the trabeculae of connective tissue they tended to be columnar-shaped. A large number of the cells were somewhat vacuolated; sections stained with mucicarmine gave an indefinite result. A few small areas of necrosis were present. Mitoses were not numerous.

Conclusion

The growth was an anaplastic carcinoma of the bronchus with extensive pleural involvement and metastases in the bronchial, mediastinal, right supraclavicular and axillary, and coeliac axis lymph glands.

We wish to express our thanks to Dr. W. J. Pearson for permission to publish the case and to Prof. R. S. Pilcher for performing the thoracoscopy and biopsy. We are indebted to Dr. D. M. Vaux of the E.M.S. Pathological Service for conducting the necropsy and reporting upon the fluid, the biopsy, and post-mortem material.

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NASAL INTUBATION: DANGERS AND DIFFICULTIES FROM THE RHINOLOGICAL ASPECT

BY

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Pernasal intubation is to-day so often employed as a preliminary step in anaesthesia that it is perhaps not out of place to emphasize, from the rhinological standpoint, how necessary it is to have an adequate knowledge of the existing intranasal conditions in every case, in addition to a realization of the implications of the widely varying anatomy of the nose and of the factors limiting the safety of nasal intubation which nasal pathology can introduce. The fact that damage to the delicate structures of the nasal defensive mechanism occurs so relatively infrequently reflects great credit on the skill and care of the anaesthetist of to-day; but that harm can, and does, result cannot be denied, and serious consequences have followed the passage of a tube, either from faulty technique or from ignorance of the presence of intranasal conditions which should have debarred intubation. In other cases, less serious and often overlooked sequelae have manifested themselves later.

The nasal passages have highly important and essential physiological functions to perform: by warming, moistening, and filtering the inspired air they provide a highly specialized defensive mechanism for the protection of the respiratory tract; they ventilate the nasal sinuses, and provide drainage for them when necessary; the patency of the Eustachian tube is maintained via their channels, and the olfactory sense is dependent on their healthy state. These nasal channels, lined by highly vascular ciliated epithelium, are often tortuous, frequently obstructed by large sharp spurs, and always intolerant of abuse.

It is unwise to regard every patient as possessing a nose which is a safe channel for the passage of a tube, or all types of case as being suitable for nasal intubation. As unwelcome complications, although infrequent, can follow this method, it is well that it should be reserved only for those cases in which it is clearly indicated and in which other methods, unattended by the same potentialities, have proved inadequate. It is not contested that nasal intubation, which owes so much to the genius of Dr. Magill, is an excellent procedure in selected cases and in the hands of those who realize the need for respecting certain contraindications. The enormous number of successful cases bear witness to its efficiency, and the following observations are merely a plea for a realization of certain difficulties and dangers which are met with, and an attempt to help in surmounting them. The subject is approached purely from the rhinological aspect, and no particular knowledge of anaesthetics is professed. It is the oto-rhino-laryngologist, and not the anaesthetist, who is confronted with these occasional complications, not only because such complications are almost invariably the concern of his department, but because the cases most likely to be affected are those in which nasal and pharyngeal operations, and tonsillectomy in particular, have been performed.

It is clearly unwise to pass a tube through a nasal passage the interior of which is a closed book to the introducer; it is not enough to ask a patient if he can breathe through the chosen airway, as that will disclose neither a sharp spur nor an infected nose. More useful help can be gained by an examination with a headlight *after* shrinking with cocaine; this may reveal a passage in which trauma is unavoidable, and which not even the most gentle persuasion could negotiate with safety: trauma is the prerequisite of all intubation troubles.

Complications

Haemorrhage.—This may be caused by undue force being applied in a narrow nose or by coming up against an impassable obstruction: the highly vascular mucous membrane is abraded, and the seeds of possible infection are sown. In a few cases haemorrhage has been very considerable, and in one tonsillectomy case the surgeon was blamed because the patient lost as much as two pints of blood.

Infection.—This is secondary to abrasion of the mucosa, although it may be caused primarily by faulty aseptic technique. Though more likely to occur in an already infected nose—in which case an aggravation of symptoms will result—it may also be found in a hitherto perfectly healthy one. In tonsillectomy or septic pharyngeal cases infection is particularly likely to occur if trauma has taken place; but the causation in these cases is different, and it is, I believe, the *withdrawal* of the tube from an infected field over the abraded area in the nose which is responsible. It was the occasional virulent sinus infection after tonsillectomy in a war hospital that first attracted my attention, and I noticed that this sequence had occurred: haemorrhage from the intubated side of the nose, followed by an infection of the antrum on the same side, in cases in which radiographs and transillumination had shown the antrum to be healthy before operation. By withdrawal of the tube, on which have accumulated organisms and septic blood-clot resulting from the operation, and depositing these on the abraded mucosa or sinus ostia, infection is readily initiated. Such sinus or nasal infections greatly increase the patient's discomfort and prolong convalescence; they rarely clear up without intranasal drainage, and may necessitate a stay in hospital, in Service cases, of 4 to 6 weeks instead of the usual 7 to 10 days. Such nasal infections may encourage secondary haemorrhage from the tonsillar bed or nasal passage or lead to acute otitis media. It is indeed difficult to explain to the tonsil patient why the antrum should require puncture, the ear an incision, or the nose packing.

Adhesions between the two surfaces of the nasal passage, septal and turbinal, may follow if both of these have been traumatized in opposed areas.

Some Contraindications

(*a*) If the operation and anaesthesia can be in every way efficiently, safely, and satisfactorily controlled by other methods, nasal intubation is not the preferable method rhinologically.

(*b*) Large sharp spurs, marked turbinal hypertrophy, and gross septal deviations should be considered contraindications, particularly in cases of tonsillectomy or septic pharyngeal states. Purulent secretions and crusts, alar and vestibular infections, and large polypi should also debar the passage of a nasal tube.

(*c*) Septicaemic or very toxic patients are not suitable subjects for intubation; if intubated at all, the oral route is preferable, and particular gentleness is required, as a minimum of trauma to the nasal, laryngeal, or tracheal membranes is likely to be followed by a serious spread of infection.

(*d*) Tubes which have slipped into the oesophagus are likely to be infected, and are better not withdrawn through the nose or reinserted into the nasal passages, particularly if bleeding during introduction has occurred.

(*e*) In cases with a history of recurrent sinusitis the oral route is preferable.

(*f*) Cases in which one side of the nose is being operated upon are better not intubated via the remaining nostril; particularly if the lesion is an infective one, the oral route is again preferable.

(*g*) Children undergoing removal of tonsils and adenoids should not be pernasally intubated. It is unwise to pass a good-sized tube past a large adenoid pad; and, moreover, removal of adenoids, now often undertaken as the first step in the operation, is seriously interfered with by the presence of the tube in the nasopharynx. It is not difficult to remove tonsils with a tube through the mouth if intratracheal anaesthesia is desired, and this in no way interferes with adenoid removal.

Precautionary Measures

The following suggestions, most of which are well known but will bear repetition, are made in an endeavour to surmount some of the difficulties presented:

1. Careful sterilization of the hands, all instruments necessary for intubation, sprays, and lubricants is essential; these are best placed on a sterile towel spread over the patient's chest.

2. The nasal passages should be sprayed with 5% or 10% cocaine before anaesthesia is begun.

3. Inspection of the selected airway with a good headlight is advisable.

4. If there is resistance to the passage of a tube no attempt to force a passage is permissible. If much bleeding has followed the attempt the tube should be withdrawn and antiseptic ointment (sulphanilamide, for example) inserted. The tube should now be inserted, preferably by the oral route, though in some cases the use of the other nostril may be reverted to after inspection.

5. All blood-clot and secretions should be removed from the throat and post-nasal region in tonsil cases, preferably by suction, before the tube is removed; fragments of infected blood-clot are likely to be withdrawn along with the tube and deposited in the nose.

6. If it is known that trauma has occurred during intubation it is possible to withdraw the tube via the pharynx at the end of the operation. By grasping it with forceps as it lies in the posterior pharynx it can be withdrawn bent upon itself, from larynx and nose simultaneously; by this means the infected tube does not pass over the abraded mucosa. With soft tubes this manœuvre is simple; with more rigid ones it is difficult. It is possible to cut the tube in half in the pharynx, and withdraw it in two pieces; it is needless to add that this suggestion will not meet with universal approval in these days of rubber shortage; but, nevertheless, it is an easy way out if the need is imperative.

MAINTENANCE TREATMENT WITH DIGITALIS

BY

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It is a well-established clinical practice to recommend the continuance of a maintenance dose of digitalis for patients with congestive cardiac failure who have responded well to the drug. Gold (1941) stated that "only about 15% of cardiac patients owe to the habitual use of digitalis the fact that they are able to carry on with a reasonable degree of comfort. The reputation of the drug is not enhanced, to say the least, by its use in the remaining 85% of the cardiac population." In Stobhill Hospital there has for some years been a special cardiac clinic for the supervision of patients with cardiac involvement who, after residence in the wards, have been found suitable for out-patient treatment. It has been a general rule, when digitalis therapy has proved necessary, to ascertain the adequate maintenance dose and to continue its administration. In some instances this treatment has been carried on for over four years. Patients attend at regular intervals, and many of them take an intelligent interest in their treatment. It was thought that these patients were excellent subjects for determining whether, in view of Gold's statement, we had been unduly liberal in dispensing digitalis.

Experimental Investigation

Having decided on this investigation, the first 20 patients who attended the clinic on and after a certain date and who were receiving a maintenance dose of digitalis were chosen. Drug therapy was immediately stopped and no medication was given until there was some indication of ill-health. These patients, all of whom had proved most co-operative, attended the clinic every week. If objective signs of heart failure such as marked increase in heart rate, visible dyspnoea, cyanosis, or oedema appeared, it was concluded that the lack of digitalis was being felt. If, however, without objective evidence, the patient complained of not feeling well, he was given tablets containing lactose in order to make quite certain that the ill-health was due to increasing cardiac decompensation and not to psychological disturbance from want of medicine. Only when objective signs of failure appeared was digitalis therapy restarted.

The 20 patients varied in age (Table I) and in duration of digitalis administration (from a few weeks to more than four years).

TABLE I.—*Age Incidence of the Patients Investigated*

Age :	20–30	31–40	41–50	51–60	61–70
Number of patients	3	5	8	1	3

There was a definite history of rheumatic fever in all but three patients, in whom arteriosclerosis with hypertension appeared to be the aetiological factor. One patient with a history of rheumatic fever had a positive Wassermann reaction, while the others had no serological or other evidence of lues. All had been in-patients of the hospital with definite signs of cardiac failure. Auricular fibrillation was present in all but two of the series. The daily maintenance dose (Table II) varied from 1/2 to 4 gr. of the powdered leaf, which is the preparation utilized for all patients attending the clinic.

TABLE II.—*Maintenance Doses of Digitalis*

Maintenance dose (gr.) }	½	1	1½	2	3	4
Number of patients	3	2	2	7	4	2

Of the 20 patients 16 showed objective evidence of progressive cardiac failure before any complaint was made of ill-health or distress; in each case compensation had apparently been satisfactory the previous week. Such a rapid onset of recurrence of cardiac failure differs from the lengthy period of subjective upset which is the rule before a first attack of congestive failure.

TABLE III.—*Time Taken for Signs to Appear after Cessation of Digitalis Administration*

Case	Age	Maint. Dose (gr.)	Signs	Time in Weeks after Digitalis Stopped
1	45	2	C	5
2	38	1½	D O	8
3	41	½	D O	8
4	40	2	T	2
5	34	4	C T	11
6	49	½	D T	6
7	38	3	D T	2
8	27	4	O T	6
9	61	1½	D T	2
10	54	3	T	4
11	44	2	T	4
12	62	2	O	2
13	48	3	C D O T	5
14	47	2	T	4
15	29	3	T	3
16	24	2	D T	6

C: Cyanosis. D: Visible dyspnoea. O: Oedema. T: Marked increase in heart rate.

In this group the time taken for the signs to appear after the cessation of digitalis administration varied from two to eleven weeks, with an average of just under five (Table III).

Visible dyspnoea was the feature in 7 instances, oedema of the feet in 5, cyanosis in 3, and a marked tachycardia in 12. There was no correlation between the size of the maintenance dose and the length of the sign-free period, nor did the age or weight of the patient appear to influence the duration of the period.

The remaining 4 patients made subjective complaints—increased fatigue and a feeling of breathlessness—at an interval varying from two to six weeks after cessation of the digitalis therapy. No objective evidence to support their complaint was found in any of them. Accordingly the lactose tablets were given. In all four cases objective signs subsequently appeared—in one case in two weeks, in two cases in four weeks, and in one case in six weeks after the first subjective complaint. Visible dyspnoea was noted in all four cases, increase in heart rate in two, cyanosis in one, oedema in one, and liver enlargement in one. These signs appeared in all cases eight weeks after the digitalis had been stopped (Table IV).

TABLE IV.—*Time Taken for Appearance of (i) Symptoms and (ii) Signs after Cessation of Digitalis Administration*

Case	Age	Maint. Dose (gr.)	Signs	Time in Weeks after Digitalis Stopped	
				Subjective	Objective
17	39	1	D T	4	8
18	44	2	D C LE	6	8
19	70	1	D O T	2	8
20	50	½	D C	4	8

C :Cyanosis. D: Visible dyspnoea. LE: Liver enlargement. O: Oedema. T: Marked increase in heart rate.

In all the cases digitalis administration was restarted as soon as there was any sign of increasing cardiac decompensation. Evidence of recovery appeared within a week. This fact indicates clearly that digitalis therapy was essential for the comparative well-being of these patients.

Comment

From this small series of cases it seems reasonable to state that for patients with cardiac failure who have required digitalis for treatment in the decompensated state a maintenance dose of the drug is necessary.

I have pleasure in expressing my indebtedness to Prof. Noah Morris for his advice and assistance in the preparation of this paper, and to Dr. A. D. Briggs, medical superintendent of the hospital, for his interest.

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Medical Memoranda

Multiple Foetal Adenomata of the Thyroid

The following case on which I operated six months ago in South Africa may prove to be of some interest.

A European woman aged 30 presented herself complaining of a disfiguring swelling in the neck. On examination the right lobe of the thyroid was found uniformly much enlarged, but there were no toxic or pressure symptoms. At the patient's request operation was undertaken. The right lobe and isthmus were removed, leaving only a very small piece of tissue over the recurrent nerve. The left lobe appeared only slightly enlarged, and was not disturbed. On section the specimen was found to contain dozens of nodules each slightly larger than a pea, and these on histological examination were shown to be foetal adenomata.

I believe this case to be unusual; for foetal adenomata are as a rule single, and it must be most exceptional to find dozens present in the same gland. One wonders whether, if this case had been left alone, each of these nodules would have developed into a typical colloid adenoma. How frequently do the common cases of nodular goitre have their origin in multiple foetal adenomata?

CHARLES MACLAY, B.Sc., M.B., Ch.B.,
F.R.C.S.Eng. and Ed.

Reviews

MODERN OPERATIVE SURGERY

(Carson's) Modern Operative Surgery. Edited by G. Grey Turner, LL.D., D.Ch., M.S., F.R.C.S., F.R.A.C.S., F.A.C.S. Third Edition. Volume I. (Pp. 1,041; illustrated. 50s.) London: Cassell and Co. 1943.

Prof. Grey Turner is to be congratulated on modernizing *Modern Operative Surgery* and producing, at the height of the war, a third edition of this work; congratulations are likewise due to the publishers on the high quality of their production. The standard is one of which they might well be proud in peacetime; in wartime it is really excellent. For long this textbook of operative surgery has, in our opinion, been the best work of its kind in English, and the late H. W. Carson did surgeons a great service when, towards the close of the year 1924, he first launched it. The present edition is dedicated to the late Rutherford Morison of Newcastle-upon-Tyne, to whom the editor refers as a "great clinician, master surgeon, and inspiring teacher"—and many readers would describe the present editor in the same terms.

Vol. I deals with anaesthetics, surgical tuberculosis, malignant disease, orthopaedics, operations on joints and tendons and bones, amputations, and the surgery of the breast and thorax and gastro-intestinal tract; also the surgery of nerves, blood vessels, and the spinal cord. Twenty-six well-known authors have contributed to the third edition, but the bulk of the work has been done by Prof. Grey Turner himself, and he is responsible for the greater part of the text. The new contributors to this edition are Messrs. A. J. Gardham, V. E. Negus, L. Carnac Rivett, W. E. M. Wardill, and Lambert Rogers: the last, who has written the section on the spinal cord, has by an oversight on the part of the editor been overlooked in his prefatorial reference to his new associates. As before, the indications for operation are stressed, and the details given are those of procedures which in the experience of the particular contributor have been found by him to meet best the special indications for the operation. Illustrations are good and helpful, and the text clear and in large type—in fact, the whole format is both attractive and inviting. We find little to criticize; but Lord Moynihan, who was such a great advocate of isoperistaltic anastomoses, would have been disturbed by the legend to diagram D of Fig. 378 on page 706, which incorrectly describes his Type II operation ("Moynihan I," by the way, is called "Roux") as "retroperistaltic" and Balfour's "anastomosis" as "isoperistaltic." (Reference to vol. I of Moynihan's *Abdominal Operations*, pp. 398 and 403, shows the Moynihan II operation as isoperistaltic.)

Perhaps the keynote of this book is best indicated by the editor's comment that a considerable period must always elapse before it can be said that a given modification, however striking or spectacular, is a real improvement rather than a mere change in technique, and that in surgery there can be no finality. Here we find presentations of methods which have stood the test of time and which have, in the experienced hands of the distinguished contributors, proved their value. For these reasons this work will be an invaluable guide to the young surgeon who has to decide whether to operate, when to operate, and what to do, especially if in such a predicament he is far removed from the advice and help of colleagues. It will be equally important to candidates for the higher examinations, while as a work of reference for practitioners it should find an honoured place on their bookshelves.

MEDICAL PROBLEMS IN SOCIAL WORK

Proceedings of the National Conference of Social Work. Selected Papers. 68th Annual Conference, Atlantic City, June, 1941. (Pp. 787. $5 or 33s. 6d.) New York: Columbia University Press: London: Oxford University Press.

Social work nowadays has a vast scope. The report of the American Conference held in 1941 contained 64 papers, selected from more than 150, and is a thick crown octavo volume. Many of the contributions are linked with national defence and social security; but, as might be expected, perennial problems of health and disease were prominent. James S. Plant's paper on personality adjustment in older children states clearly some of the major problems of the adolescent—such as the conflict between responsibility and dependence, the relation between the adolescent and the adult, his adjustment of his various autonomous personalities, and his search for a loyalty—and offers useful hints on their solution. Grace L. Coyle outlines the contribution of group experience and the development of older children, and points out the significance of the present tendency to form closely knit groups of contemporaries during early and middle adolescence. Hyman Lippman, writing on case work with adolescents in conflict with authority, declares that there is no place for punishment in this work but that its success depends on the choice of workers with suitable temperament and experience. In a paper on foster parents and the agency in the adoption process Elizabeth Harral examines the relation between the applicant and the agency and its significance. The place of the specialized consultant in child welfare services is examined by Mildred Arnold. In his prescription for breaking the delinquency-crime chain James V. Bennett somewhat depreciates the institution, but William J. Ellis is convinced that it is a full partner in the chain of agencies for preventive and external treatment, and describes the variety of the services performed by American institutions for the reformation of delinquents. Winfred Overholser points out some of the means by which mental disorder in the older age groups has been successfully treated.

A vital topic of these days, health service centres in industrial areas mainly engaged on war production, is ably dealt with by Kingsley Roberts; and John C. Leukhardt, advocating better housing as a health resource, declares that it will be attained only if the housing, health, and welfare agencies co-ordinate their attack. Another phase of the medical problem created by mass migration of workers is stated by Karl L. Schaupp in describing his experiences with the Farm Security Administration in California, which had to deal with a quarter of a million migrant labourers in 1938. Naturally the volume deals mainly with American conditions, but it will be of great help to directors of socal work in this country.

CINEPLASTIC AMPUTATION STUMPS

Cineplastic Operations on Stumps of the Upper Extremity. By Rudolf Nissen, M.D., and Ernst Bergmann, M.D. (Pp. 88; illustrated. 17s. 6d.) London: William Heinemann. 1943.

Cineplastic amputation stumps were introduced as early as 1898 by Van Ghetti. Attention was drawn to the procedure by Putti and Sauerbruch towards the end of the last war. English surgeons tried out the Italian method and came to the conclusion that the cineplastic arm stump had little practical value. This adverse conclusion was based mainly on the poor wearing qualities of the motor provided by the method employed and the relatively weak control of the artificial limb which is furnished.

The volume under review is interesting in that the authors put forward a strong case for the contrary view. In a small well-illustrated monograph they give the history and theory of the subject and outline the development of their own practice, which has been based on the muscle-tunnel technique of Sauerbruch. They define cinematization as a plastic operation on the muscles of a stump, thereby creating new sources and directions of muscular energy which, by the use of additional mechanical apparatus, will permit the artificial hand to perform movements approaching the normal. The authors are satisfied that the method can be usefully applied to the upper arm and forearm but not to the lower limb.

Sections of the book deal first with physiological and anatomical aspects of the question. The complexity of muscular action necessary to attain automatic balance in any movement is made clear. The practical bearing of the degree of shortening which a muscle undergoes on contraction is considered at length. In the chapter on the selection of suitable cases emphasis is laid on the importance of the mental attitude of the patient. The authors point out that the method is best adapted to double arm amputations, or to single arm amputations when the right limb has been lost. They point out, too, that a suitable stump should be free of scar tissue and painless, and, further, that the muscle should firmly adhere to the end of the bone and not overhang it. It is recognized that the power given by the motor provided is at best about 25% of the normal, and that therefore the procedure is unsuited for men doing heavy labour though well adapted to those involved in light hand-work.

The chapter on operative technique is clear and well illustrated. Various methods by which a muscle tunnel may be covered by skin are given in detail. The artificial limb suited for use with a motor is figured and some details are given. Drs. Nissen and Bergmann have employed the Huefner artificial hand for the purpose. No figures indicating the success or failure in their own cases are given. They state that according to the literature success has been achieved in from 68% to 10%. Their own work has been mainly carried out on civil injuries between 1927 and 1933, and on this account the quality of the stumps available was probably unusually good. Short chapters on the phalangization of forearm stumps and of the second metacarpal are given. A good bibliography of the subject is included, and this completes the practical value of a work which cannot fail to interest surgeons at the present time.

Notes on Books

The *1942 Year Book of Obstetrics and Gynecology* is dedicated to Dr. Joseph B. deLee, whose recent death removed one of the world's outstanding physicians. From 1903 to 1941 he was associated with the yearbook series, being editor of the *Year Book of Obstetrics* until 1917 and then editor of the obstetrical division of the present series until this last year. He was largely responsible for the success of this annual publication, in which his wise comments became such an outstanding feature. His co-editor of recent years, Dr. J. P. Greenhill, has now become sole editor, and has ably maintained the running commentary. There is much to be said, however, for a joint editorial staff. It would lighten the burden, and its comments could not be interpreted as the pronouncements of a dictator, however benign. The 1942 edition is arranged like its predecessor in two sections of approximately equal size, and each is subdivided in such a way that the latest papers on any given subject can be easily and rapidly discovered. A double index of papers and authors adds greatly to the value of the edition. The practitioner who wishes to find in the shortest time the latest views on the management of a posterior position, the treatment of abortion, toxaemia of pregnancy, the use of endocrine preparations in obstetrics and gynaecology, or any one of the other thousand and one problems of general or special practice will continue to find this yearbook his useful guide. It is published in England by H. K. Lewis and Co. at 19s.

No introduction is necessary to the eighth edition of Prof. Sydney Smith's classic on medical jurisprudence. The popularity of *Forensic Medicine : A Textbook for Students and Practitioners* is shown by the demand for a new edition in wartime less than three years after the appearance of the last. The text has been revised generally, and the various changes in the law governing poisons have been noted, as have also the additions to the lists of industrial diseases for which workmen's compensation is payable and which must be notified under the Factories Act. The publishers are J. and A. Churchill, and the price is 28s.

Dr. J. Vernon Braithwaite's little book on *Infant Feeding in General Practice* (Bristol: John Wright and Sons; 7s. 6d.) appeared first in 1930, and it had the great merit that its author was himself in those days a general practitioner, fully aware of the peculiar difficulties of the work. Now in a second edition Dr. Braithwaite reveals that he has changed to the ranks of the specialist, but his book remains a most useful and thoroughly practical volume, with an account of the feeding of the premature infant added; and a new chapter on deficiency diseases and their treatment has also been found necessary. The section on vitamins has required some expansion in the light of new discoveries. This book can be thoroughly recommended to all who have the responsibility of supervising the feeding of infants.

Home Guard casualties are bound to occur, even if invasion does not happen. *Guide to First-aid Treatment of Home Guard Casualties*, by Dr. T. H. Meek (H. K. Lewis; 4s.), is chiefly designed to show how the contents of the first-aid haversack for the Home Guard can best be employed. It is a pity that when omnopon—a dangerous drug—is mentioned its dose, except in one instance, is given as " grs." instead of " gr." The illustrations are peculiarly good throughout. The pneumatic tourniquet is pictured as being the one found in the haversack. It would be interesting to learn how this rather complicated type stands the rough wear of actual practice. For those for whom it has been prepared this booklet should be useful, but there is no index.

Preparations and Appliances

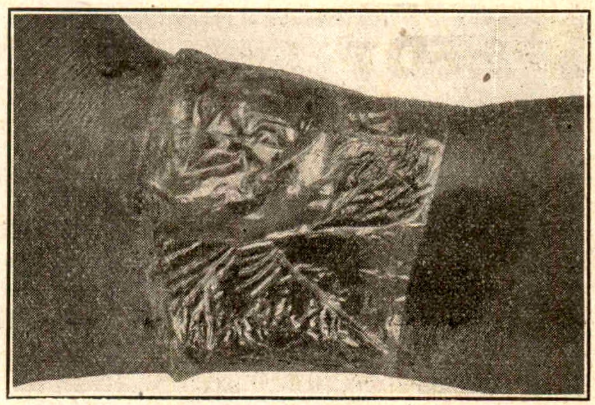
TRANSPARENT WRAPPING MATERIAL FOR DRESSING OPEN WOUNDS AND ULCERS

Dr. M. Ellis (Colonial Medical Service, Lagos, Nigeria) writes:

Transparent wood-pulp tissue of the type used for wrapping cigarettes has been used in brain surgery as a non-irritant, inert substance to prevent adhesions between brain and dura. It was considered that the non-irritant property might be of value if this material was used as a dressing for open wounds and ulcers. Thanks to the co-operation of our local Forces canteen, we obtained a supply of undamaged wrappings removed with care from packets of cigarettes sold there. We found that these pieces of tissue could be sterilized without damage by boiling in the standard ward sterilizer.

Routine of Dressing.—The wound or ulcer is cleaned or prepared in the usual manner as if a gauze or lint dressing were to be applied. We use either sulphanilamide powder or urea crystals actually in the wound. The wound is then covered directly with a piece of transparent tissue of appropriate size and this is secured at the edges by a bandage or strapping. The wound can be inspected at any time through the transparent wrapping and not uncovered until it is desired to change it. We have found that the wrapping can remain in place without tearing for about one week, and in the normal case we change dressings weekly. We have also found that the discharge from ulcers and wounds is very much less than with ordinary gauze dressings; in most cases the sealing of the wound by the transparent tissue contains this diminished discharge without trouble until the dressing is renewed at the end of a week. Some sloughing ulcers, however, still have enough discharge to exude beyond the wrapping. In these cases wool is placed round the edge of the wrapping to absorb this discharge. If this discharge is very plentiful, the dressing may be done twice a week at first, but very soon weekly dressings are sufficient.

In the photograph the wrapping material is seen covering an ulcer after having been in place two days—the retaining bandage has been removed. It will be observed that the transparent tissue has become slightly adherent to the skin around. I am indebted to Mr. Bird of the British American Tobacco Company for the following information. The transparent wrapping in use in the factory of the B.A.T. in Nigeria has the trade name of " rayophane " and possesses the property of sealing by the application of heat: the wrappings around the cigarette packets are sealed by heat. Although body temperature does not approach the temperature used for sealing in the factory, the constant warmth of the body is apparently enough to seal the tissue lightly to the skin and assist in keeping it in place. If the pressure of the discharge becomes excessive, it has no difficulty in breaking the seal and escaping into the wool. Through the courtesy of the B.A.T. we have now ample supplies of " rayophane," which they give to us from the scrap obtained from the factory, and this dressing is used as a routine both in the in-patient and out-patient departments.



To summarize the advantages: (1) The dressing is non-irritant and simple to apply; (2) the wound can be inspected without uncovering at any time; (3) the amount of discharge is much reduced—a possible corollary to this is that the smell in the ulcer wards is very much reduced now; (4) a tremendous saving of dressing material; (5) we believe that the rate of healing is increased by the dressing.

I am indebted to the Hon. the Director of Medical Services, Nigeria, for permission to publish.

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LIVER EXTRACTS AND THEIR BIOLOGICAL EFFECTS

Since the discovery of the therapeutic effect of liver in pernicious anaemia it has been the aim of the pharmacologist to produce ever more concentrated extracts with the ultimate view of synthesizing the active principle. Clinicians, on the other hand, always on guard that the chemist in his rejection of unnecessary molecules should not render his remedy less potent, suspect that preparations become less active when they exceed a certain degree of concentration. The work of Subbarow and Jackson[1] suggests that the therapeutic potency of liver extract depends upon one principal factor which, if given in sufficient amount, can alone bring about a remission, and several subsidiary factors which, themselves without anti-anaemic effect, yet intensify the therapeutic efficacy of the extract. A recently published investigation[2] from Copenhagen throws some light on these subsidiary factors and their relation to the anti-anaemic principle. Barfred began his research in order to elucidate the causes of the disagreeable effects so often observed after injections of liver extract. He found that these reactions occurred especially with the use of preparations containing a relatively high amount of dry substance. He showed also that extracts rich in dry substance are highly toxic to mice, and that by employing a preparation 1 c.cm. of which was not lethal to mice it was possible to avoid most of the unpleasant reactions in patients with pernicious anaemia. This led to a study of other biological effects of liver extracts, with interesting results. Confirming and amplifying the work of previous workers, Barfred showed that certain liver preparations were capable (1) of increasing the volume and HCl content of the gastric secretion of normal and achlorhydric subjects, (2) of producing positive intracutaneous reactions, and (3) of inducing leucocytosis. The factors responsible for these effects have certain features in common, such as solubility in butyl alcohol and resistance to boiling and action of erepsin. An attempt was made to identify the substances responsible for these biological effects. Histamine, acetylcholine, adenosine, nicotinic acid, and other members of the vitamin B complex were studied, and it was shown that not one of these substances taken singly could produce all the subsidiary effects of liver extracts, although it was possible that a combination of the first four might. It is evident, however, that the subsidiary actions of liver extracts are not peculiar to this organ, as an extract of the thymus gland prepared in the same way produced the same results without any influence on the course of pernicious anaemia. Of interest for the future synthesis of the anti-anaemic principle is the finding that prolonged treatment of potent liver extracts by erepsin did not diminish the anti-anaemic potency, suggesting that the principle is not a simple polypeptide.

The subsidiary substances found in the butyl alcohol solution have no effect on pernicious anaemia, but by the use of the double reticulocyte reaction introduced by Minot and Castle it was shown that they increased the response obtained from the use of the residue left after treatment with butyl alcohol. If by further concentration of an active liver extract the stimulating effect of HCl secretion was abolished a reduction of the anti-anaemic effect was invariably found. This indicates a method whereby the limit to concentration can readily be determined. It also has led Barfred to put forward the interesting hypothesis that the gastric factor may be of importance in stimulating the stomach to produce the intrinsic anti-anaemic factor. With highly purified extracts containing but little of the subsidiary substances the therapeutic effect would be due merely to the haemopoietic principle contained in the extract. With less concentrated preparations, on the other hand, the patient would derive benefit not only from preformed anti-anaemic substance but also from the extra amount of intrinsic factor secreted by the stomach under the influence of the gastric factor contained in the extract.

The painstaking investigations of Barfred, while of considerable theoretical interest, may lead to results of some immediate practical value in providing a method for determining the optimal limits of concentration of a liver extract. It is obvious that all extracts should have some stimulating effect on the gastric secretion, thus limiting the degree of concentration upwards. At the same time they should be so purified that a dose of 1 c.cm. is not lethal to mice, thus ensuring that unpleasant reactions in the human subject are reduced to a minimum.

SOME PROBLEMS OF MEDICAL EDUCATION

Last year, following a request from the Interdepartmental Committee on Medical Schools, the Council of the British Medical Association set up a compact committee of fourteen to prepare evidence, and the result, under the chairmanship of Prof. Sydney Smith of Edinburgh, has been the memorandum printed at page 702. It is a clear and concise report, moderate and constructive in tone. While covering the five specific points referred to it, the committee goes into some broader considerations, recognizing that, although the organization of medical schools and of the facilities for clinical teaching poses problems of its own, the matter should be studied not as a thing apart but in relation to the whole question of the future organization of medical services. The problem is one not merely of devising methods of linking the present voluntary and local authority hospitals for the purposes of medical education, but of considering the place of the teaching hospital in the future hospital service and the method of associating other types of hospital and medical institutions with the teaching hospital. The method of recruitment to the profession and the needs of practitioners of the future, whose conditions of work may well differ from those we know to-day, must also be kept in mind.

Starting with the axiom that a medical teaching centre should be one from which medical education, both undergraduate and postgraduate, and research are organized for an area, the committee lays down general criteria to which the centre must conform if it is to fulfil its important functions. This conception of a medical teaching centre is elaborated under several subheadings. The memorandum next sets out desiderata in respect of the teaching staff, their selection, appointment, and status, and then passes to the question of how far general practitioners might assist in the training of medical students. Two frequent complaints are succinctly noted: one is that the future family doctor is not given knowledge that he will find to be essential in his daily practice; the other is that the newly qualified man may enter general practice without any previous instruction in his ethical relationships with his patients and his colleagues or in his rights and obligations under the Health

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[1] *J. clin. Invest.*, 1937, **16**, 573.

[2] *Acta med. scand.*, 1942, Suppl. **131**, 1.

Insurance and other Acts of Parliament. To meet these criticisms the committee, aligning itself with earlier declarations by the B.M.A., holds that medical education would be assisted if suitable general practitioners were invited to advise on, and be associated with, the training of the student. Further than this, medical faculties or medical school committees might with advantage include general practitioners in their membership to advise on the curriculum so far as it relates to matters of importance in general practice, and to ensure that adequate attention is given to them. With regard to teaching methods in general, the memorandum stresses the need for relating the medical curriculum to the organization and requirements of medical practice. Changes are in the air, and in many respects the present methods of teaching will not produce doctors competent to reach the standard of practice that will be demanded in the future. This leads to the point that students should be taught the fundamental principles of health and disease rather than the diagnosis and treatment of separate diseases. Many doctors to-day find difficulty in keeping abreast of modern medical progress because they did not have a sufficient grounding in their student days. The function of the future practitioner in maintaining health as distinct from treating disease should also be provided for in the curriculum. Again, for most students the time occupied in watching major operations could be spent more profitably in acquiring under supervision practical experience in those surgical procedures that are likely to fall to the lot of the general practitioner.

To many people in 1934 there was something novel in the recommendation in the B.M.A. Report on Medical Education that every student should be required to spend some time in practice under supervision before being allowed to embark on independent practice. The idea has made much progress since then, and the present memorandum, noting the movement of opinion, discusses two different views on how to achieve this end. It agrees with the Medical Planning Commission that the period spent in practice under supervision should occur after the final examinations have been passed but before the licence to practice independently is granted; it should be essentially a time of instruction combined with some responsibility, but no formal examination should be required at the end of the year. (The General Medical Council, while favouring this proposal in the public interest, has pointed out to the Interdepartmental Committee that it may involve amendment of the Medical Acts.) Then follow two sections on post-graduate courses—those for general practitioners and those in special subjects. It is recommended that, in a national scheme of medical service, periodical "refresher" courses for the G.P. should be compulsory, and that steps should be taken to satisfy varied wants by making use of both voluntary and local authority hospital resources on a systematic basis, the instruction being given by teachers familiar with the G.P.'s difficulties and in sympathy with his outlook. The memorandum closes with a brief glance into the future of medical practice, both general and special; a tentative estimate of the number of general practitioners who might be needed after the war; and a note on the selection of medical students—the human material from which the future doctors are to be fashioned. Two main points are put forward: one is that better care should be taken by the medical schools to exclude from our profession men and women who, though able to pass the examinations, have not the aptitude, character, or staying power needed for the arduous and responsible duties of a medical practitioner. The other is that there should be a recognized arrangement for picking students, with the object of recruiting to the profession any boy or girl, from whatever section of the community, who shows a natural inclination for medicine and who has the character, health, and intelligence that a successful medical career demands. As a natural corollary to this comes the final recommendation that funds be made available to help selected candidates who could not otherwise join our ranks.

PLAGUE ABROAD

We have Defoe and the sites of plague pits to remind us that infection with the *Pasteurella pestis* was once one of the perils of our land. While we remain mercifully free from the pest, it is well to recall that it is a public health problem in many parts of the Empire, and also in America. Reports for January–October, 1942,[1] showed cases of plague in Basutoland (10), Kenya (703), Uganda (338), Egypt (3), Madagascar (92), Morocco (349), Union of South Africa (68), India (854), Palestine (5), Azores (1), Argentina (25), Brazil (9), Chile (1), Peru (102), and in four provinces of China. Two young boys from different localities in California died from the disease in 1941.[2] Fortunately the West Indies have been free since 1921. It is evident, however, that plague is one of the main health problems of some of our colonies. From February, 1941, to February, 1942, 547 cases of plague (416 bubonic) were admitted to the two civil hospitals in Nairobi,[3] with 354 deaths. It is the native population which has been involved in nearly every instance. Outbreaks of plague occur from time to time in the Union of South Africa. In 1941 Gale[4] reported an outbreak of 37 cases in a native reserve: all but one were pneumonic and 36 fatal. The origin of this outbreak was thought to be the springhare (*Pedetes caffer*) or the multi-mammate mouse (*Mastomys coucha*). Davis[5] reported plague to be enzootic in the rodent population over a large area of the Union. The main source of infection for man was the multi-mammate mouse, which occupies the abandoned nests of the gerbilles, these being the main sylvatic reservoirs of the disease. The mice enter human dwellings and form the link between gerbilles and man. More recently *R. rattus* has been the source, and large numbers have died without traceable infection in the field rodents. Kamal[6] has pointed out that plague is endemic in Egyptian towns and villages.

In the Americas the disease exists chiefly as an ever-present potential danger in the form of sylvatic plague. As a cause of death plague is unimportant on the North American continent. Meyer[7] states that only 17 cases have been recognized in the period 1930-40, but the disease is enzootic in the rodent population over at least 12 western States and at least one Province in Canada. In 1941 infected fleas were found for the first time on ground-squirrels in North Dakota. This is the furthest east that the infection has been found in wild rodents or their ectoparasites and was only 6 miles south of the Canadian border. There is evidence that distribution of the infection is widening and nearing the rat-infested cities and towns of the Mississippi valley. It is also possible that the infection may again invade the Pacific coast cities and military encampments. The list of wild rodents that harbour infection is too long to enumerate and is included in Meyer's excellent lecture on the ecology of plague.[7] The movement of large numbers of military personnel into areas where plague is known to exist has created greater interest in the suppression of this infection. What is wanted is something that will kill the flea as well as the rodent. Methyl bromide and carbon disulphide appear to be the chemicals of choice.[8] The former is the most efficient and is non-explosive, but it is expensive and more toxic for man. For merely maintaining a ground-squirrel-free belt carbon disulphide is efficient and reasonably economical, but some fleas may escape destruction. Fortunately the other factors which seem necessary to initiate human infection seldom occur in the U.S.A.

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[1] *Publ. Hlth Rep.*, Wash., 1942, **57**, 2000.
[2] Ibid., p. 903.
[3] *E Afr. med J*, 1942, **19**, 3.
[4] *S. Afr. med. J*, 1941, **15**, 369.
[5] *S. Afr. J Sci.*, 1939, **36**, 438.
[6] *J. Egypt. publ. Hlth. Ass.*, 1941, **16**, 1.
[7] *Medicine*, 1942, **21**, 143

In the Far East, Madagascar, East and South Africa, and elsewhere a number of prophylactic vaccines have been tried. The most satisfactory appear to be those made from an avirulent strain first discovered and used by Otten in Java.[9] In large-scale usage this type of vaccine has apparently reduced the mortality rate by almost 20%. Many drugs have been tried in treatment in the past, but with little effect. However, the sulphonamides have improved the prognosis. Plum[3] in Nairobi found that sulphapyridine in large and frequent doses given within two days of the onset of illness caused a fall in the mortality rate of bubonic cases. Wagle and his colleagues,[10] on the other hand, found immune serum as effective as sulphapyridine or sulphathiazole. As in many other bacterial infections, these drugs, if used early enough in large doses, can reduce to as little as 12% in bubonic plague a mortality rate which ranges between 50 and 100% in different epidemics (1,541 deaths in 1,558 unvaccinated cases reported in Java in 1939). A full review of the chemotherapy of plague was given in an annotation about 18 months ago.[11]

REGIONAL ANAESTHESIA

Even if the local anaesthetic properties of cocaine had been discovered before the general anaesthetic properties of ether, one may assume that unconsciousness during surgical operations would have been welcomed for its own sake. Anaesthesia had become widespread long before the mortality of operations was being lowered by antiseptics and surgical cleanliness. The public, however, still associated surgical operations with pain and the likelihood of death, with at best a prolonged convalescence. It is little wonder, then, that to-day, barely two generations later, the fear of operating theatres is so prevalent, and patients so often spontaneously ask for sleep when the question of regional anaesthesia is raised. British anaesthetists have subconsciously understood their patients in this matter, and have rarely been guilty of forcing an unwilling patient to remain awake. This was a common sight in Continental operating theatres, for, although the surgeons abroad developed the regional anaesthetic technique to a high degree, they ignored the minds of their patients. Successful regional anaesthesia must wed these two aspects. The public fear of the operating room and everything associated with it must be gradually eliminated by education and propaganda. Anaesthetists must gain anatomical knowledge and technical skill, while those whose hands cannot be gentle and whose tongues must wag while they work should be discouraged from surgery under regional anaesthesia. At the moment, when the patient desires to be asleep, regional anaesthesia should be combined with light general anaesthesia, and it will still be of the utmost value in providing muscular relaxation that could have been produced only by the deepest of general anaesthesia, and in preventing stimuli from the operation area reaching the cortex.

In a comparison of regional with general anaesthesia the local anaesthetic agent must not be overlooked as a source of systemic poisoning. The last fifty years have seen a constant search for a local anaesthetic drug which, while giving effective anaesthesia, is relatively non-toxic. Procaine (novocain) holds the field to-day, but active research is needed even in connexion with this, because large amounts of the order of 2 grammes and more are often being used, and we have little knowledge concerning the relative rates of its absorption and excretion and the relation of these to the concentration and volume of the drug solution used. In the search for drugs having a prolonged action, new additions such as nupercaine, and recently amethocaine (also known as decicain, pantocaine, and anethaine), have been made. Unfortunately, these drugs are several times more toxic even than cocaine; and this is offset only by the extreme dilutions which are effective. No one who contemplates using these very potent drugs should fail to make himself familiar with their pharmacology and toxicology. Deaths have recently occurred in this country and abroad through using amethocaine in too high concentration,[1] [2] while convulsions from both this drug and nupercaine have been reported.[3] It should be borne in mind that their main claim over procaine is the longer operating time they provide, and unless the time factor is important procaine should still be used. Regional anaesthesia holds tremendous promise, both for the relief of pain during surgery and for diagnosis and therapeusis, and it will be to the ultimate benefit of everyone that its study is being taken up by anaesthetists rather than as a minor side-line by surgeons.

A HOUSING INQUIRY

"Questioning," said the great Dr. Johnson, "is not a mode of conversation among gentlemen." Nevertheless, in recent times the questionary has become a dissecting tool of sociology, dividing asunder the joints and marrow of our communal life. Sometimes it has been misused; for example, one of the bodies—not Mass-Observation—in trying to discover people's housing preferences, framed for the unfortunate householder a questionary running to nearly 200 questions, whereas it is the experience of interviewers that attention flags after ten or fifteen. Sometimes biased questions are put. If people are asked whether they would like a refrigerator or a communal laundry or swimming pool the result is to suggest a want rather than to elicit an opinion. Mass-Observation, which is a fact-finding body, has worked out its own technique, endeavouring to collect and collate the points which the people themselves raise, irrespective of outside suggestion. In a recent survey[4] it covers four different groups of housing areas—old towns, garden cities, municipal housing estates, and modern working-class flats. The people give their preferences for suburb or town, house or flat, owned or rented dwelling, and discuss housing arrangements down to the shape of door knobs and gate posts and the virtues or vices of linoleum. In view of the millions of houses which will presently have to be built the inquiry is of real value, though not perhaps as valuable as might be expected. The investigators set out to discover the "dream home" of the people, but the fact is that a very large number of people have no dreams—in other words, no capacity for making mental pictures of what they would like. They take what offers and are only vaguely aware of house satisfactions and frustrations. So far as it can be summarized, the majority want a small suburban house or bungalow, not a flat; it should have modern labour-saving devices, hot and cold laid on to a sink in the scullery, the water-closet in a separate compartment from the bathroom, small windows, built-in cupboards, coal fires for warming, electric points in most rooms, and a garden. *People's Homes* leaves the impression of a long-suffering population of housewives, aware of something better than they have got, but not very hopeful about it in their own lives or clamorous for it. The planners of the future and those who direct housing policy, however, to all of whom this work should be a book of reference, will do well not to take advantage of that fact.

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[8] *Amer. J. Hyg.*, 1938, **28**, 469.
[9] *Meded. Dienst. d. Volksgezondheid in Nederl.-Indië*, 1941, **30**, 61.
[10] *Indian med. Gaz.*, 1941, **76**, 29.
[11] *British Medical Journal*, 1941, **2**, 621.

[1] Schoen, F., *Wien. klin. Wschr*, 1939, **52**, 505.
[2] Phillips *et al.*, *Anesth. & Analges.*, 1941, **20**, 233.
[3] Organe, G., *Lancet*, 1942, **2**, 33.
[4] *People's Homes.* A Report prepared by Mass-Observation London: John Murray 1943. (10s.)

THE PRACTITIONER AS TEACHER

In a paper read to the Health Conference of the New York Academy of Medicine, and now reprinted,[1] Prof. Allen Freeman of the chair of public health at Johns Hopkins University draws attention to the part which, in his view, should be played by private doctors as instructors in the prevention of disease. The private practitioner, he observes, has unique, but hitherto unutilized, opportunities of implanting right ideas on preventive medicine in the minds of the people with whom he comes in contact on his daily round. The principal reason for this failure to seize the occasion is that, to-day in the United States, few even of recent graduates have, as students of medicine, received effective teaching in prevention, while the more senior practitioners, owing to the scarcity of postgraduate courses in the subject, remain as uninformed about it as they were in their student days. What is required is to ensure the better acquaintance of the otherwise duly qualified practitioner with the principles of prevention, in order that, so equipped, he may be more competent to hand on to his patients, and through them to the local public, the essentials of prevention and other aids to health. Medical schools should admit preventive medicine to first-line rank in their curricula, and should establish postgraduate courses in the subject. Such measures will point the young graduate to the preventive field, his absence from which is to be regarded as one of the great tragedies of present-day medicine. But Prof. Freeman is not without hope. Some progress is being made, for, as he tells us, " in many American medical schools the professor of preventive medicine is coming to be regarded as a really respectable member of the faculty."

A BRITISH HOSPITAL FOR STALINGRAD

We print on another page an appeal, signed by the Archbishop of Canterbury, Lord Horder, Sir Gowland Hopkins, and other distinguished men and women, for funds to build a new hospital at Stalingrad. This hospital is intended to be " a permanent expression of the British people's gratitude to the defenders of Stalingrad, who have made such a great contribution to the final victory of the United Nations." This is a project which will, we are confident, receive the warm and whole-hearted support of British doctors, and it would be a happy omen for the success of that professional collaboration between the two countries which it is hoped will develop freely in the coming years if medical men and women in this country were collectively to make a really large financial contribution to the British hospital in Stalingrad. The Joint Committee for Soviet Aid is appealing for £75,000 by June 22. If everyone on the *Medical Register* were to contribute one guinea this aim would almost be achieved without anyone else's assistance. It is obvious that very much more than £75,000 will be needed to complete a hospital which will be a fitting memorial to the defenders of Stalingrad and at the same time a hospital that can play a large part in supplying the medical and surgical needs of the future population of this historic city. Whatever their personal circumstances at the moment are, British doctors, we are sure, will not be behind other sections of the community in giving generously. Cheques should be made payable to the Joint Committee for Soviet Aid, crossed " Stalingrad Hospital Fund," and sent to the Organizing Secretary of the Joint Committee, 171, St. Stephen's House, Westminster, S.W.1.

DESOXYCORTICOSTERONE ACETATE AND NATURAL EXTRACTS OF SUPRARENAL CORTEX

In March the Medical Research Council issued a statement by its Therapeutic Requirements Committee drawing attention to the need for strict economy in the use of desoxycorticosterone acetate and urging practitioners not to prescribe it for any patients except those suffering from Addison's disease. Since the publication of that statement further information regarding the stocks of desoxycorticosterone acetate held by individual firms has become available to the Therapeutic Requirements Committee, and it now appears that the need for conserving supplies in the interests of patients suffering from Addison's disease is not so pressing as was thought. Some of the difficulties experienced in obtaining supplies appear to be due to patent rights and the use of branded names, and it has been suggested that the drug should always be prescribed as desoxycorticosterone acetate. The committee desires to repeat that there is no evidence that this drug is essential for any purpose except the maintenance treatment of Addison's disease, and therefore proposes to continue the classification " B " for it. Natural extracts of suprarenal cortex are indispensable in the treatment of Addison's disease, particularly in the acuter phases, and they probably have a wider field of usefulness than desoxycorticosterone acetate. Adequate supplies of natural extracts of suprarenal cortex are available from glands collected in this country, and the committee therefore proposes to continue to classify them " A." Practitioners who have difficulty in obtaining any of these drugs should communicate with the Director of Medical Supplies, Ministry of Supply, Portland House, Tothill Street, S.W.1.

SURGICAL MISSION TO RUSSIA

At the close of the Hunterian Oration before the Royal College of Surgeons of England on May 26, the President, Sir Alfred Webb-Johnson, admitted two new Honorary Fellows: Col. Elliott C. Cutler, Moseley Professor of Surgery at Harvard University and Chief Surgical Consultant to the United States Army; and Dr. W. G. Penfield, Professor of Neurology and Neurosurgery at McGill University, Montreal. These two surgeons, with Col. Loyal Davis of the U.S. Army, will be taking part in the forthcoming Anglo-American Surgical Mission to Russia. The British section, which is proceeding under the joint auspices of the British Council and the Medical Research Council, will consist of Surg. Rear-Adml. G. Gordon-Taylor, Major-Gen. D. C. Monro, Professor of Military Surgery at the R.A.M. College, Millbank, Mr. E. Rock Carling, and Mr. R. Watson-Jones. The aims of the Mission are to study the results of war surgery in Russia and to explore the possibility of extending medical relationships between the two countries. During the visit to the U.S.S.R. Surg. Rear-Adml. Gordon-Taylor, the senior Vice-President of the Royal College of Surgeons, will admit to the Honorary Fellowship two Russian surgeons: Dr. Nicolai N. Burdenko, Director of the Operative Surgery Institute, Moscow University, and Surgeon-in-Chief to the Red Army; and Dr. Sergei S. Yudin of the Sklifassovski Hospital for Traumatic Diseases, Moscow. The work of the Sklifassovski Hospital was described in an article in this *Journal* eight years ago (1935, **2**, 1118) by Mr. George Sacks, who also gave an account of the work then being done by Prof. Burdenko at the Neurosurgical Hospital.

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[1] *A Venture in Public Health Integration.* Oxford University Press. (6s. 6d.)

INTERDEPARTMENTAL COMMITTEE ON MEDICAL SCHOOLS

MEMORANDUM OF EVIDENCE BY THE B.M.A.

The British Medical Association has been invited to submit evidence to the Interdepartmental Committee on Medical Schools and to include therein its views on the following topics:

(1) The desirability and method of linking voluntary and local authority hospitals of various types for the purpose of medical education, and in this connexion the selection, appointment, and payment of the medical staff of hospitals so linked.

(2) The extent to which the teachers in the clinical period should be appointed on a salaried basis, whole- or part-time.

(3) The extent to which general practitioners might assist in the training of medical students.

(4) The facilities which are desirable for (i) house appointments for recently qualified graduates, (ii) refresher courses for general practitioners, (iii) postgraduate students specializing in a particular branch of medicine.

(5) The number of general practitioners who may be needed after the war.

The Council appointed a committee, composed of the following members, to prepare the evidence desired:

Sydney Smith, M.D., F.R.C.P.Ed., D.P.H., Edinburgh, *Chairman*, Regius Professor of Forensic Medicine and Dean of Faculty of Medicine, University of Edinburgh.

H. S. Souttar, M.Ch., F.R.C.S., London, Chairman of Council, B.M.A.

Peter Macdonald, M.D., C.M., York, Chairman of Representative Body, B.M.A.

J. W. Bone, M.D., C.M., Luton, Treasurer, B.M.A.

J. A. Charles, M.D., F.R.C.P., D.P.H., Newcastle-upon-Tyne, Medical Officer of Health, City and County of Newcastle-upon-Tyne

Henry Cohen, M.D., F.R.C.P., Liverpool; Professor of Medicine, University of Liverpool.

V Zachary Cope, M.S., F.R.C.S., London, Surgeon, St. Mary's Hospital; Senior Surgeon, Bolingbroke Hospital

Anthony Feiling, M.D., F.R.C.P., London, Physician, St. George's Hospital and Royal National Orthopaedic Hospital.

F. Gray, M.B., B.Ch., London, General Practitioner.

R. L. Newell, M.D., F.R.C.S., Manchester, Assistant Surgeon, Manchester Royal Infirmary; Lecturer in Surgery, University of Manchester.

W. J. Pearson, M.D., F.R.C.P., London, Physician i/c Children's Dept., University College Hospital; Physician, Hospital for Sick Children, Great Ormond Street.

R. M. F. Picken, M.B., Ch.B., D.P.H., Cardiff, Mansel Talbot Professor of Preventive Medicine, Welsh National School of Medicine

A. Talbot Rogers, M.B., B.S., Bromley, Kent, General Practitioner

I. R. Clout, London, Representative of British Medical Students' Association.

Although the organization of medical schools and of the facilities for clinical teaching presents problems of its own, the subject should be considered not in isolation but in relation to the whole question of the future of the organization of medical services. It is likely, for instance, that voluntary and local authority hospitals may not continue to function as separate systems in their present form but may both be parts of a co-ordinated regionalized medical service. The problem is not merely one of devising methods of linking the present voluntary and local authority hospitals for the purposes of medical education, but of considering the place of the teaching hospital in the future hospital service and the method of associating other types of hospital and medical institutions with the teaching hospital. The method of recruiting entrants to the profession and the needs of the practitioner of the future, whose conditions of work may differ from those obtaining at present, must also be considered.

Conception of a Medical Teaching Centre

A medical teaching centre should be a centre from which medical education, both undergraduate and postgraduate, and research are organized for an area. It should consist of a university medical school and a teaching hospital or hospitals in close proximity, with organized associations between the parent hospital and other hospitals and medical services in the district. Patients should be drawn from a wide area, and the quality of the treatment given should be of the very highest standard so that it may guide and influence the whole of the hospital service in the region.

If a teaching centre is efficiently to fulfil its important functions it must conform to certain general criteria. These should include the following:

(1) The teaching, wherever given, should be organized as a whole and all the parts at all stages should be co-ordinated.

(2) The teaching hospital or group of hospitals should be adequate in size and should contain an adequate and varied supply of teaching material and adequate facilities for teaching purposes.

(3) Clinical instruction, especially in the earlier stages of the course, should, so far as possible, be concentrated in, or in close proximity to, the parent hospital.

(4) The teaching staff, whether at the parent hospital or at associated institutions, should be suitably qualified, sufficient in numbers, and approved for the purpose.

(5) Medical teachers should have clinical control of the beds utilized for teaching, whether at the parent hospital or at an associated hospital.

(6) Admissions should be selective and closely related to the needs of teaching and research.

(7) In all hospitals, whether voluntary or local authority, which are used for teaching purposes there should be a medical board representative of the medical staff to advise on all matters relating to the use of the hospital for teaching purposes.

(8) Adequate residential accommodation should be available for students.

(9) There should be ample provision for postgraduate study and research.

Organization of Teaching.—While the general organization of the teaching is the function of the faculty or other governing body of the medical school, the detailed arrangements for the teaching of the students throughout the clinical years of the course should be in the hands of a responsible member, preferably whole-time, of the staff of the medical school. He should act as an officer of the medical faculty, and among his responsibilities should be the making of arrangements with other hospitals, including local authority hospitals, in the area for the teaching which for some reason cannot be given in the parent hospital. When the facilities of a local authority hospital are utilized for teaching purposes to supplement the work of the parent hospital, the former should be regarded as an integral part of the teaching scheme and not as a mere adjunct. It is to be hoped that when the regionalization of the hospital services is effected the conditions of admission and of medical staffing will be the same in hospitals of all types and that many of the difficulties at present involved in the use of the local authority hospitals for teaching purposes will consequently disappear. There is no reason why, in an area otherwise suitable to become a teaching centre, a local authority hospital which conforms to the requisite standards in buildings, facilities, staffing, and organization should not become recognized as a parent teaching hospital.

Accommodation.—The teaching hospital, whether it be a single hospital or a group of separate units, should be adequate in size to assure full facilities for teaching in the different branches of medicine and surgery. The bed accommodation should be sufficient to enable each student during his periods of dressership and clerkship to be given four or five beds to supervise. It is suggested that in the case of a medical school with 90 to 100 entrants annually there should be not fewer than 900 to 1,000 beds available in the teaching centre for teaching purposes in all branches. Every effort should be made to provide accommodation to enable students to spend a period in residence as clerks and dressers. The present voluntary hospital accommodation is insufficient to afford this advantage, and the Association suggests that local authority hospitals might be used to provide additional opportunities for resident instruction. Although some instruction is already given in local authority hospitals it usually takes the form of demonstrations which the student attends as a visitor; it would be better if senior students could spend a period in residence there and be given the supervision of beds. They should not, however, be regarded as replacing house-physicians and house-surgeons. All resident students should be provided with accommodation for study purposes.

Concentration of Teaching.—It is desirable that instruction, especially in the earlier stages of the course, should be concentrated so far as possible in close proximity to the medical school and the parent hospital. At present much time is wasted because the places of instruction are scattered. If it should be necessary for teachers and students to travel far from the parent hospital means of transport should be provided.

Supply of Material.—It is important that the student should see as large a variety of types of case as possible. Teaching voluntary hospitals do not always fulfil this criterion, inasmuch as they tend to accumulate an undue proportion of the rarer types of disease. While such types are often suitable as the basis of the teaching of the fundamentals of medicine, the teaching centre should also afford a sufficiency of those types of ordinary disease which are more likely to confront the practitioner in his daily work. The use of the resources of local authority hospitals would help to remedy the present defect. In an ideal arrangement some of all types of cases would be sent to the teaching centres, including tuberculosis and other diseases for the treatment of which the State undertakes responsibility.

Facilities should also be available for the student to receive practical instruction in the recognition of the normal in the child and the adult and of the early manifestations of disease, in minor illness, in industrial illness, in chronic illness, and in the social circumstances underlying disease. As full advantage as possible should be taken of the opportunities for teaching afforded by the out-patient departments.

Teaching Staff

The teaching staff, whether at the parent hospital or at associated institutions, should be suitably qualified, sufficient in numbers, and approved for the purpose. If a local authority hospital is used wholly or partly for teaching, members of its staff employed in teaching should be approved for that purpose. Members of the parent hospital teaching staff who are allocated to teach in a local authority hospital should be appointed to the staff of that hospital.

Selection and Appointment.—All medical teachers should be selected from the widest possible field of candidates. Appointments to university chairs in clinical subjects should be made by the university. All clinical teachers should be appointed on the recommendation of an advisory appointments board, which should contain a substantial proportion of university representatives. A unified system of appointments through such a board to all senior clinical posts, whole-time or part-time, in the hospitals linked for teaching purposes would afford the best means of ensuring that some or all of their holders could be approved as teachers. If such unification cannot be attained the advisory appointments board should also consider applications for approval as teachers from members of staffs of hospitals utilized for teaching in association with the parent hospital. In making appointments to teaching hospitals the paramount consideration should be the candidate's ability to teach, practise, and advance the science and art of medicine.

Types of Appointment.—Clinical teachers may be appointed on a whole-time or a part-time basis. All should receive remuneration for their services as teachers. In each teaching centre there should be three types of whole-time salaried posts:

(1) The first type should offer a purely academic career in medicine and the holder should be primarily engaged in research work. The number of such posts in any one hospital should be very small.

(2) The second type should be that of a professor of a branch of medicine or surgery normally appointed on a whole-time salaried basis. Before appointment he should have obtained ample experience in his branch, both inside and outside hospital. He should devote all his time to his hospital duties, and if he receives fees for consultative work he should return them to his employing authority.

(3) The junior teaching staff, such as registrars and clinical tutors, should hold whole-time salaried posts.

The members of the teaching staff who do not fall into the above-mentioned categories should be employed on a part-time salaried basis with the right to private practice.

Status of Teachers.—It is of fundamental importance that medical teachers should have complete freedom in the control of the beds in their charge and in their methods of teaching and treatment. When beds or wards in a local authority hospital are used for teaching purposes the same principles should apply. The teacher should have full clinical charge of the beds concerned, subject only to the general administrative supervision of the medical superintendent. It is believed that in practice no difficulty would arise provided there is good will on both sides. As is suggested above, it is desirable that a member of the staff of a parent hospital allocated to teach in a local authority hospital should be appointed a member of the staff of that hospital in order to give him a definite status.

General Practitioners.—Complaint is frequently made by general practitioners that they did not receive as students the knowledge that they later found to be essential in their daily practice. It is said, for example, that the teaching given in children's illnesses, nutrition and dietetics, infectious diseases, and psychoneuroses is often quite inadequate. In some schools the student is not given any opportunity of mastering the technique of such surgical procedures as a general practitioner may properly be called upon to undertake. Another complaint is that the newly qualified practitioner entering general practice finds that he has been given no instruction in his ethical relationships with his patients and his colleagues, and in his rights and obligations under the National Health Insurance Acts. The Association suggests that medical education would be assisted if suitable general practitioners were invited to advise on and be associated with the training of the student. Medical faculties or medical school committees might with advantage include one or more general practitioners in their membership. The function of these practitioners would be to advise on the curriculum so far as it related to subjects of particular importance in general practice and to ensure that adequate attention was given to them. A similar representation of general practitioners should also be included in the staff committees of all hospitals associated with the teaching of students. In the actual teaching general practitioners could render valuable help by giving instruction in medical ethics, the National Health Insurance Acts, and medical organization, and, under present conditions, by giving practical advice on the finance and equipment of a general practice.

Teaching Methods

Although it is understood that the Interdepartmental Committee is not considering in any detail the methods of medical teaching and the content of the syllabus, the Association desires to emphasize the need for relating the medical curriculum to the organization and requirements of medical practice. Great changes will probably take place in medical organization and practice, and the future provision for medical education must take account of these changes. They may be expected to include the co-operation of general practitioners in group practice, the establishment of health centres in which general practitioners will combine curative treatment with preventive medicine and health education, the provision of a comprehensive consultant and specialist service, both institutional and domiciliary, the regionalization of hospital services, and the encouragement of medical supervision and research in industry. In many respects the present methods of teaching will not produce practitioners competent to reach the higher standard of practice that will be demanded in the future.

One or two general observations may be offered. Students should be taught the fundamental principles of health and disease rather than the diagnosis and treatment of separate diseases. A thorough knowledge of fundamental principles will produce a more understanding practitioner who will be able readily to absorb the advances in medical knowledge and technique as they occur during his career. Many practitioners at the present time find difficulty in keeping abreast of modern medical progress because they did not acquire a sufficient foundation in their student days.

More attention should be paid in the curriculum to the maintenance of health as distinct from the treatment of disease. The general practitioner working in the health centre should do much of the preventive work which is at present undertaken by public health medical officers—as, for example, immunization and the supervision of child life—and he should also be expected to instruct his patients in the rules of healthy living, the principles of diet, the care of infants, and other similar matters that concern health rather than disease. This function of the future general practitioner should be provided for in the medical curriculum.

The Association is informed that in some medical schools students are still required to spend an undue proportion of time in watching major operations being performed by the teacher. For most students this time could be spent more profitably in acquiring under supervision practical experience in those surgical procedures that are likely to fall to the lot of the general practitioner. There are other instances where the teaching could with advantage be made more practical. For example, when the medical school is near an industrial centre the theoretical teaching in industrial medicine, which is obviously to play an important part in future medical practice, should be supplemented by visits to neighbouring factories.

Resident House Posts after Final Examination

It seems to be now generally recognized that, as the Association recommended in its Report on Medical Education in 1934, every student should be required to spend some time in practice under supervision before he is permitted to embark on independent practice. For the purpose of the present memorandum the Association has considered two different views on the method of achieving this end. One view is expressed in the following paragraph of the Draft Interim Report of the Medical Planning Commission:

> "94. It would be an advantage to both the community and the practitioner if, when the medical student has passed his final examination, he could spend some time in practice under supervision before he embarked in practice on his own account. It is suggested that the student should be registered provisionally when he has passed his final examination and that he should then be required to practise under supervision in some approved hospital or health service. The period of such practice should be one year, at least half of which should be spent in one hospital. At the end of the period, provided that his work satisfied the appropriate authority, he should be allowed to complete his registration."

The other view is that the tenure of a house post should form part of the curriculum before the final examinations are reached. Unless the present curriculum is reorganized this suggestion would entail the lengthening of the course. Some supporters of this view hold that the methods of teaching medicine need to be entirely remodelled. They suggest that the course should still be of five years' duration, and that in the first four years the student should be taught the principles of medicine, while the fifth year should be devoted to the teaching of the application of those principles. During this final year the student should act as a house-physician or house-surgeon under the supervision of a teacher.

The Association is strongly in favour of the principle that students should spend some time in practice under supervision before they begin independent practice. It agrees with the Medical Planning Commission that this period should occur after the final examinations have been passed but before the licence to practise independently is granted. No formal examination should be required at the end of the period of practice under supervision, for the value of the experience might be diminished if the student had the prospect of an examination before him. The period should be essentially one of instruction, but the student should assume some responsibility.

The length of the curriculum before the final examinations should remain the same as at present. The student should then spend one year in practice under supervision and should receive reasonable remuneration for the work he does. Six months of the year should be spent in an approved resident hospital post, and the remaining six months should be spent, as the student elects, either in a further hospital post or in another approved form of practice.

Postgraduate Courses for General Practitioners

One of the gravest disadvantages of present-day general practice is that most practitioners have neither the time nor the opportunity for postgraduate study. The knowledge they once possessed grows rusty, their outlook becomes restricted, and they are unable to keep abreast of new discoveries and new techniques. What opportunities there are for postgraduate work are too few and too centralized, the courses do not always give the practitioner what he most needs, and the instruction is frequently given by teachers who are not experienced in general practice and lack understanding of the general practitioner's outlook and difficulties. Postgraduate study should be a regular and recognized feature of general practice, and adequate and suitable facilities should be provided. It is believed that if suitable local authority hospitals were used in addition to the voluntary centres already providing instruction the demand could quite well be met.

The Association submitted a memorandum in 1934 to the Council of the newly opened British Postgraduate Medical School in which it made suggestions for the type and content of courses for general practitioners. These suggestions were accepted as the basis of the general practitioner courses given at the school, and the courses have proved popular and useful. Broadly speaking, general practitioners desiring postgraduate instruction may be divided into three groups: (1) those who need "refresher" courses to bring their knowledge up to date or to verify their own ideas and conclusions; (2) those who are interested in a particular subject or branch of medicine and who desire a systematic course of study in it; and (3) those who wish to become recognized as specialists in a particular branch of medicine and desire specialist instruction. The present section deals with the first group. It is suggested that when a national scheme of medical service is organized periodical refresher courses of the kind indicated should be made compulsory.

Duration of Courses.—The type of refresher course suggested by the Association in the memorandum mentioned above was a fortnight's intensive course, and this method was also adopted in arranging courses specially for insurance practitioners. This type, which allows the practitioner a short complete break from his daily routine, seems to meet with general favour, but there are some practitioners who would prefer a longer course at less frequent intervals and others who feel that week-end courses or weekly one-day or half-day courses at a neighbouring hospital spread over a period of weeks would better meet their needs. Efforts should be made to satisfy all these varied wants by utilizing both voluntary and local authority hospital resources, but whatever the type of course it should be organized on a systematic basis. For the purpose of those practitioners who desire a longer course—say, three months—opportunities should be available for them to be appointed as clinical assistants in the various hospital departments.

Content of Courses.—The ordinary refresher course should comprise:

(1) A "brushing-up" of the knowledge which all general practitioners should possess. This should include a revision of (*a*) the aetiology, diagnosis, clinical course, and treatment of the illnesses with which the general practitioner is in daily contact; and (*b*) methods for the maintenance of health, including nutrition and dietetics, child health, and ante-natal and post-natal care.

(2) Instruction in recent advances in diagnosis, treatment, and prognosis, with particular emphasis on methods which can be applied by the general practitioner unaided. The practitioner may have become acquainted with those advances through the medical literature, and the refresher course should provide him with systematic instruction and an opportunity of performing for himself new methods under the guidance of a teacher.

(3) Instruction in the recent advances in the diagnosis and treatment of common diseases which cannot be applied by the general practitioner unaided, but a knowledge of which should form part of his equipment. General practitioners in the health centres of the future should be associated with services providing the most modern specialist methods of early diagnosis and treatment, and they should be trained to make the fullest possible use of these facilities.

Teaching Methods.—The method of approach to each subject should be as practical as possible. The practitioner of several years' standing will find instruction of the out-patient type more familiar and easier to grasp than academic lectures. Illustrations by cases, films, pathological specimens, etc., should be freely used. The courses should be specially designed for general practitioners and should be given by teachers who are familiar with the general practitioner's difficulties and can sympathize with his outlook. Some parts of the instruction could with advantage be given by suitably qualified experienced general practitioners.

Arrangements for Attendance.—Sufficient courses at suitable centres should be organized to enable all general practitioners to attend them with reasonable frequency. The organization of the scheme should include arrangements for the provision and payment of locumtenents, the payment of the travelling expenses incurred by the practitioners attending the course, and a subsistence allowance or accommodation and board in or near the hospital at which the instruction is given.

Postgraduate Courses in Special Subjects

The arrangements for postgraduate study in the teaching centre should provide for two main kinds of demand for specialist courses—one for general practitioners who are interested in a particular subject and for the specialist who desires some instruction in a subject outside his own specialty, and the other for the practitioner who desires to qualify as a specialist in a particular branch of medicine or surgery. The courses should be organized from the parent hospital and should utilize the resources both in the parent hospital and in the general and special hospitals, whether voluntary or local authority, in the area

Courses in Single Subjects.—The medical curriculum necessarily provides the student with little more than the minimum amount of knowledge required for the commencement of medical practice. After some practical experience a general practitioner often evinces a special interest in a particular subject and wishes to obtain wider and more precise knowledge of it Opportunities of gaining such knowledge should exist at suitable centres. The object of the provision should be not to create pseudo-specialists or pseudo-consultants but to stimulate interest and broaden the outlook of general practitioners. Courses in psychological medicine, diseases of children, industrial medicine, nutrition and dietetics, and socal medicine are examples likely to prove attractive. If, as is hoped, co-operative practice in health centres gives the general practitioner wider scope and more time for thought it is likely that the demand for courses in particular subjects may increase. Courses in single subjects may also be required by specialists who believe that their usefulness would be increased by knowledge of subjects which are related to but not intimately associated with their own specialties. All courses should be organized on a systematic basis and should be of university standard. They should consist partly of academic lectures and partly of demonstrations and practical instruction, and the content of the instruction should be related to the practical needs of those attending. The teaching should be given by the teaching staff of the medical school, who should be associated with the heads of the clinical units in the various hospitals. The length of the course will vary with requirements. It may take the form of a fortnight's intensive course, or the practitioner may be appointed a clinical assistant in an appropriate hospital department for a period of three or six months. The provision of a reasonable number of clinical assistantships for postgraduate students should be a feature of the organization of a teaching centre.

Courses in Special Branches.—These courses will usually be those terminating in examinations for the various specialist degrees and diplomas, and their content and length will be determined by the appropriate regulations. Ample provision should be made in the teaching centre for the teaching of specialists, and the resources of the area as a whole should be fully utilized. Hospital appointments in the area should include a sufficient number approved by the various examining bodies. In making provision for specialist training the changes that are likely to take place in medical organization and practice should be borne in mind. These may include consultant and specialist services available to the whole population, the basing of all such services on the hospital, and the undertaking of domiciliary work by consultants attached to hospitals. A comprehensive consultant and specialist service would involve a redistribution of practitioners, with the appointment of some to areas where they may be out of close contact with a teaching hospital. Provision should therefore be made for such practitioners to return periodically to a teaching hospital for refresher work and training in the latest developments of the specialty concerned. It is hoped that in the reorganization of medical services a definition of the qualifications required for consultant and specialist status will be established. The Association agrees with the suggestion of the Medical Planning Commission that the qualifications and standards of consultant and specialist status should be considered and determined by a recognized central body of academic character, and that one of the essential qualifications should be that the applicant should hold, or have held, a recognized hospital appointment in the specialty concerned. Provision for these posts should be taken into consideration when the facilities for training for postgraduate degree and diploma examinations are under discussion. The standard of the various diplomas should be kept at a consistently high level by constant revision and adaptation to the latest developments in the specialties. Systematic training should be available for all the specialties. While an excessive multiplicity of diplomas is undesirable, there is room for certain new diplomas—for example, in physical medicine and industrial medicine.

Research

Ample provision and facilities should be available in the teaching centre for the active prosecution of research in all branches of medicine. There should be a central body, analogous to the Medical Research Council, whose function it should be to foster and support clinical research. Arrangements should be made for the dissemination in all areas of the results of research.

The Association regrets that it has not had sufficient time to give full consideration to the question of the organization of research. It therefore merely submits the foregoing general principles.

The Profession in the Future

It is not yet possible to form a clear picture of the kind of medical service which will result from the plans for reconstruction now being made, nor is it known what toll of the profession the war will take, but it seems certain that more practitioners will be needed in the future than in the past. Lack of time for good work has for long been the complaint of the general practitioner. More general practitioners will be needed if they are to give a full unhurried service to all patients, to undertake some of the work at present done by public health and school medical officers, to make more regular routine medical examinations, and to pay due attention to the maintenance of health as well as the treatment of disease. More will also be needed to ensure that every practitioner may attend postgraduate courses at intervals or spend a period in a clinical assistantship if he so desires, and that he may take reasonable holidays.

The provision of a comprehensive consultant and specialist service easily accessible to everyone would involve a considerable redistribution of practitioners in this sphere. Whether this redistribution and the provision of domiciliary consultations would necessitate an increase in the total number of specialist practitioners required cannot be estimated until the results of the survey, which is understood to be in progress are known, but it is probable that more specialists and consultants will be required in the future. With regard to public health medical officers the reorientation of the medical services now contemplated involves the transfer of some of the work now undertaken by these officers to the general practitioners in the health centres. The new service may therefore require fewer public health medical officers than at present, but, on the other hand, progress in environmental health may produce new duties for these officers.

Number of General Practitioners.—The Association has been specifically asked by the Interdepartmental Committee to submit its views on the number of general practitioners who may be needed after the war. The number will depend upon the form of the future medical service and the work that general practitioners will be required to undertake in addition to the duties which have hitherto constituted a general practitioner service. Any estimate can therefore be only very tentative. At present there are in Great Britain (i.e., England, Scotland, and Wales), including those temporarily serving with the Forces, between 21,000 and 22,000 general practitioners. On the assumption that, taking into consideration the duties and opportunities indicated in the penultimate paragraph above, a general practitioner can reasonably be made responsible for 1,500 persons, a population of from 46 to 47 millions would require about 31,000 general practitioners—that is, an increase of nearly 10,000 on the present figure. It may be found, however, after further consideration and investigation, that a general practitioner is able to care for a larger number—say, 1,800. In this case the number of general practitioners required would be about 26,000, an increase of nearly 5,000 on the present figure.

Selection of Medical Students.—While it is important that consideration should be given to the nature and extent of the knowledge required for medical practice and the methods of instruction needed, it is also important to consider the human material from which the future doctors are to be made. One of the reasons for some of the inefficiency which undoubtedly exists in the profession to-day is that any student who has or can acquire the money to pay for maintenance and tuition throughout the course and fulfils the educational requirements for admission to a medical school is eligible for training as a doctor, regardless of his suitability in other respects. The selection exercised by deans of medical schools is not always sufficient to exclude from the profession some men and women who, though able to pass the examinations, have not the aptitude, character, or staying power which are required for the arduous and responsible duties of a medical practitioner. The Association recommends that a recognized arrangement for the selection of medical students should be established, with the object of recruiting to the profession any boy or girl, from whatever section of the community, who shows a natural inclination for medicine and who has the character, health, and intelligence necessary for a successful medical career. The selection should be made by a small committee after consideration of a record of the candidate's previous history, a consultation with the head master or head mistress of the school attended, and a personal interview. Every intending student should pass through the hands of this committee as a condition of admission to a medical school. Financial assistance may be necessary in many cases. Although at present a large number of scholarships in medicine are available, comparatively few of them are sufficient to provide full maintenance and tuition fees throughout the course. Candidates therefore tend to be restricted to the middle or upper middle classes. It is probable that there are promising boys and girls in the lower-income classes who would be attracted to the profession if they could be guaranteed maintenance and tuition fees during the whole period of training. The Association recommends that funds be made available to assist selected candidates who could not otherwise enter the profession.

PROVIDENT SCHEMES

Once more Lord Nuffield has not waited on events, but has taken the long view and approved the inauguration by his Trustees of a Central Provident Association, the avowed object of which is to enable subscribers to provide against those extra expenses in illness which would not be covered by a comprehensive health service scheme. It is held that, when the comprehensive health service envisaged by Sir William Beveridge materializes, there will still be many families who wish to make their own arrangements for private-ward or nursing-home treatment with free choice of consultant or specialist.

The new provident association is constituted on a non-profit-making basis, and its solvency is guaranteed by Lord Nuffield's Fund to the extent of £150,000. Membership is open, without income limit, to anyone under the age of 60 who lives or is employed in any part of England, Wales, Scotland, or Northern Ireland, other than the London area, in which a Hospitals Services Association has already been sponsored by King Edward's Hospital Fund. The benefits will be in the form of grants-in-aid towards the cost of consultant and other specialist services and hospital pay-bed or nursing-home treatment. They do not include contributions towards the fees of general practitioners. For the hospital or nursing-home treatment of a subscriber or his dependants £6 a week will be paid for an aggregate period of six weeks in any one year. Substantial grants will be made towards consultant and other specialist services undertaken through in-patient treatment. An adult member will receive up to £70 for any one operation or illness and a family may claim benefit up to £105 in any one year. The annual contribution for a subscriber without dependants is £2 15s. An adult dependant's contribution is £1 15s. a year, and 10s. is payable for each child under 18. Thus, a man and wife with two children will pay £5 10s. for a maximum benefit of £105 in any one year. There is no limit to the number of dependants included in a family membership.

The Central Provident Association's offices are at 16, King Edward Street, Oxford, but area sections are being organized in centres all over the country, including Edinburgh, Hull, Manchester, Tyneside, Hertfordshire, Surrey, and Lincolnshire. A Nuffield Provident Association is also being formed in Northern Ireland. Removal from one area to another will not affect membership. Although benefits are for the time being restricted to grants-in-aid for in-patient treatment, Lord Nuffield's Trustees hope that when hospitals and the medical profession are less affected by war conditions it may be possible to extend the scheme to out-patient treatment, and to provide full cover for families within certain income groups.

Lord Nuffield has thus done for the Provinces what the King Edward's Hospital Fund is doing for London, to which we referred in the *Supplement* of Feb. 20 (p. 27). It is appropriate here, however, to draw attention to that older provident association, the B.P.A., which for twenty years has been the means whereby people of only moderate incomes could insure against the expenses, often otherwise financially crippling, of a serious illness. The chief difference between the B.P.A. and the Nuffield scheme is that the former contributes towards the fees of the subscriber's own general practitioner—that is, it provides a form of medical insurance, a family-doctor benefit—as well as covering hospital and nursing-home charges, operation fees, and the fees of a consulting physician. There is no income limit in the B.P.A. scheme, and it is open to subscribers resident in any part of the country, including London. Whatever health service may be provided in the future as part of any social security legislation, one thing is more than ever certain, that no member of the middle classes need suffer the financial embarrassment which has too often in the past added to the burden of serious illness.

Correspondence

Planning in the Treatment of Cancer

SIR,—In his paper on "Planning in the Treatment of Cancer" Dr. Frank Ellis (May 8, p. 570) draws attention to the necessity for statistical investigation on the results of different methods of treatment in cancer and indicates the lines on which such investigations should be conducted. He does not, however, refer to the need to have some standard of reference in the shape of tabulations showing the results of present methods of treatment in large numbers of cases classified on a uniform system. A study of such tabulations indicates the directions in which further investigations are required, and enables them to be planned to throw light on definite points.

Since April, 1938, the Clinical Cancer Research Committee of the British Empire Cancer Campaign has been carrying on such a survey. All the hospitals in the County of London, including those of the L.C.C., co-operated in returning particulars of every case of cancer seen, whether treated or not, on standard case-cards, of which 31 were drawn up, each comprising a comprehensive questionary appropriate to a particular region of the body. Over 15,000 cases had been registered when the outbreak of war necessitated the cessation of further recording of new cases. The follow-up of these 15,000 cases has been continued by the hospitals concerned, in spite of difficulties caused by war conditions, and analysis of the records is going on continuously in this office. Reports of progress were published in the 15th to 19th Annual Reports of the British Empire Cancer Campaign in 1938-42 and reviewed in the medical press. At the end of the 5-year period of observation it is hoped to publish the results of the whole survey, after which the organization should be invaluable for investigating special problems. This comprehensive survey, at present limited to the London area, should form a valuable basis for similar schemes to be launched by the authorities throughout the country under the Cancer Act of 1939. The British Empire Cancer Campaign will gladly help with information as to its practical working wherever it is proposed to inaugurate a similar scheme. This should meet the admirable suggestions in Dr. Ellis's article.—We are, etc.,

HORDER, Chairman.
W. L. HARNETT, Medical Secretary,
Clinical Cancer Research Committee
British Empire Cancer Campaign.

11, Grosvenor Crescent,
London, S W 1.

Birth Weights on a Sliding Scale

SIR,—I would beg to call your attention to an extraordinary custom which is very prevalent among midwives but apparently unknown to many obstetricians. Some weeks ago I was informed by a consultant that she had found at a certain large maternity unit that the midwives made a routine deduction of 4 oz. from the birth weight of live babies "to allow for the cord and meconium." The birth weight of stillborn babies was, however, correctly recorded. Further inquiries revealed a disconcerting state of affairs. At five other general hospitals the midwives were found to be manipulating the birth weights without the knowledge of the medical staff and sometimes without the knowledge of the matron. Inquiries made from five well-known voluntary hospital training schools elicited that routine deductions were made at two, at two more nothing was known of such a custom, while at the fifth the matron had never heard of it, and it is certainly not done now, but graduate midwives have informed me that it was taught at this school in past years. Of a group of 104 graduate midwives questioned recently, about one-quarter had carried out the practice either at their training schools or in subsequent appointments.

The deductions are in some instances made on a flat rate varying from 2 oz. to 5 oz. at different hospitals, and sometimes on an intricate sliding scale—e.g., nothing for infants weighing under 5 lb., 3 oz. for those under 6 lb., and 4 oz. for those above 6 lb. At one voluntary hospital the nurses are taught to bathe the infant, put on a binder, weigh, and then deduct 4 oz. before recording the weight. To complicate things still further, at certain hospitals, but not at all, these deductions are made for live births but not for still. Perhaps the most disconcerting feature of the whole matter is that it had not occurred to any midwife out of the many questioned that it was her duty to inform the medical officer of the ward or practitioner in charge of the case of what she was doing. The reasons given by midwives for the practice are various, but the intentions seem very similar. Some say it is to prevent the inevitable fall in the baby's weight from worrying the mother. Others plead ingenuously that it was introduced to defeat an inconvenient hospital rule that babies must regain their birth weight before discharge.

The devastating effect of this custom on statistical comparisons of infants' birth weights needs no stressing. Perhaps some of your readers may care to institute inquiries on their own account with a view to securing a uniform and accurate practice in recording weights.—I am, etc.,

LETITIA FAIRFIELD.

Shortened Puerperium

SIR,—As a doctor and the mother of a five-months-old baby I would like to endorse strongly the letter (May 22, p. 644) on shortened puerperium. The first day after my confinement I started my abdominal muscles working, relaxing and contracting them for some minutes several times daily. On the fifth day I was sitting up and moving round the bed, also doing leg-raising exercises. At the end of a fortnight I felt very fit physically and enjoyed short walks.

What did strike me very forcibly was that the attitude one seems to adopt by instinct when carrying a baby in one's arms is very harmful to correct abdominal muscle tone. The mother tends to lean slightly backward with the back hollowed and the abdomen relaxed. If this were pointed out to mothers more "good figures" would be the result of correcting this tendency.

To feel physically fit is not the only requirement. I consider most strongly that every mother going home with a new baby is in urgent need of some woman who will share her household cares for even a short period to allow her and the baby to "settle-in" at home.—I am, etc.,

Liverpool. ISABEL M. GARDNER.

SIR,—Dr. Denys J. Neal Smith (May 22, p. 644) proposes to solve the problem of the shortage of maternity beds by sending mothers home with their babies after an even shorter rest than now permitted. I only wish that he (and I) could experience parturition; we might then agree that the normal, but considerable, processes of involution and repair following childbirth and the management of our newborn offspring, about which we, as newly delivered mothers, have little or no practical experience, well merit three weeks' rest, with experienced guidance and help and freedom from all domestic worries and responsibilities.

He admits that the torn perineum, which he has skilfully repaired, necessitates a longer stay in bed than he would otherwise advise, but refuses to believe that unseen and more important muscles and ligaments need time to heal and undergo repair. Agreed there is no need to postulate a new theory for the pelvic organs; they obey the laws of pathology as do the rest of the body; after unaccustomed exercise they need rest.

Dr. Neal Smith's theory might work well in practice if the newly delivered mother could be sent home with adequate help, free from all domestic cares, so that she could take gradually increasing exercise, commencing by walking on all fours, so that her pelvic floor was not strained. He states that he is certain from his experience that prolapse is more likely to occur in the woman who stays in bed a fortnight than in the woman who stays only a week. Has he yet to meet the mother who, with a baby a month old, has stress incontinence with a feeling of prolapse, and in whom these symptoms slowly but surely disappear? In which class of patient do these symptoms and permanent prolapse prevail—the "pampered" well-to-do or the working-class woman? Let him follow up his cases carefully for another ten years and then inform us which way his experience leads.

Like Dr. Neal Smith I have no concern with the financial arrangements of private maternity homes, but in the interest of the delivered mother my experience suggests that not only should we condone the outcry about the shortage of maternity beds but that we should add to it with all our power.—I am, etc.,

Oxford. J. D. FLEW.

The M'Naghten Rules

SIR,—However dangerous the amateur doctor may be on occasion, amateurism in legal practice may be fraught with considerably greater danger, since there is lacking—as I suppose—the homologue in that profession of the *vis medicatrix naturae* to triumph over both wrong diagnosis and treatment. Yet so clear is the exposition in your leading article of May 15 of the "M'Naghten rules" that I feel emboldened to offer a few observations on a subject which might at any time be of personal consequence to any member of our profession.

In referring to "the defect of the M'Naghten rules" you imply that advance in our knowledge of human psychology during the hundred years subsequent to their institution and continued acceptance should lead to an alteration which would be acceptable to the majority of the legal profession. This advance is represented by the doctrine of irresistible impulse, and the application of the encephalograph.

From the viewpoint of the average man, without special regard to the legal or psychopathological aspects of the problem, it seems peculiar that the law, which has properly set a high value on human life, simultaneously invests the criminal with protective laws of evidence from which an almost ridiculously exaggerated view of the value of a murderer's life can be inferred. But be that as it may, it would seem that the present (M'Naghten) rules are not too strict, for they act as very reasonable safeguards: on the one hand in preserving the principles of criminal responsibility by placing on the defence the onus of proving their true application; and on the other hand in ensuring that no truly insane person shall suffer the death sentence. The desire to save a client from a death sentence is plainly the object of those entrusted with his defence, and acceptance of the plea of "irresistible impulse" achieves this object. But excluding cases of poisoning and the rare occasions when murder is carried out on a coldly calculated plan, we can visualize an irresistible impulse (albeit effective for only a few seconds before the actual perpetration of the crime) in all cases of murder. Furthermore, one is entitled to ask if the M'Naghten rules are applied to any other type of crime than murder. Logically the same pleas might be extended in regard to a minor crime, although I can quite understand the hesitancy of an advocate who recognized that acceptance would lead to detention in a criminal lunatic asylum—a result perhaps worse than an unqualified conviction.

The encephalograph is, I take it, still in the experimental stage, and only the result of tests upon a very large number of apparently normal persons will prove its ability to be so selective as to indicate abnormalities solely attributable to a person of homicidal tendencies.—I am, etc.,

London, W.1. ADOLPHE ABRAHAMS.

Advice on Sterility

SIR,—Lord Horder's letter on advice on sterility (May 22, p. 644) annoyed me very much. It is another example of the way that the general practitioner and family doctor is being shouldered out of the responsibility of his job and made to give way so that the public who used to, and still should, in the first place apply to him for advice are gradually being trained no longer to avail themselves of his sympathetic interest but to become cases in a clinic complete with number. To my mind it is far better for young married people who have often known, and been attended by, their doctor since they were born, and who have the greatest confidence in him, in the first place to consult him and seek his advice about their inability to have a child. Modern consultants seem to have no idea of the necessity for maintaining the personal element from which springs the confidence that is so necessary in illness.

Lord Horder "believes that there is a great opportunity to reach a certain type of patient who is not likely to present herself at a hospital out-patient department complaining of sterility." Has Lord Horder never heard of the general practitioner to whom practically all of the patients come in their difficulty? He must have done, and so is adding his quota to the gradual death of family practice and the gradual introduction of the inhuman and unsympathetic State Medical Service, unwanted by both doctors and patients.

In the last few years many women have come to me to ask my advice upon how to become pregnant after, in some cases, even a few months of sterility. I send them to our local gynaecologist, who carries out all the necessary investigations on the woman and often on her husband, and he instructs me in the details of the treatment, and I let him have reports on progress from time to time. These patients, some of whom I may have known for years, are by that method far more satisfied than if they became numbers at a clinic with no one behind them whom they know, like, and respect. They realize they are being treated by their own doctor instructed by the specialist, and it would astonish Lord Horder to see the pleasure with which they come to me and proudly say how pleased they are to find all our efforts have been successful. When their time comes they have the greater faith that I will "pull them through," and, as faith works wonders, they do well. I have within the last three months had three such cases to deal with, and their confinements have been singularly placid and successful, largely due to their belief in me.—I am, etc.,

Bracknell, Berks. R. H. P. HICK.

Withdrawal of Blood for Transfusion

SIR,—A safety valve for an electric suction pump used for obtaining blood for transfusion was described by Dr. E. M. Watson (March 13, p. 321). No criticism is here intended or implied in regard to this particular apparatus.

We would, in the light of our experience in the bleeding of large numbers of donors, question the necessity for suction in the withdrawal of blood. We consider that suction is neither necessary nor desirable. Some thousands of donors are regularly bled by the gravity method in the regions under our charge. The method is easy and simple. The introduction of the principle of suction merely complicates unnecessarily what is, and should be, an extremely simple procedure. That technique should be simple and safe is a principle which requires no emphasis, and the method should at all times be reliable. It should be equally applicable in great and small hospitals alike, and must not fail under stress of special emergency conditions.

It may be argued that suction accelerates blood withdrawal; but there is evidence that this is not always in the best interests of the donor. The smooth flow of blood can on occasion be interrupted by suction of the wall of the vein into the needle. Nothing is to be gained by speeding up the rate of blood withdrawal or by complicating technique. It is not uncommon for a single medical officer to bleed one to two hundred donors in a day with the aid of a few nurses and working perhaps in a village hall. Suction is never necessary whether a 24/10 or 19/10 needle be used. There is the possibility that blood taken off by vacuum may be haemolysed or otherwise spoiled, especially as it offers greater opportunities for contamination. Since there seems to be no special advantage to be derived from the use of suction, which introduces other possible dangers, blood withdrawal by the gravity method appears to us to be the ideal method, and therefore, in our opinion, the method of choice. It has stood very extensive trial, is completely reliable and completely safe.—We are, etc.,

E. F. AUBERT, R. DRUMMOND,
T. H. BOON, W. S. STANBURY,
W. CANT, J. F. WILKINSON,
T. B. DAVIE,
Regional Blood Transfusion Officers

Crush Injury and Anoxia

SIR,—In his letter (Nov. 14, 1942, p. 588) Dr. J. A. Barclay, while agreeing that the crush syndrome and blackwater fever are similar conditions (as emphasized by Dible, *Journal*, 1941, **1**, 904), apparently rejects the suggestion that the renal changes in blackwater fever are due to anoxia, on the ground that Ross was unable to find an increase in blood lactic acid in malaria. In Manson's *Tropical Diseases*, 10th edition, page 89, Manson-Bahr states that in blackwater fever "with the replacement of active functioning red blood cells (by transfusion) urinary secretion is rapidly re-established." This being so, it would appear certain, for the reasons given in my previous letters (Oct. 24, 1942, p. 495, and July 26, 1941, p. 139), that anoxia is the cause of the anuria in blackwater fever.

The conclusion arrived at in the same letters—that the anuria and renal changes met with in crush injury are due to anoxia following traumatic shock—receives additional support from your leading article "Experimental Shock and the Crush Syndrome" (Aug. 22, 1942, p. 222), in which you state that severity of shock and severity of renal damage in crush injury seem to run parallel, and to depend on the extent of the injury. I would suggest that the biochemical changes found in crush injury are the result of (1) trauma, (2) the generalized damage (renal, etc.) caused by anoxia.—I am, etc.,

Sydney J. WALKER TOMB.

Oedema of Extremities at Sea

SIR,—I shall be glad if you can find space in the *British Medical Journal* for the following expression of my own experience and views on a matter which has caused anxiety in the minds of R.A.M.C. officers in charge of transports recently—namely, the occurrence of oedema of the feet and ankles in fit men during a voyage.

I have considerable experience of life at sea in a large variety of types of ship, both fighting ships (as I was a temporary surgeon R.N. 1914-19) and merchant ships, large and small. In fighting ships I do not remember any trouble with oedema, but in pleasure voyages in liners I have often experienced oedema of my own feet and ankles at times when I have been quite fit otherwise. I believe this is induced by reclining in deck chairs or on the deck itself for want of anything better to do. The natural position on the upper deck is to face out towards the sea, and owing to the slant of the deck towards the side and the roll of the ship, there is a form of centrifugal action set up which I believe is the cause of the oedema. I have found that exercise (e.g., deck sports) tends to get rid of the oedema, and I agree with the suggestion in the R.A.M.C. publication on this subject that wearing rubber shoes tends to make oedema more likely.—I am, etc.,

HAROLD E. THORN.

Bovine Tuberculosis in South Africa

SIR,—In this country there is evidence that some factor in addition to the presence of bovine bacilli in milk has a determining influence on the number of human infections. One is led to consider such a possibility in view of the following:

The human disease of bovine origin is exceedingly uncommon here. There have only been three proved cases in the last ten years, as the outcome of a diligent search over that period. This search was sponsored by the Government, and a great deal of bacteriological work was carried out. Moreover, surgeons will tell you that the typical non-pulmonary lesions of this disease in humans are not commonly seen by them.

Now, what of the disease in our dairy herds? Ten years ago when a campaign was started for slaughtering all reactors in the Durban area over 30% of reactors was found in all herds. That campaign was soon dropped, however. Since then the bacteriological testing of milk in the Johannesburg area has shown that 2.5% of cows are excreting bacilli. This, admittedly, is not very high, but can it be considered low enough to account for the rarity of human cases? Either we are making a mistake somewhere or there is another factor in this disease which is eluding us, for there is no doubt that we are, one might say, getting the Toronto results without pasteurization or heat treatment of any kind.

Milk here is consumed by the vast majority of people in the raw state, and very little of it is T.T., although the pasteurized article is being slowly adopted by the more enlightened elements of the European population. Moreover, the standard of general cleanliness of our milk is not very high, because our native milkers make it almost impossible for us to have it otherwise. The community is probably, therefore, getting a large number of other infections handed to it, and for that reason enforced wholesale pasteurization is almost certain to come here after the war. I only hope that our milk will not become too dirty to pasteurize properly through attention being drawn away from the necessity for clean production and replaced by faith in a machine.

However, the point of this letter is to stress the apparent peculiarity of our bovine disease position. Dr. A. H. Macdonald will probably say that we are maintained immune through constantly consuming small numbers of bacilli. E. J. Pullinger of the municipal abattoir, Johannesburg, thinks that the explanation can be found in that relatively few infected cows become excretors of bacilli in this country, although he says that tuberculosis among them is widespread. Yet I cannot help feeling that if 2.5% of our dairy cows are excreting the organisms there ought to be many more human cases; or is there something in this subthreshold oral vaccine business after all? However, in a country like this, where we have so much enteric and dysentery, the case for pasteurization is overwhelming. We have just had a large proved milk-borne epidemic of typhoid in this city. A native milker of a big dairy was found, through the agency of the Vi test, to be heavily excreting the bacilli in both urine and stools.—I am, etc.,

Durban. BASIL F. SAMPSON.

Atropine Glaucoma

SIR,—Dr. J. E. Martin's opening sentence (May 22, p. 631) runs: "This tragic condition continues to blind many eyes." Surely this is nonsense. Never having seen a patient so blinded, I consulted a senior colleague, who with difficulty recalled one case, and even that was open to doubt.

It is right to be wary of instilling atropine into the eyes of elderly patients who have a shallow anterior chamber, but if this should be necessary, the harmful effects have been rather overstated in the past. It has even been said, with some truth, that if atropine should send a patient into acute glaucoma, that patient had a chronic glaucoma already, which is now diagnosed for the first time in circumstances that allow of skilled attention, instead of being overtaken by the acute condition perhaps at night and far from help. There are several eye diseases which are "tragic" and "blinding," but surely atropine glaucoma is not one of them.—I am, etc.,

London, W.1 SEYMOUR PHILPS.

Health Units in the Colonies

SIR,—In your editorial on health units for the West Indies (May 22, p. 639) you remark that the health unit is a new idea for the Colonies. Health units have, in fact, been in operation in Ceylon since 1926; they were advocated for Mauritius in 1931 and formed there during the following year; health centres on somewhat similar lines were developed in Kenya several years before 1933 and in Uganda in that year; in the Straits Settlements organizations of comparable nature were operating before 1933. Health units have been known for a considerable time in India, the Philippine Islands, and other countries. These units and centres differ in some respects in the various countries, but the main object of all is the improvement of rural health; they have unequivocally proved their value. I feel that it would be unfair to the many officers of the Colonial Medical Service who have initiated and expanded these units, and to the native staffs who have carried out so much of the work, if your editorial were allowed to pass uncorrected.—I am, etc.,

CHARLES WILCOCKS,
Acting Director, Bureau of Hygiene and Tropical Diseases.

Chemical Luminescence Test for Blood

SIR,—In reply to the letter of Dr. S. R. Naidu and Mr. N. Pitchandi (May 8, p. 583) the chemical luminescence test for blood is certainly not specific, as it is given by potassium permanganate and many other common oxidizing agents. However, we have found it very useful in testing for occult blood in stools when false positives due to contamination are extremely unlikely. Here the test has the great advantage of simplicity, and in wartime saves the use of guaiacum, benzidine, and ether. The luminescence is so strong that absolute darkness is hardly required. We have found it to be as reliable as the more orthodox tests. A short account of the method as applied in this way is in preparation by one of us (J. L. H.) and will be published elsewhere.—We are, etc.,

J. L. HOSKINS.
Coulsdon, Surrey. R. E. REWELL.

London Emergency Bed Service

SIR,—The exigencies of war have probably affected the medical profession more than any other—general practitioners in many cases are doing double duty—and it is more than ever important that measures which save them time and trouble should be brought to their notice. Owing to the great changes in the personnel of the London doctors, a considerable proportion of them are unaware of the facilities provided by the Emergency Bed Service. For their benefit the following brief particulars may be helpful.

The E.B.S. is financed by King Edward's Hospital Fund for London on behalf of the voluntary hospitals, and arranges for the admission to hospital of urgent cases but does not deal with waiting-list cases. It is able to give immediate advice to doctors as to which hospitals are likely to be able to admit their patients, as it keeps a running record of available beds. The doctor decides which of these hospitals he thinks most suitable; the E.B.S. then rings the hospital and books a bed, and when necessary arranges for an ambulance to collect the patient. Thus doctors obtain the admission of their patients to hospitals of their choice by making one telephone call and are saved the possibility of many unnecessary calls to hospitals which have no empty beds. In the five years in which the E.B.S. has been working no suitable case has been refused, some 22,000 having been admitted through the Service.

The Service is open from 9 a.m. to 10 p.m. daily, including Saturdays and Sundays. Telephone numbers are City 2162 and Clerkenwell 6571.—I am, etc.,

H. A. WERNHER,
10, Old Jewry, E.C.2 Chairman.

Independence for Medicine

SIR,—I wish to draw to your notice the following observations upon medical reorganization, as I believe the views expressed must coincide very nearly with those held by the majority of the medical profession. Assumptions based on false premisses may still mislead us in our endeavour to improve on our service to the public.

An independent practitioner, consultant, and auxiliary medical service is essential to the welfare of the people. The private doctor must remain the friend of his patient—his advocate, as he has always been—whether the patient be rich or poor. He must not serve the State first; the individual makes the State. He must be independent in order adequately to represent his patient's interests in relation to those of the community. The State doctor must owe his first duty to the State. Let the two systems flourish in the English way, with mutual advantage and respect.

The present medical service provided by the National Health Insurance Acts should be expanded. So far as is possible, doctors in the State service should be encouraged to have private patients in order to keep them in touch with the needs of the individual. Conversely, doctors in private practice should be given extended opportunity for part-time hospital and State service, so that community needs—such as control of certification, records, economic use of public funds for medicines and appliances—should be correctly observed. Acknowledgment of both principles will bring unity to our profession, and will attract to it the many new entrants it requires.

Health centres are of value in providing facilities for seeing patients who are able to visit the centres, and in bringing doctors together. But they are necessarily of limited value, because two-thirds of a doctor's time is spent in visiting patients in their own homes, and much of this work will remain in the doctor's own hands, even to the point of arranging his rounds and responding to unexpected and urgent calls upon his services.

The plan should be to improve and expand the present medical services. Though it is acknowledged that they are not good enough, nevertheless they are very good. They form a good foundation on which to build. The same principle applies to the voluntary and municipal hospitals. Let the minor defects in each system be remedied gradually. It is pure iconoclasm to contemplate pulling down either edifice simply because the system of illumination varies or is imperfect.—I am, etc.,

London, W.1. G. H. ROSSDALE.

Achieving Reform

SIR,—The discussion concerning the necessity for or advisability of a State Medical Service to provide a "comprehensive" medical service for the whole nation proceeds on its inconclusive course without any practical exposition of what is intended by a "comprehensive" service. We have recently listened to many excellent speakers, who, however, have left us in doubt whether their vision is on a par with their oratory, while the custom of dragging red herrings across the trails of one's opponents continues as of yore. Changes in the organization of the profession are inevitable; let us see to it that they are worthy of our profession.

Two sides of the question have to be considered—the medical and the economic—and, I think, in that order, planning first an ideal service and then deciding how it is to be financed, cutting our coat according to our cloth. I cannot subscribe to the opinion expressed at one of the recent meetings by a distinguished surgeon that all is well with the profession, which only needs to be left alone without Government interference. As an instance of Government failure he mentioned the case of a boy in hospital under his care who required sanatorium treatment and who, after a long waiting period, still occupied a bed much needed for another case because no sanatorium was ready to receive him. I know personally a patient who has been waiting three months for the much-needed treatment of a secondary growth. But is this to be ascribed to Government neglect or to the failure of our profession to impress upon the public the need for more institutions or centres where the necessary treatment could be obtained? Health centres are to provide additional means for diagnosis and treatment, not, *pace* Dr. Charles Hill, to furnish general practitioners with consulting rooms, although, admittedly, the latter object was part of Lord Dawson's scheme.

Much as I respect and honour my brother practitioners, I cannot claim for them that as a body they are very active reformers. The idea of rheumatism clinics spread very slowly after I had in 1921 persuaded the Kensington Division, B.R.C.S., to found one, and I do not recall any medical support in the Press for my advocacy fifteen years ago of more provision for the early diagnosis and treatment of cancer. The much-criticized Mr. Bevin long before he entered Parliament spoke of the great need for more convalescent homes, on which subject the profession has not been very audible.

We must not be satisfied with things as they are; Government assistance will be needed, but that does not necessarily mean that we must have a State Medical Service. That might indeed bring about many needed reforms, but illness is too intimate an affair to be regimented, and better results would probably follow a well-organized development of the present system.—I am, etc.,

London, W 8 HAROLD H. SANGUINETTI.

State Medical Service

SIR,—The correspondence I have received since you published my letter on April 3 indicates how widely spread in the profession is the alarm at the idea of a State Medical Service—an alarm which has been notably increased by the article of the Medical Correspondent of the *Times* and the subsequent leader on "absent doctors" in that journal. In the latter it is stated that there is no reason why the absent doctors should be thought less progressive (an entirely question-begging epithet in the circumstances) than those at home or that the views of the two groups differ. As a comment on that I may quote from a letter sent to me this week by an absent doctor: "Since joining the Services nearly 2½ years ago I have had the opportunity of discussing the future of medicine with Service M.O.s from many different branches of that calling—G P.s (like myself), newly qualified doctors, and so on. Only two have expressed a desire for a State Medical Service. Indeed, as time passes, there is a growing concern as the full implications of State service are more clearly realized."

I sympathize with our representatives faced in conference by politicians practised in the arts of suave diplomacy. As a profession we are under the handicap inherent in a democracy; we lack a complete alternative plan and we are not all of the same mind. We are as anxious, however, for the good health of the community as anyone; indeed, we showed that interest long before the somewhat belated conversion of the politicians. The principle of insurance has been conceded, and we should concentrate on the question of keeping control of the conditions under which we serve the community. But protests against exploitation must continue, and signs are not lacking that these are beginning to have some effect. Lord Dawson's statesmanlike appeal for evolution and not revolution will carry weight. Even the *Times* in its leader of May 17 is less coercive in tone, and appeals to our "tradition of disinterested social service." Yes, but in return we claim the right to justice and proper consideration.—I am, etc.,

London, W 1. W. LANGDON-BROWN.

Specialists and State Service

SIR,—During the past three weeks I have undertaken the duty of circularizing the greater part of the radiologists throughout Great Britain and asked them to answer a number of questions in the form of a questionary, which was drawn up to ascertain the feeling of this group of specialists concerning their future and the part they would be prepared to take in any comprehensive medical service that might be introduced in the future. The analysis of this inquiry is as follows:

The proportion who replied represented approximately 50% of the total. Of those who did not reply some are on active service and did not receive the questionary, others have died, and the remainder have observed a benevolent neutrality. The replies, therefore, may be regarded as representative of radiologists throughout the country.

1 AGAINST a whole-time State Medical Service	85%
2. Those who seek a haven of rest in a whole-time State Medical Service	13%
3. The final neutral residue	2%
4. In favour of a part-time State Medical Service, permitting private practice	84%
Against a part-time State Medical Service	16%
5. For no form of State Medical Service at all	14%
6. Those who prefer to continue their private practices from their own private rooms	57%
Those who prefer to do all their work (including private practice) from a hospital department	43%
7. Those who desire the interests of radiologists watched	100%
8. Those who desire the formation of some representative medical committee to watch their interests	93%

It is clear from these returns that the majority of radiologists in Great Britain support the policy in general as advocated by the B.M.A., but not that as advocated by the Faculty of Radiologists. Recently this body has sent round circulars to hospitals asking for comments. I would refer to the pamphlet issued by this body in Dec., 1942, *Planning of Radiodiagnostic Services for Great Britain*, page 6, under paragraph headed "Terms of Service of Radiologists": "There was also a majority of two to one who held the view that their district would best be served if all *x*-ray diagnostic work, including private work, was concentrated in hospital." The present return to my questionary under No. 6 is a definite contradiction of this statement.

On page 7 the pamphlet proceeds: "Only by the adoption of a planned scheme by a regional authority, armed with powers of persuasion sufficient to ensure its acceptance by the hospitals and commanding funds sufficient to meet added expense, will the *x*-ray diagnostic services be raised to a satisfactory level of efficiency." It sounds like an order from the Nazi headquarters. The pamphlet on *Planning of Radiotherapy for Great Britain* regiments London into six divisions, while the Provinces are to have some ten centres. The paragraph continues: "With such an arrangement it is assumed that the other hospitals in the area would not practise radiotherapy, but would make their arrangements for radiotherapy with the appropriate London centre."

It would therefore appear that the Faculty of Radiologists favours something in the nature of a whole-time State Medical Service which is not favoured by the majority of radiologists in this country. As to the contradictory statements concerning private and hospital practices, it may be that the inquiry on this point was made before many of the radiologists appreciated what a whole-time State Medical Service might mean to them and their futures. They are now beginning to realize what such a change would mean on the basis of terms that have been hinted at during the recent few weeks. Nevertheless, if the Faculty of Radiologists proposes to assume any form of safeguards for radiologists in this country it should announce quite clearly what form of State service it supports, and take immediate steps to correct any erroneous views as to the wishes of radiologists as I have indicated above.

These matters and others were raised by me at a recent meeting of the British Institute of Radiology in London, where I pressed for more active measures to safeguard the interests at this time. As a result of all this we are to have soon a mass meeting of radiologists to appoint a committee to consider this subject. I submit these facts in the hope that they may encourage other branches of specialists and consultants to organize and prepare themselves, and so be in a better position to consider the proposals of the Government when they are issued on a comprehensive medical service for the country, and let us hope we all act in unison.—I am, etc.,

London, W 1. NORMAN P. HENDERSON.

The Government's Proposals

SIR,—Dr. Hill in his comments to the Metropolitan Counties Branch (*Supplement*, May 22) fails to criticize three points.

1. The salaries suggested, which substantially reduce the income of the general practitioner, and in many cases by over 50%. For example, the purchase of a share of a practice bringing in £1,500 gross is common, and the deduction of £150—being 5% interest on the purchase price—and £400 expenses (based on my total personal and surgery expenses, which are 27%), gives a net initial income of £950 instead of the £400 proposed by the Minister, and without an increase for 3 years.

2. Whether a pension is payable. If so, £100 should be deducted from the £950 net to give a pension of £500 at 65 or disablement and £250 for a family allowance in the event of early death (*vide* N.H.I. practitioners' insurance scheme).

3. Whether the compensation for capital is to be full—e.g., 2 years' purchase for a partnership on a three-years average.

I cannot agree with Dr. Hill that we should "stick to fundamentals," as his "fundamentals" exclude the discussion of the proposed reduction of our income, and it seems to me suicidal to omit from the preliminary discussions before the publication of a White Paper the only two points about which most of us agree—namely, that if there is to be a full-time salaried service we should be fully compensated for our capital, and that our income should at any rate not be reduced. I know no Government scheme to reduce the income of any other profession, trade, or occupation.—I am, etc.,

Basingstoke. CHARLES COBB.

SIR,—Although Dr. Charles Hill carried the recent Metropolitan Counties Branch Meeting with a vast and dynamic *tour de force*, there must have been many misgivings in respect of the absence of any collation of professional policy with other vast world movements. There was a great lack of understanding that whereas individuality has to be preserved competition has to be destroyed, both among individuals as among nations, and in industry itself; for it is more and more granted that there must be no divided interest in industry.

In international finance you see it in the Keynes plan for an international clearing house. The adoption of such a plan would compel world trade to fall in with the world forces of co-operation and so destroy that international competition which is the most persistent cause of world war. In industry you see it in the efforts of capital and labour to find a common formula. In foreign affairs every effort is being made to seek a world comradeship expressed, however inadequately, in the Atlantic Charter. Since 1914 the most conspicuous effects that competition has brought into the world have been great wars, vast revolutions, world-wide discontent, terrifying national debts, and floods of unemployment.

But doctors are perhaps too busy doing good even to have noted these things, and their cause. And so they stand aloof, holding their little screaming baby of competition, and imagine they can stand alone in a world that has opened the flood-gates to more human values.—I am, etc.,

London, S E 23 J. C. JONES.

A British Hospital for Stalingrad

SIR,—We all know the importance of the battle for Stalingrad. We all realize that this victory was only made possible by the suffering and heroism of its people. The Joint Committee for Soviet Aid is aiming to raise sufficient funds to build a new hospital at Stalingrad. We earnestly appeal for a nation-wide response to this effort.

This hospital will be a permanent expression of the British people's gratitude to the defenders of Stalingrad, who have made such a great contribution to the final victory of the United Nations.—We are, etc.,

WILLIAM CANTUAR:
DAVID LLOYD GEORGE.
KATHARINE ATHOLL.
LYTTON.
WILL LAWTHER.
HORDER.
CAROLINE HASLETT.
J. H. HERTZ.
A. J. CUMMINGS.
JACK TANNER.
F. GOWLAND HOPKINS.
RACHEL W. MACROBERT.
MARY MURRAY.

*** All communications should be addressed to the Organizing Secretary, Joint Committee for Soviet Aid, 171, St. Stephen's House, Westminster, S.W.1. Cheques should be made payable to the Joint Committee for Soviet Aid, and crossed "Stalingrad Hospital Fund."

Obituary

HERBERT JOHN SHIRLEY, C.M.G., M.D., F.R.C.S.

The death took place suddenly on May 14 of Herbert John Shirley, consulting anaesthetist to University College Hospital. He was the son of Mr. William Scharlieb, a barrister practising in India, and Dame Mary Scharlieb, who was gynaecologist to the Royal Free Hospital and is still well remembered for her public work in several capacities, especially in the cause of the welfare of women. Their son, H. Johann Scharlieb, was born in 1868, and changed his name by deed poll to Shirley in 1914.

He received his medical training at University College Hospital, London, and qualified in 1894. A little later he took the M.B., B.S. with honours, in 1898 the London M.D., and in 1899 the Fellowship of the Royal College of Surgeons. He served as house-physician and house-surgeon and as gynaecological assistant at University College Hospital, and as clinical assistant at the Hospital for Sick Children in Great Ormond Street. His career as a practising doctor had only lately begun when he volunteered for service in the South African War. As physician and adjutant, Langman's Hospital, in the South African Field Force, he showed those qualities which would, had he chosen to devote himself to it, have carried him to distinction in a military career. He was mentioned in dispatches, and on his return was made C.M.G. Settling again in the practice of medicine in London, he made a special study of anaesthetics, and in collaboration with Sir Edward Sharpey-Schafer produced some original work on the action of chloroform on the heart and blood vessels. During the first world war, although over military age, he enlisted and served with the British Expeditionary Force as lieutenant-colonel, 2/5 Lancashire Fusiliers, and again his name appeared in dispatches. In 1917 he exchanged to the R.A.M.C., became consulting anaesthetist in the Malta Command, and had charge of the military hospital, Manoel, Malta. At the end of the war he was S.M.O. in a motor transport division of the R.A.S.C., and he retained his military rank as brevet colonel commanding Artists' Rifles. He was proud to hold Volunteer and Territorial decorations. His work as consulting anaesthetist to the hospital of his student days was much appreciated, but he did not take any considerable part in medical discussions or publication. He was the author of the article on "Chloroform" in *The Practitioner's Encyclopaedia of Medicine and Surgery*, and in the British Medical Association, to which he was first elected in 1895, he was honorary secretary of the Section of Anaesthetics in 1910 and vice-president of the Section of Pharmacology and Therapeutics, with Anaesthetics, in 1936. He was a Deputy Lieutenant of the County of London.

SIR NILRATAN SIRCAR, M.D., D.C.L., LL.D.

The death in Calcutta of Sir Nilratan Sircar, at the great age for a Bengali of 81, has removed a leading member of the medical profession in India. He was educated at the Calcutta Medical College, and took both the M.A. and the M.D. of the Calcutta University. He soon obtained a large practice, and was for many years a leading Indian consulting physician. He was a member of a well-known Bengali family, another of whom was a leading lawyer and politician, and he was a man of very wide interests. His lot fell at a time when Indians were taking an increasing interest in education, commerce, and politics; in all of these he was in the forefront. He thus became one of the founders and President of the Carmichael Medical College with its own hospital, which was opened during the war of 1914-18 with material financial help from the Government of Bengal, when Lord Carmichael was Governor under the more advanced regime then coming into force in India. This was the first medical college in Bengal which was staffed and controlled entirely by Indians and which educated up to the university standard as opposed to the shorter medical course for a diploma at the Campbell Medical School, whose teaching staff was filled by Indian graduates in the service of the Bengal Government. Sir Nilratan Sircar also became president of the Calcutta Medical Club with Indian members, of a tuberculosis hospital, and of a postgraduate department of science of the Calcutta University, as vice-chancellor of which he also served for a term. Nor did these various medical interests exhaust his energies, for in the movement for the production of Swadeshi goods—that is, country-made ones—he became the proprietor of a national soap factory and a national tannery company. He also took an active interest in politics and served as a member of the Bengal Legislative Council under the reform scheme. He came to England in the 'twenties for a meeting of the British Empire Universities Bureau, when he received the D.C.L. Oxford and the LL.D. Edinburgh. He had previously been knighted in 1918 for his work for medical education. His genial presence will be missed by many of his friends.

W. BREMNER HIGHET, F.R.C.S.

Brigadier GEORGE RIDDOCH, Consulting Neurologist to the Army and Hon. Consultant Adviser, E.M.S., in Peripheral Nerve Injuries, sends the following appreciation:

All who knew William Bremner Highet must miss him and lament his loss. He was a delightful person, quiet, rather shy, but yet definite in his personality and, with a twinkle in his eye to relieve his earnestness. The Peripheral Nerve Injury Centre at Oxford was fortunate in having him as first assistant to Prof. Seddon for the first three years of its existence. His work there, both routine and research, was first-rate, and he held his place well in a brilliant team. Like the others, starting from scratch with little knowledge of the neurology of the peripheral nerves, he applied his keen, painstaking, and critical mind to the variety of problems presented by patients admitted to the centre, with the result that he was becoming one of the leading experts in this subject. It was for this reason that he was chosen to undertake important work in this field for the Army abroad, and on his way misfortune overtook him. It is a sad and wasteful business. He had already accomplished much and was well set to do much more. He will certainly be missed.

The Services

CASUALTIES IN THE MEDICAL SERVICES

Wounded.—Capt. R. H. Berry, R.A.M.C., Capt. G. Dison, R.A.M.C., Capt. J. D. Finnegan, R.A.M.C., Capt. T. Gass, R.A.M.C., Capt. L. G. Harper, R.A.M.C., War Subs. Capt J. W. Logan, R.A.M.C., War Subs. Capt. R. G. MacLeod, R.A.M.C.

Prisoner of War—Major H. M. Alexander, R.A.M.C.

Killed.—Capt. J. G. Cassidy, R.A.M.C., War Subs. Capt. D. W. McCarthy, R.A.M.C.

DEATHS IN THE SERVICES

Major-Gen. JAMES STUART GALLIE, C.B., C.M.G., D.S.O., R.A.M.C. (ret.), died on May 1 at Winfrith, Dorchester, aged 78. He was born at Queenstown and took the L.R.C.P.&S.Ed., the L.R.F.P.S.Glas., and the L.M. in 1894, and also studied at Queen's College, Cork, and in Vienna before entering the Royal Army Medical Corps in 1898. He very soon saw active service in the South African War in the operations for the relief of Ladysmith and throughout the subsequent campaigns in the Orange River State and the Transvaal. He rose to be a director of medical services during the 1914–18 war and did valuable work in superintending the evacuation of many wounded from the casualty clearing stations to the base hospitals in a cheery and indefatigable manner. He was mentioned in dispatches six times, awarded a brevet colonelcy and the D.S.O. for these services, and in 1926 was selected for the medical directorship at Aldershot. In the same year he was made honorary surgeon to the King, in 1928 was made a C.B., and retired in 1930. He married Florence Ostle Crighton of Hove in 1903 and had two sons and two daughters.

Repatriated.—Col. G. P. Kidd, M.C., R.A.M.C., Lieut.-Col. J. T. Lewis, R.A.M.C.

Medical Notes in Parliament

The Consultations with the Government

Sir E. GRAHAM-LITTLE on May 26 asked what answer the Minister of Health had given to a large meeting of medical practitioners held recently to discuss future arrangements for medical practice.

Mr. ERNEST BROWN said he was not sure to what meeting Sir Ernest referred. He thought it well to make clear the situation which Sir Ernest had in mind. Mr. Brown continued: After the announcement by the Government in February last that they accepted in principle Assumption B of the report of Sir William Beveridge and would proceed with the preparation of a comprehensive national health service for the whole population, I began discussions with representatives of the medical profession, voluntary hospitals, and local authorities as to the best ways and means of organizing such a service. These discussions were, by agreement, to be nothing more than confidential and preliminary talks without commitment on either side, and for the medical profession they were conducted by a Representative Committee of medical men and women brought together by the B.M.A. in collaboration with the Royal Colleges. As a basis for discussion I have from time to time put ideas of my own before this committee, and have invited them similarly to let me have their ideas and their full and free criticism of mine. In this way my intention was to arrive at a stage when I could review the whole subject in the light of these discussions, and could then pass from the preliminary stage by publishing a general statement of proposals for open and public discussion in Parliament and elsewhere. Recently this committee came to me with the suggestion that the whole subject should now be referred to a Royal Commission. We considered this suggestion together, however, and it was agreed that the discussions between the committee and myself should continue on the basis—which I for my part had always tried to emphasize in the previous discussions—that the Government was in no way committed to any particular method of organizing the new service, that every kind of proposal which might be put forward on the subject would be equally carefully reviewed, and that, as before, the discussions would commit neither side. The discussions have already been resumed in a very helpful spirit, and I feel sure that before long I shall be able to look at the question as a whole, in the light of all the views expressed to me by this and the other representative groups, and then to publish a statement of the general proposals which I feel should be put before the House and the country for full discussion before any legislation is embarked upon.

Sir E. GRAHAM-LITTLE also tabled a question to the Prime Minister asking him to take steps to appoint a Royal Commission on the future of medical practice. Sir Ernest said a resolution declaring that this was the only effective way to deal with the problem had been forwarded to the Ministry of Health by the medical Representative Committee and subsequently endorsed by a meeting on May 16 which had been attended by about 1,000 doctors. Replying for Mr. Churchill on May 26, Mr. ATTLEE said the question was based on a misapprehension. A suggestion for a Royal Commission had been made to Mr. Brown by the Representative Committee at a recent meeting, but after it had been considered by the Minister and the Committee together it was agreed that the discussions which had previously taken place should be continued.

Replying on May 27 to further questions, Mr. ERNEST BROWN said he had had very fruitful discussions in the preceding few days. He had received definite and constructive proposals from the voluntary hospitals in the previous week. Until the present discussions with all three bodies were concluded he would not consider issuing a White Paper.

Issue of Sulphapyridine to Troops

Sir JOCELYN LUCAS on May 18 asked the Secretary of State for War whether the drug "M & B," or any allied preparation, was supplied to American soldiers in Africa for use if wounded; if there were any figures of the percentage of lives saved thereby; and if British troops were so supplied. Sir JAMES GRIGG: I am informed that drugs of this type were issued to American soldiers in Africa. These drugs are not issued to individual soldiers in the British Army, but medical officers hold the necessary stocks of them. The figures asked for are not available. Replying to a suggestion by Sir Jocelyn Lucas that he should consult with the American authorities and find out what the results were, Sir James said he would certainly collect all the information he could from any source possible. He was, however, *prima facie,* indisposed to distribute these drugs broadcast among the troops without trial. Sir FRANCIS FREMANTLE: Is there not considerable danger in self-medication?

Diphtheria Immunization and Incidence

On May 18 Mr. ALFRED EDWARDS asked the Minister of Health whether children who took diphtheria after the first inoculation were put into the unimmunized class in the records sent to the Ministry by medical officers of health. Mr. BROWN replied that for the purpose of returns regarding immunization of children against diphtheria, local authorities were asked to show in how many of the cases of diphtheria notified in children under 15 the child was known to have completed the course of immunization not less than 12 weeks before the onset of the disease. Children not satisfying these conditions were considered as unimmunized. Returns received from local authorities showed that the number of notifications of diphtheria during 1942 in children under 15 in England and Wales was approximately 28,500, of which about 87% were non-immunized children.

Mr. ERNEST BROWN informed Mr. Viant on the same day that he was aware that only 45 cases of diphtheria were registered in the administrative county of Northampton in 1942. He could not state the percentage of children under and over 5 years of age immunized at the end of 1941. Percentage rates based on the child population of particular localities cannot be precisely calculated during wartime fluctuations of population. He added that the number of children immunized against diphtheria under local authority arrangements in England and Wales up to Dec. 31, 1941, was approximately 547,000 under 5, and 1,818,000 between the ages of 5 and 15. The corresponding figures at June 30, 1942, were 725,000 and 2,114,000; and at Dec. 31, 1942, 1,150,000 and 2,598,000.

Universities and Colleges

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Prof. E. W. Riches will deliver the Hunterian Lecture on "Methods and Results of Treatment in Cases of Paralysis of the Bladder following Spinal Injury" on Thursday, June 10, at 4.30 p.m.

No. 19

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended May 15.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county) (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	62	6	29	4	1	178	11	55	4	8
Deaths ..		1	2				2	5		
Diphtheria	602	31	149	78	19	636	25	173	29	25
Deaths ..	12	1	3	1	—	11	—	2	4	—
Dysentery ..	98	22	41		—	85	5	67		—
Deaths	—	1		—	—	—	—		—	—
Encephalitis lethargica, acute	4	—	1	1	—	—	—	—	—	—
Deaths ..										
Erysipelas ..			39	10	3			42	7	3
Deaths ..		—					—	—		
Infective enteritis or diarrhoea under 2 years ..				30					45	
Deaths	41	9	5	11	7	50	8	8	6	4
Measles	8,032	518	569	6	50	5,611	656	562	128	290
Deaths ..	11	1	2	—	—	1	—	3	1	—
Ophthalmia neonatorum	48	2	27		1	77	2	19		2
Deaths										
Paratyphoid fever	4	—	2			14	—	2		
Deaths ..	1		—		—	1		—		—
Pneumonia, influenzal*	712	29	4	5	3	1,094	40	10	6	9
Deaths (from influenza)	22	3	6	—	—	21	1	1	2	—
Pneumonia, primary ..			191	32				308	18	
Deaths		—		11	7		—		3	6
Polio-encephalitis, acute	—	—				3	—			
Deaths ..		—					—			
Poliomyelitis, acute* .	8	2	1	5	1	11	1	1	1	—
Deaths ..		—					—			
Puerperal fever	—	2	11	—	—	—	1	9	1	1
Deaths ..										
Puerperal pyrexia ..	169	10	14		1	150	11	8		6
Deaths										
Relapsing fever ..	—	—			—	1	—			—
Deaths .										
Scarlet fever .. .	1,748	157	262	38	34	1,103	60	162	41	16
Deaths . ..	1	—	—	—	—	2	—	—	—	—
Small-pox	—	—	—		—	—	—	—		—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	4	1	2	10	2	9	2	1	7	1
Deaths ..			—	—	—			—	—	—
Typhus fever	—	—	—	—	—	—	—	—	3	—
Deaths ..			—	—	—			—	—	—
Whooping-cough ..	2,106	126	268	20	37	1,417	203	77	38	19
Deaths .	11	2	1	2	—	8	—	1	3	—
Deaths (0–1 year) ..	341	45	53	34	22	367	49	71	28	23
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths) .	4,502	698	628	222	132	4,527	592	635	197	137
Annual death rate (per 1,000 persons living)			14·2	14·6	†			14·3	13·2	†
Live births ..	6,638	774	952	450	344	6,263	704	964	375	280
Annual rate per 1,000 persons living ..			19·4	29·6	†			19·9	25·0	†
Stillbirths ..	239	21	37			228	25	37		
Rate per 1,000 total births (including stillborn) ..			37					37		

* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* the incidence of infectious diseases fell, except scarlet fever, which rose by 290 cases. There were 2,058 fewer cases of measles, 119 of whooping-cough, 95 of dysentery, and 41 of diphtheria.

The rise in incidence of scarlet fever was general throughout the country, and especially in Yorks West Riding, Staffordshire, and Middlesex, where respectively 81, 40, and 31 more cases were recorded than in the previous week.

Diphtheria was prevalent mainly in the North. The three counties of Yorks West Riding, Lancashire, and Durham had 222 cases, or 37% of the total for the country, but only 75 cases, or 12%, were recorded in the South—i.e., London, the South-Eastern, South-Western, and South Midlands Divisions.

Notifications of measles were only 41% of the total six weeks ago. The greatest declines during the week were: Surrey 223, Warwickshire 147, Gloucestershire 109, Southamptonshire 103, Leicestershire 100, Essex 98. In Gloucestershire notifications have dropped from 1,156 during the week ending March 6 to 98 during the week reviewed.

The only sizeable variations in the trend of whooping-cough were rises in Lancashire 49 and Derbyshire 40, and a drop in Staffordshire 27.

There were 50% fewer cases of dysentery during the week The only area to report a rise was London, where the cases went up from 11 to 22—10 in Bethnal Green and the remaining 12 in ten boroughs. The only other area with many cases was Lancashire, with 23.

In *Scotland* notifications of measles fell by 88 (with 84 fewer cases in Glasgow), and whooping-cough by 82 (50 fewer in Glasgow). An increase in the western area accounted for the 36 more cases of scarlet fever, the largest local rise being in Glasgow, 14.

The Week Ending May 22

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,740, whooping-cough 2,446, diphtheria 619, measles 8,377, acute pneumonia 672, cerebrospinal fever 68, dysentery 146, paratyphoid 4, typhoid 12

Medical News

Medical officers of health are informed in a letter from the Ministry that the sound film on the prevention and treatment of scabies, which was described in these columns on April 10 (p 451), will be available from June 1 for showing on 16 mm. and 35 mm sound projectors. Medical officers who can borrow a projector can obtain a copy of the film from the Central Film Library, Imperial Institute, London, S.W.7 In other cases the help of the Regional Film Officer of the Ministry of Information should be sought in providing projector, operator, screen, etc. A list of regional officers is attached to the Ministry's letter. While the film is not intended for public cinema programmes it is hoped that medical officers will see that it is shown as widely as possible to invited audiences, especially to doctors, nurses, and other health workers likely to come into contact with the disease.

On the afternoon of Thursday, June 10, Dr. S. A. Henry, medical inspector of factories, Ministry of Labour and National Service, will give two lectures on "The Health of the Factory Worker in War-time." The lectures will be given at 2.30 and 3.45 respectively in the School of Medicine, Leeds, and medical practitioners interested are cordially invited to attend.

An interesting series of demonstrations of the work carried out in the gastric and urological units of St. James Hospital, Balham, was arranged by the London County Council for the benefit of medical officers of the Royal Canadian Army Medical Corps and the United States Army Medical Corps on April 29. Senior surgeons of both the Canadian and American Forces were present, and among the visitors was Col. J. C. Kimbrough, the Director of Professional Services to the American Forces. During the morning demonstrations were given by Mr. Norman Tanner, surgeon-specialist, and Mr H. K. Vernon, senior resident surgeon in gastroscopy, on nephro-ureterectomy for ectopic vaginal ureter and cystoscopy and fulguration of villous growth. The afternoon was occupied by demonstrations of partial gastrectomy, slide repair of hernia, injection of oesophageal varices by Mr. Tanner, and cystoscopy, suprapubic lithotomy, and modified Harris's prostatectomy, nephrectomy, and operation for haematocele by Mr. Vernon. Patients and specimens were also seen in one of the wards of the hospital. The visitors expressed their appreciation of the opportunity afforded them of seeing some of the recent developments in gastric surgery in this country and their indebtedness to the L.C.C. for arranging this visit, which is one of a series provided in the Council's medical services for the benefit of Allied and Dominion medical officers.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to The EDITOR, British Medical Journal, B.M.A. House, Tavistock Square, London, W.C.1.

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ANY QUESTIONS?

Aspirin and Gastric Haemorrhage

Q.—*Is there any foundation in fact for the statement made that aspirin tends to promote gastric haemorrhage?*

A.—The evidence that aspirin can produce gastric erosions and alimentary haemorrhage in certain individuals has been convincingly presented by Douthwaite (*British Medical Journal,* 1938, **1**, 1143), Douthwaite and Lintott (*Lancet,* 1938, **2**, 1222), and Hurst and Lintott (*Guy's Hosp. Rep.*, 1939, **89**, 173). Reference to the original papers will show that the findings were clinched by gastroscopic observations, and they are generally accepted by gastro-enterologists.

On Hypo- and Hyper-chlorhydria

Q.—*(1) Has vitamin A any effect on hypochlorhydria? (2) Is there any substance that could increase the gastric hydrochloric acid in cases of hypochlorhydria? (3) Is there any truth whatsoever in the statement that smoking increases gastric HCl in cases of deficiency?*

A.—1. Vitamin A has been said to improve both the symptoms and the secretion of hydrochloric acid when administered for two or three weeks in a dosage of 16,000 international units t.d.s to patients with hypochlorhydria. Curiously enough, vitamin A in high dosage is also reputed to relieve gastric ulcers. None of this work is very convincing.

2. A subcutaneous injection of 0.5 to 1.0 mg. of histamine acid phosphate will increase the secretion of free hydrochloric acid in hypochlorhydria, but this is a diagnostic and not a therapeutic measure. It is better to treat the presumptive cause of the hypochlorhydria—iron in hypochromic anaemia; thyroidectomy in hyperthyroidism; dental treatment and gastric lavage in oral sepsis, etc. In many cases of hypochlorhydria there is a strong constitutional factor, and there is no more prospect of getting the acid secretion back than of growing hair on bald heads. In such cases one can if necessary give dilute hydrochloric acid *B.P* 20–60 minims in water at meal-times. But why this bother about the hydrochloric acid? The organism usually gets on quite well without it, and the symptoms of gastritis can rarely be correlated with lack of acid.

3. Excessive smoking causes hyperchlorhydria in normal subjects. Smoking might therefore be expected to increase the secretion of HCl in hypochlorhydria, but only in a dosage likely to cause also loss of appetite and motor disturbances in the gastro-intestinal tract.

Gentian Violet for Threadworms

Q.—*Is the gentian violet oral treatment for threadworms without risk, and if so what are the correct doses for children and adults? Should this treatment be combined with washouts of any kind? Is a preliminary purge necessary?*

A.—The gentian violet treatment of threadworms appears to be without any risk except that it sometimes causes vomiting, presumably because the capsules in which the drug is given have dissolved in the stomach. On the whole I think it best to give the drug after meals, when any irritant effect is minimized. The correct dose is based on the formula: gr. 1/6 for each year of apparent age per day for five days; then five days' rest; and then repeat for five days. Having worked out the dose, divide it into three lots and order it after meals. The drug is put up in gelatin capsules. A convenient method for surgery use is to have capsules containing gr. 1/6 available and work out the quantity as indicated. For adults the maximum dose has not been satisfactorily determined. Probably gr. 2 a day would be suitable. No purge is required and no washouts, but it is well to order some white precipitate ointment for application to the anus at night, and the nails should be carefully cut and cleaned. It is also a good plan to try to make sure that there is no reservoir of infection present in any other member of the household.

Hexobarbitone as Hypnotic

Q.—*Clinically hexobarbitone appears a useful drug in getting people to sleep. Is it more often followed by toxic effects than, say, soluble barbitone? Is the incidence of agranulocytosis high?*

A.—Hexobarbitone given by mouth is an excellent hypnotic when there is no pain. Its action is rapid and its destruction in the body occurs quickly. This makes it safe, and toxic effects are rare when it is administered by the oral route. Agranulocytosis has possibly been produced by various barbiturates in the past, though even this is doubtful. It is less likely to arise from hexobarbitone than the more persistent members of the group. In any case the risk is remote.

Recurrent Haemarthrosis

Q.—*A woman aged 53 suffers from attacks of haemarthrosis of the right knee which occur while she is walking. She has had five attacks in the last seven months, and is quite well in between. She had one attack in the left knee in 1940. I remove about 1½ oz. of blood each time, apply elastoplast, and the joint clears up in a few weeks without the necessity for a second tap. There is nothing to be found wrong with her knee beyond some x-ray evidence of osteoarthritis. She has had varicose veins in both legs below the knee, which have been treated very successfully by injection, but it is clear now that a desirable refinement would be a Trendelenburg operation in each leg, as veins are appearing in the thighs reaching up towards the saphenous opening. Is it possible that her trouble is due to varicosity in the knee-joint? Can any other treatment be suggested? Apart from her knee she is an active and energetic worker; her menopause was 15 years ago.*

A.—Except in very rare instances, varicose dilatation is limited to superficial and unsupported veins; it is therefore very unlikely that this is the cause of the bleeding into the joint. An angioma or other tumour of the synovial membrane is a more possible cause; but rather more probable is a blood dyscrasia. The fact that there has been one attack in the opposite joint supports this view. The coagulation and bleeding times should be investigated, and attention paid to the vitamin content, especially C and P, of the food. If necessary the urinary excretion of vitamin C can be estimated and the result accepted as evidence for or against a deficiency.

Immunity to Virus Infection

Q.—*Is the immunity to a virus fundamentally the same as the immunity to a bacterium?*

A.—Both types of immunity are similar in that they both depend essentially on specific antibodies. Those differences between the two that do exist are dependent on the different modes of life of bacteria and viruses. Parasitic and pathogenic bacteria live in the body fluids of their hosts; viruses are obligate intracellular parasites. Living cells are not permeable to antibodies. This means that, whereas bacteria are readily accessible to the antibodies in the body humours, viruses are protected from them so long as they are intracellularly placed. Only when the infected cells die and break down, discharging their virus content, and the viruses are in transit to new cells, are they exposed to the action of antibodies. We do not yet know how virus antibodies act *in vivo*. Bacterial antibodies so alter the bacteria as to render them an easy prey for the phagocytes; the antibodies and the phagocytes act in conjunction in combating infection. But there is no evidence that the phagocytes play any part in virus immunity. All we know is that, when a virus is sensitized by the appropriate antibody, either it is unable to get inside cells and so cannot multiply, or, if it does get inside, the antibody has so altered it as to render it incapable of multiplication.

LETTERS, NOTES, ETC.

Treatment of Malignant Tertian Malaria

Dr. D. B. Bradshaw (deputy medical officer of health, South Shields) writes: May I thank Dr. Elliot Murray (May 15, p. 613) for his friendly comment on the case of malignant tertian malaria recorded by Dr. Anderson and myself. Let me assure Dr. Murray that we have no intention of advocating the use of quinine as a routine in malignant malaria. We used it in this case at first because we had then no other antimalarial at hand; later we were unwilling to change to some more orthodox scheme of treatment, such as that recommended by Dr. Murray, because the patient's clinical response had been so favourable.

Gastro-duodenal Surgery in the Aged

Dr. G. Whittington (Reigate) writes: In the *Journal* of May 8 (p. 563) appears an article on gastro-duodenal surgery in the aged by Mr. N. C. Tanner, with an account of a successful operation for perforated duodenal ulcer in an old lady of 79. It is stated that, "this being the second oldest case of perforated ulcer on record to recover," I wish to record the case of a lady of 81 who was operated upon by me for a perforated gastric ulcer near the cardiac end, and who made a good recovery. The operation was completed just 2 hours after the occurrence of the perforation, and she is alive to-day at age 86.

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THE BRIDGEHEADS OF CHILD HEALTH IN THE FIVE AGES OF CHILDHOOD*

BY

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At the present time there is much talk, and some planning, on the subject of child health. In a recent debate in the House of Lords on the Beveridge report Lord Dawson (1943) said: "The care of child health should take precedence over almost everything else at the present moment"; and Sir William Beveridge (1942) in his report has declared that "the small families of to-day make it necessary that every living child should receive the best care that can be given to it. The foundations of healthy life must be laid in childhood."

These general statements imply that child health is not only important in itself but affects the health of the population at all ages. Some years ago a statistical study by Kermack, McKendrick, and McKinlay (1934) found a correspondence between the falling infant and general death-rates in Britain and Sweden, and showed that a regular maintained improvement in child health (measured by the infant death rate) was followed later in the same population by a corresponding improvement in the general death rate. The same biological law can be seen in operation in a country like Holland. In 1938 the infant death rate in Holland was the lowest in the world; in the same year in that country the other main categories of vital statistics—maternal deaths, stillbirths, and general deaths—also stood at record low levels. Thus the science of vital statistics confirms the common sense and experience of wise men, doctors, and laymen.

The same truth has been uttered by the poets, ancient and modern. Wordsworth, as one of the moderns, has sung, "The child is father of the man"; while Juvenal has a long priority over Beveridge—"Maxima debetur puero reverentia." All this testimony can be summed up by saying that child health is the main bridgehead of national health.

The Five Ages of Childhood

The period of childhood stretches from birth (and includes it) to puberty. This span of life must be divided into smaller periods or "ages" if we are to bring under medical management the whole term of child life; for these subdivisions of child life differ greatly in their character and therefore in the medical problems they present. Shakespeare in his seven ages of man has allotted two to childhood: "the infant mewling and puking in the nurse's arms," and "the schoolboy, with . . . shining morning face, creeping like snail unwillingly to school." If we are to apply the principles of child health to the period of child life we must give to it, not two, but five ages. Each has its pattern of healthy structure and function, and each its special dangers and disasters; to each belongs a differing set of clinical problems, physiological and pathological, and mental.

The First Age

This is the first month, or neonatal period, and it includes birth. It is short; but it is crowded with dramatic events and is dangerous and deadly, and the measure of our control of it is the stillbirth and neonatal death rates. The total loss of infant life in the first age (stillbirths plus neonatal deaths) greatly exceeds that in the remainder of the first year. In Scotland, since the registration of stillbirths in 1939, the stillbirths and neonatal deaths have been more than twice the deaths in the remainder of the first year; and in England, with lower stillbirths and infant death rates, about the same relation exists. Without detailing the many and interlocked pathological conditions that cause this great mass of infant deaths in the first age, it is enough at this stage to divide them into two groups—those that belong to the obstetrician and that depend upon the care and health of the mother during pregnancy and labour; and those that belong to the paediatrician and that depend upon the care of the baby after birth. Certainly the first age is the most dangerous and difficult bridgehead of child health, and the one which medical practice has had least success in occupying and fortifying. The paediatric problems of the first age are mainly dietetics and protection against infection; and their successful management demands on the part of nurses and doctors detailed knowledge of the new and intricate processes of feeding and digestion, and of a strict technique against infection.

The Second Age

The second age extends from 1 to 6 months; and if the baby enters it with feeding and digestion well established, and under good hygienic management, it is likely to pass through it with little further trouble. It is the age of milk diet; and if that milk is human and taken from the breast of the mother the baby enjoys the double security of an ideal food and of protection from alimentary infection. Rapid physical growth occurs, and the first steps in mental progress are taken—simple muscular control of the body, the use of the eyes, and some awareness of itself and others (I and Thou).

The Third Age

The next age might be called the age of teeth and transition. It extends from about 6 months to beyond 2 years, beginning with the first teeth and ending with the appearance of the last molars. But it includes other important changes which make this period of child life critical and dangerous. The eruption of teeth is accompanied by additions to the simple uniform milk diet, with the possibility of digestive and nutritional disturbance. The great feat of standing and walking is achieved; this means weight-bearing by the bony skeleton, and requires a proper calcification of the bones. It is also the age of the major fatal infections of childhood—gastro-enteritis, pneumonia, tuberculosis, meningitis, and poliomyelitis; of measles, whooping-cough, and diphtheria; while the nutritional disorders, rickets and scurvy, are almost confined to it. Apart from special immunization procedures, protection against these formidable hosts of infection depends mainly upon proper diet and upon a complete system of hygiene in the city, in the street, and in the home; but with powerful aid from sunshine and air.

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* The substance of an address to the Perth Branch of the British Medical Association.

The third age brings a quickening and a great advance in the intellectual and spiritual life. By means of speech and walking the intellectual horizon is extended. Speech is the sound-register of thought, and is the most powerful instrument for the formation and the exchange of ideas; it is indispensable for the child's understanding of its own self and for its adjustment to other personalities. By walking, the perceiving and registering mind is brought into contact with the wider range of objects beyond the nursery; and whether these be ugly or beautiful, monotonous or varied, the mind seizes them eagerly, enjoys and stores them.

The third age is the passage from infancy to childhood; it is the age of transition. It is a time fraught with physical danger and mental opportunity. In it the two main bridgeheads of child health are still dietetics and infection; and they are weakly held by preventive medicine.

The Fourth Age

The fourth age extends from 2 to 5 years. It is the age of freedom and of play; and this freedom covers the whole life, physical and mental. This freedom is not absolute; but it is much greater in the mental, and especially the imaginative, life of the child than in the physical life. The spontaneous activity of the imagination is now very great, and outruns control by the weak intellectual and critical faculties. It is a time of dreams, "fantasy," and fairy stories; and one which may give a permanent tone and colour to the child's attitude to life and in which the main patterns of conduct and behaviour may be laid down. The imagination is fed and nourished by everything he sees or hears; and his teachers are not only his parents and other official instructors and guardians, but no less his companions and playmates, and the whole world of objects that comes within his ken. He will get a sense either of security or of fear that may remain with him throughout life. Here Wordsworth's great saying is especially true of the mental life—"The child is father of the man"—and the problem of the nervous child and the solitary child begins in a wrong mental environment in the fourth age. The protection of the mental life at this age depends upon similar factors of mental health as in physical life in the first three ages—the *mental food* that is given, and the guards against *mental infection* that are set up. These three years of child life are years of destiny. Although they are the years of freedom and of play, the play is a rehearsal of the battle of life; and the kind of mental armour, weak or strong, that is forged at this time may determine the issue of the real struggle that lies ahead at school and in adolescence.

The physical life of childhood in the fourth age is relatively free of trouble, unless from chronic ailments of respiration and digestion carried over from an earlier age.

The main bridgehead in this age is mental health. The mind in its effort for health has to get control of the body and so acquire decent and comely habits of body. It has also the greater task of getting control of itself, and enters on the long struggle of self-adjustment and of adjustment to others; and this first essay in the discovery of self may determine the final place of the personality in the realm of ideas and in the world of social contacts.

The Fifth Age

This is the age of school: "shades of the prison-house begin to close upon the growing boy." The child is now put under training both of mind and of body: and it may be a rough and sudden change from the age of freedom and play. If the intellectual, the moral, and the physical discipline are harsh and uncongenial the child has always a way of escape, safe or dangerous, into the inner citadel of personality.

On the physical side, the second dentition adds a physical stress to the new mental tensions that have been created. Infection continues to operate, and rheumatic infection is a new danger; while tuberculous infection of the lungs may now reveal itself for the first time, and the banal infections of the upper respiratory tract transmitted from an earlier age may give much trouble. But on the whole the age of school is comparatively free from serious physical disease, with the one important exception of rheumatic heart disease.

In this age of school the training of the intellect has received quite properly the first place in the national system of education; but it is widely recognized that the training of the body in dexterity and posture, and the training in morals and character, deserve a larger place in the educational system than they have had up till now.

In the fifth age the bridgehead of health is education. A complete system of life training must cover all sides of child life—intellectual, moral, and physical—and brings all these parts under a wise and proportioned discipline. This discipline must be strict and thorough, and yet not offend the inner freedom and sanctity of the child's personality.

This is a rapid and sketchy outline of the periods of child life; but these divisions are essential if we are to understand the problem of child health and bring it under better control. This sketch of the five ages of childhood shows the range, complexity, and importance of child health. If Lord Dawson's pronouncement that "the care of child health should take precedence over almost everything else at the present moment" is right, it follows that child health should receive a first priority in the comprehensive medical service now being planned.

Our present standards of child health, measured by our national infant death rates, are unsatisfactory. If we set the infant death rates of our greatest towns in England and Scotland against those of the U.S.A., Australia, and Holland our figures show a still greater disparity (see Chart). In the planning of a better child health service the immediate urgent problem is infant mortality; and the great safeguards against infant death are management of prematurity, infant feeding, and protection against infection. These three clinical problems are included in the term "infant hygiene"; and infant hygiene must obtain a better place in our medical schools if we are to make a more effective attack on the strongholds of infant mortality.

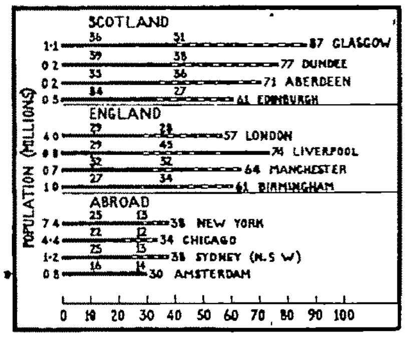

Chart showing infant death rates in 1938 in great towns at home and abroad. The black lines represent death rates for the first month; the black-and-white lines those for the remainder of the first year.

Child Health in the Medical Schools and in Practice

If the standard of child health is to be raised in practice, the training of medical students and nurses must be improved. The range of child health is very wide; in the meantime let us restrict the examination to infant health and infant mortality, and examine the position as regards both education and practice.

Education

In 1932 the General Medical Council strongly condemned the inadequate teaching of "infant hygiene" in medical schools, and recommended "that in the Final Examination there should be a test of the candidate's knowledge of infant hygiene and of disease in children." That recommendation, made 10 years ago, has been more honoured in the breach than in the observance. Among the Scottish universities, Glasgow alone has given the subject a separate place in the Final Examination; and there are signs that some of the English universities will do likewise in the near future. But the fault goes deeper than an inadequate examination test. Very few medical schools are provided with the clinical material of healthy infants and children necessary for the study and teaching of the subject. This clinical material is abundantly available in the child welfare clinics of the local authorities, and especially those attached to teaching maternity hospitals. What is needed is that all paediatric departments in medical schools should include infant and child welfare clinics as a part of their work in treatment, teaching, and study; that separate courses of instruction in child health should be given both to medical students and to pupil health visitors and midwives; and that this instruction should in the first place be mainly directed to the problems of infant health and should include the critical period of the first month.

In the U.S.A. paediatrics has long enjoyed the status of a major subject in the medical curricula. There has been a great fall in infant mortality in the leading American cities in the last 20 years, and it is reasonable to claim that this fall has been influenced by the high standard of paediatric teaching in the American medical schools. In most British medical schools paediatrics is still ranked as a "special" or minor subject. Until this great subject is given its right place in British medical education we cannot expect much improvement in its practice.

Practice

The general practitioner, the hospital practitioner or paediatrician, and the medical officers of the infant welfare and school medical services are at the disposal of mothers for the care and well-being of infants and children. The family doctor handles the problem at its centre, in the home, where the issue of health or disease is decided. He is well placed to make the greatest contribution to infant health, but complains that he is being ousted from it. The paediatrician is fully engaged in the problems of disease in children's hospitals—although a few paediatricians, attached to the welfare clinics of maternity hospitals, are beginning to take part in the health side of the problem. The medical officers of the child welfare clinics are busily engaged there, but form a semi-detached service. They see too little of the health problem in the home and are debarred from the intensive clinical study of the child in hospital. These three services have but slight contact with each other; their liaison is weak, and there is a good deal of recrimination between them. Indeed, each of them is open to attack: for the child welfare doctors and the family doctors have not received a proper training in child health; and the hospital doctors, expert in the problems of disease, have little experience either of home conditions or of the work of child welfare clinics.

It is agreed that this is a most unsatisfactory position; and a good deal of purposeful discussion is going on at the present time to improve it. In the draft interim report of the Medical Planning Commission (1942) plans are outlined to give general practitioners an increasing share in the work of welfare clinics. The British Paediatric Association has also recently brought together in conference paediatricians, general practitioners, child welfare medical officers, and medical officers of health to exchange views and to plan a co-ordinated health service for children. There are great difficulties to be overcome; and before a reorganized child health service can be brought into being there must be full and free discussion of its structure and conditions between all those who will operate it. What is needed is a service in which there will be two kinds of medical personnel—the family doctors carrying out the routine work in the home and the clinic, and the hospital physician advising and directing; while the health visitors will be at the disposal and under the supervision of both. This service cannot work without control; it must have administrative machinery, and must be "under authority." The general solution of this difficult problem of the controlling authority may be found in some local experiment of a co-ordinated child health service—some happy area where there are already friendly relations between the child welfare service, the family doctors, the children's hospitals, and the medical school.

The Fundamental Postulates of Child Health

The medical and nursing services are not the only elements in the complete plan necessary for child health. There are other fundamental postulates which must be provided: general sanitation on a high standard, achieving cleanness and counter-infection in the city, the street, and the air overhead; houses with liberal accommodation and suitable equipment for parents and children; an income-level sufficient to provide food and the other necessaries of life. The central postulate of all is the mother herself; in the last resort the health of the child depends upon the mother's health, her knowledge of her craft, and her devotion. The nurse and the doctor may give her health and knowledge; but the ultimate responsibility for the care of the child rests with the mother, and the centre of the child's life is the home. Day nurseries and nursery-schools cannot take the place of good homes. Minders, be they ever so mindful, cannot take the place of mothers. The family is a human society—the oldest, the smallest yet the greatest, of all human societies. If the family is to be secure and stable it must have all these things that have been mentioned; and it must also be governed by moral and religious laws as well as by the laws of economics, medicine, and hygiene.

Sir William Beveridge has given us his design and plan for national security and health, and has said that "the foundations of healthy life must be laid in childhood." Not unlike his plan, but with a theocratic as well as a democratic foundation, is the Psalmist's dream of a happy and secure society:

> That our sons may grow up as the young plants:
> That our daughters may be as the polished corners of the temple
> That our garners may be full and plenteous with all manner of store: . . .
> That there may be no decay: no leading into captivity, and no complaining in our streets.
> Happy are the people that are in such a case:
> Yea, blessed are the people that have the Lord for their God.
>
> Psalm 144.

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SOME ASPECTS OF THE CHEMOTHERAPY OF PNEUMONIA

BY

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That the value of chemotherapy in pneumonia has, in a general way, been proved is a reasonable assumption. The present analysis is put forward in the belief that certain aspects of the results obtained with sulphonamides are not sufficiently or generally appreciated.

The Value of Aetiological Diagnosis

It is well known that in a large proportion of pneumonias the causal organism is a pneumococcus, and that among pneumococcus pneumonias there is considerable variation in the severity of the illness caused by different serological types. It is not so well known that there are differences in the fatality rates when cases receive sulphonamides. In Glasgow, where over a long period of time the commonest type of pneumococcus has been Type II, carrying a high fatality rate, the results of chemotherapy have been less impressive than in the South of England, where the more benign Type I infection is prevalent. My own figures in two relatively large series of cases (Table I) may be cited. The material comprises all cases admitted in which the notified diagnosis of "acute primary pneumonia" was confirmed. The great majority conformed to the lobar type of consolidation. Sulphapyridine was given by mouth; after a preliminary dose of 2 g., treatment was continued with 1 g. four-hourly until the temperature had been normal for a period of two to three days. I have included the results obtained with chemotherapy in

TABLE I

Type	Pre-sulphonamide		Sulphonamide	
	Cases	Deaths	Cases	Deaths
I	172	13 (8%)	64	2 (3%)
II	198	58 (29%)	160	20 (12%)
III	27	4 (15%)	48	15 (31%)
V	—	—	8	1 (12%)
VII	—	—	26	4 (15%)

Type V and Type VII infections, since clinically, in respect of course and severity, they behave very similarly to Type II infections.

I have been the more convinced of the accuracy of the picture to be drawn from these figures by collecting together a number of cases treated in different Glasgow hospitals (Anderson, 1940). In so far as Type I and Type II pneumococcus infections are concerned the result is the same: Type I infections are now usually mild, death resulting from some complicating condition often unconnected with the pneumonic process; whereas Type II infections are more severe and still carry an appreciable fatality rate. The results obtained in Type III infections are more variable; the most important factor here is the age of the person infected. In the older age groups infections with this type are severe and often fatal; but when younger persons are infected the illness produced by Type III pneumococci is milder and the fatality rate low. During 1939-40 and into the beginning of 1941 the Type III cases were predominantly among the older age groups and carried a correspondingly high fatality rate. These figures are, I believe, sufficient justification for stressing the necessity for the continuation of pneumococcus typing, even when the sulphonamides are being used.

The Age of the Patient

In analysing my own figures I have been impressed by the increased importance of age in the results obtained by chemotherapy in pneumonia. In Table II the total figures for Type I, II, and III infections have been divided into two groups, below and above 40 years.

TABLE II—*Results in Respect of Age in Type I, II, and III Pneumococcus Infections*

	40 Years and Under		41 Years and Over	
	Cases	Deaths	Cases	Deaths
Pre-sulphonamide ..	288	40 (14%)	109	35 (32%)
Sulphonamide ..	151	6 (4%)	121	31 (26%)

It is clear that the reduction in fatality is much more impressive under the age of 40 than above it. If Type II infections alone are considered we find that the fatality rate under 40 has fallen from 22 to 4%, whereas in the older age group the fall is from 46 to 25%. Further, an analysis of 69 consecutive deaths from pneumonia of persons over the age of 11 years who received sulphapyridine has shown that no fewer than 56 (81%) of these patients were 41 years of age or over. In Cruickshank's analysis (1942) of cases of pneumonia treated in the Glasgow Fever Hospital from 1918 to 1928, only 40% of the deaths of patients above the age of 11 occurred in those over 45 years old: 68% of my deaths are in this age group.

Effect of Age and Bacteriaemia

Table III shows the results of an analysis of 168 cases examined by blood culture on admission to hospital.

TABLE III.—*Effect of Age and Bacteriaemia on the Outcome of Pneumonia*

Age	Non-bacteriaemic		Bacteriaemic	
	Cases	Deaths	Cases	Deaths
40 years and under	70	2 (3%)	20	3 (15%)
41 years and over ..	56	9 (16%)	28	13 (47%)

(χ^2 = 14 4, P = less than 0 01)

This table contains some important data. The first inference to be drawn from it, of course, is the importance of the presence of bacteriaemia when treatment is begun. But the occurrence of bacteriaemia must be regarded either as a gain for the pneumococcus in its invasive capacity or as a loss for the host in his defensive capacity. There is some reason for believing that the risk of the development of bacteriaemia increases as age advances. May it not be that the relative failure of sulphapyridine in those over the age of 40 with bacteriaemia is due more to the impoverished defences of the host, which have allowed invasion to occur, than to the actual presence of bacteriaemia itself? Our present conception of recovery from acute infections lays much emphasis upon the causative "virus," its different attacking mechanisms, and the immunological changes which it causes in the human host. Just because it is more nebulous and difficult to define we tend to set aside the non-specific or tissue resistance, although we fully appreciate its importance in the host's chances of recovery.

Age, Bacteriaemia, and the Process of Resolution

One further set of figures may be supplied. In my hands, one of the most disturbing features of the case of pneumonia receiving chemotherapy has been the frequency with which convalescence is delayed by what might almost be termed the failure of resolution. Table IV shows the incidence of the condition in a series of unselected cases in respect of the two factors already discussed—namely, age and bacteriaemia.

TABLE IV—*Age, Bacteriaemia, and the Incidence of Delayed Resolution*

	Cases	Cases with Delayed Resolution
Non-bacteriaemic ..	165	21 (13%)
Bacteriaemic	59	15 (26%)
40 years and under .. .	151	17 (11%)
41 years and over	121	27 (22%)

The figures in Table IV show that the incidence of delayed resolution is much higher in those over 40 years and in those with bacteriaemia. Again it seems to me that it is not sufficient merely to say that this complication is occurring in the severer case. In the person over 40 years old and in those with bacteriaemia the "tissue resistance" may be lacking; it might be reasoned that failure to restore the inflamed lung to normal is likely to be due to a failure of tissue resistance. Many of the cases upon which I have performed a necropsy have been found to show upon their tenth or twelfth day a totally hepatized lobe, in which microscopically there is great increase of connective tissue, the fibrin being interwoven by strands of fibrous tissue.

Discussion

It is a natural tendency of the enthusiastic clinician to produce fatality rates as low as he can make them. Where the factors which influence the fatality rate are few little harm can result. But where, as in pneumonia, the factors which influence the fatality rate are many, then it is desirable that he should not undercolour the shadows. These figures have been selected to emphasize the fact that the introduction of the sulphonamide group of drugs has not removed pneumonia from that group of diseases which still requires intensive study. There is evidence that age now assumes an even more important place in prognosis than it did in the pre-serum or pre-sulphonamide days, and that the risk of death, or of a prolonged convalescence, is much greater in those who are past the middle stage of life. A close relation is also shown between outcome and the presence of bacteriaemia when treatment is begun.

These findings suggest that with the introduction of the newer sulphonamides the last word on the treatment of pneumonia has not yet been written. There apparently remains a broad age group in which the disease has a high relative prevalence and in which the individual's chance of recovery, once he is attacked, is less favourable. Nor can it be too greatly emphasized that the loss of a life between the ages of 40 and 60 years constitutes a severe economic blow; for by this time the individual's responsibilities in society and in family life are often greatest. A problem exists, and must be faced, in regard to the more effective treatment of these "bad risk" cases. In the light of our present knowledge three lines of approach may be discussed.

In the first place the combination of chemotherapy with type-specific serums or vaccines must be considered. Comparative trials of combined treatment and of sulphonamides alone have been reported from America (e.g., Plummer *et al.*, 1941). The results do not encourage a belief that added benefit is secured by combined therapy. My own final assessment of a small group of cases does not bear out the promise of the earlier results (Anderson and Cairns, 1940). Serum-and-drug treatment was given to 33 patients with Type II pneumococcus pneumonia. In respect of those over 40 years of age the fatality rate was 25%; delayed resolution was noted in 29%. These findings confirm, on a small scale, the reports of the larger American studies. Vaccines have also been used in two series of Glasgow cases. Dick (personal communication) treated alternately two groups of cases in 1941-2—one with sulphapyridine alone, the other with sulphapyridine plus autogenous vaccines. In respect of fatality rates and incidence of delayed resolution there was no difference between the two groups. My own small experience with type-specific stock vaccines is similarly discouraging. Fleming (1939) has produced strong experimental evidence in support of the use of the combined methods of treatment as compared with either alone. The apparent failure of combined therapy in man must thus be earnestly considered; for since, alone, both achieve a beneficial effect the argument in favour of their combination seems a strong one. It may, of course, be that the fatality rate has been reduced to its lowest level by means of chemotherapy and that those who now die represent a non-resistant population in whom the infection runs a course too rapid for successful intervention. Such a view would be disquieting; but it should in its own way direct attention to the individual, underlying failure which permits lowered resistance to the infection. May it not be, on the other hand, that chemotherapy in man achieves its effect by a host-response different from that of specific serotherapy? The non-specific nature of the action of sulphonamides does not perhaps receive the attention it merits: one drug is successful in infections due to a wide range of micro-organisms. The finding in severe cases of pneumonia—many of which would previously have ended in death—that the return of the consolidated lung to normal is a long slow process suggests that tissue resistance is an essential adjuvant of chemotherapy.

It may finally be asked whether a more intensive course of chemotherapy during the preliminary stage of treatment might not be worthy of trial in these patients over the age of 40. The use of age alone as the criterion might be advocated, since it would seem reasonable that for beneficial effect intensive therapy should be used during the first 24 hours, before the results of blood culture could be known. It would, finally, seem especially desirable when the results of chemotherapy in pneumonia are reported that emphasis be placed upon the analysis of the cases in respect of the type of infecting pneumococcus, the age of the patient, and the presence or absence of bacteriaemia when treatment is begun.

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RECEPTION TO PROF. SARKISOV

A largely attended reception was given on May 21 by the Society for Cultural Relations with the U.S.S.R. in honour of Prof. S. A. Sarkisov, representative of the Soviet Red Cross and Red Crescent, director of the Moscow Institute of the Brain, and vice-president of the Scientific Medical Council of the U.S.S.R. The Soviet Ambassador and Mme. Maisky were present, as well as many representatives of the medical services, British and Allied. The company were received by Mr. D. N. Pritt, K.C., and Mrs. Pritt, and a welcome to the guest of honour was spoken by Mr. Aleck Bourne. Prof. Sarkisov, who spoke in Russian, expressed his gratitude for this friendly welcome. Never in the history of mankind, he said, had the scientific and cultural values created by the centuries been exposed to such barbaric destruction as was taking place now. Therefore the growing tendency towards the establishment and widening of the collaboration between cultural, art, and scientific workers in the Soviet Union and the countries friendly to the U.S.S.R. was quite natural. He added that the Soviet intelligentsia, together with the whole Soviet people, were working to help the heroic Red Army against the invaders. As a representative of Soviet medical science he hoped to make scientific medical circles in Great Britain more closely acquainted with the work which Soviet medical men and women were carrying out both at the front and at the rear. He hoped also to become more closely acquainted with the work of the medical institutions of Great Britain in order that in turn he could make the Soviet public acquainted with them. He concluded with expressing his belief that the peoples of the two countries were bound not only in comradeship-in-arms but in an alliance for a long period after the war.

ENTERIC GROUP FEVERS IN PRISONERS OF WAR FROM THE WESTERN DESERT

WITH SPECIAL REFERENCE TO PROPHYLACTIC INOCULATION, JAN., 1941, TO FEB., 1943

BY

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Intelligence reports received during the latter part of 1940 indicated that fevers of the enteric group were of common occurrence among Italian troops in Libya. The first Libyan campaign—1940-1—resulted in the capture of unexpectedly large numbers of prisoners, and the available accommodation for their custody was at first stretched to its limit. Until this was adjusted the sanitation of the P.O.W. camps was inevitably of a makeshift type, and the complete lack of sanitary conscience which is common to the Latin races made control a matter of very considerable difficulty. In the circumstances it is surprising that a large-scale outbreak of bowel disease was avoided.

The 1940-1 Outbreak

A small wave of typhoid fever occurred in one of the camps, but by the end of January it was under control. This was achieved by the establishment of rigid sanitary discipline (and in justice it must be stated that the prisoners were quite easy to educate in these matters), by control of the "food-handling" personnel, and by inoculation. As regards inoculation, the supplies of British Army T.A.B. vaccine in the Middle East were inadequate for this unexpected demand, but a quantity of Italian vaccine which was captured along with other medical stores was used as follows. In the Geneifa camps, where the outbreak occurred, all prisoners who could not produce evidence of having been inoculated within two years were given two doses of 0.5 and 1 c.cm. of vaccine at ten days' interval: all others were given 0.5 c.cm. In the other camps, where only isolated cases had occurred, those who could produce evidence of having been inoculated within the previous nine months were not done, otherwise the dosage was similar.

The Summer, 1941, Outbreak

From Table I it will be seen that the incidence remained low until May, towards the end of which month cases of typhoid infection began to occur in considerable numbers. In June a major outbreak was in progress, which reached its peak in July, decreased in August, and came to an end in September. In June three cases of infection with *Bact. paratyphosum* A were identified, and in July there were more cases of this infection than of typhoid. This outbreak persisted through August and declined in September, to disappear in October. It will be noted that many cases were diagnosed on clinical grounds. The majority were treated in one hospital; and the volume of work was such that the laboratory was unable to carry out repeated tests on each case. It may be assumed, however, that the positive results obtained give a reasonable cross-section of the whole.

The cause of the outbreak need not be discussed here. A number of factors were contributory. It is probable that the infection was chiefly fly-borne, and it is of interest that no cases occurred among the staffs of the P.O.W. camps.

The prisoners at this time were, in the main, those captured in the 1940-1 campaign, who were inoculated in January. In the interval reinoculation with Italian vaccine had been carried out as it fell due. Large stocks of this vaccine had become available, and in June, when it was clear that an outbreak was imminent, all prisoners were reinoculated with a further two doses (0.5 c.cm. and 1 c.cm.) of Italian vaccine. This had little obvious effect, and in early August, when adequate supplies of British Army vaccine were received, two-dose inoculation with this preparation was again performed in the affected camps. Following on this, but not necessarily on account of it, the outbreak rapidly waned.

TABLE I.—*Incidence of Enteric Group Fevers in Axis Prisoners of War from the Western Desert*

	1941												1942												1943	
	Jan	Feb	Mar	Apr.	May	June	July	Aug	Sept.	Oct.	Nov	Dec	Jan	Feb	Mar	Apr	May	June	July	Aug.	Sept.	Oct	Nov.	Dec	Jan	Feb
Typhoid:																										
Actuals	28	2	1	7	9	26	86	20	2	—	—	—	—	2	2	1	1	4	5	4	2	—	61	39	2	1
‰	Strength not available			08	·11	·37	1 36	39	—	—	—	—	—	03	·03	02	02	08	13	·17	·01	—	1 68	78	·04	·02
Para A																										
Actuals	—	—	—	—	1	3	90	74	19	2	1	—	—	—	—	—	1	5	2	—	—	—	2	2	—	—
‰					·01	·04	1 43	1 46	·49	06	03						·02	11	05				·05	04		
Para B.																										
Actuals	4	1	1	1	—	2	3	—	—	—	—	—	—	—	—	1	1	2	—	4	2	2	29	10	1	1
‰				01		·03	·05									02	·02	04		·17	·01	·01	80	20	02	02
Ent. Gp:																										
Actuals	12	—	—	1	29	63	267	190	50	—	1	—	5	1	1	—	2	—	1	1	—	—	12	18	3	—
‰				01	36	·90	4 24	3·76	1 28		03		·11	·02	·02		·04		03	04			33	36	06	
Totals.																										
Actuals	44	3	2	9	39	94	446	284	71	2	2	—	5	3	3	2	5	11	8	9	4	2	104	69	6	2
‰				1	·48	1 34	7 08	5 61	1 82	·06	06	—	·11	·05	·05	·04	10	·23	21	38	·02	01	2 86	1 32	12	04

The Nov.-Dec., 1942, Outbreak

Thereafter all newly captured prisoners, on admission to a camp, were inoculated with two doses of Army T.A B as a routine measure, and the incidence ran at a low level, with a slight seasonal rise during the summer months of 1942, until the influx from the El Alamein battle started in Nov., 1942.

Of the 181 cases occurring chiefly among these fresh prisoners, and notified during the four months Nov, 1942, to Feb., 1943, inclusive, details are available regarding 171. In 90 of these the date of onset was 10 days or less after admission to the P.O.W. camp. Some of these were already ill when captured. In the remaining 81 the date of onset bore the following relation to inoculation: 44 cases occurred in 21 days or less after inoculation; 9 cases occurred between 21 and 28 days after inoculation; 9 cases occurred between 29 and 40 days after inoculation; 8 occurred in periods longer than 40 days; 3 were "old" prisoners. While these figures are suggestive, inoculation was only one of many measures adopted to deal with the situation, and cannot be accounted solely responsible for the decline of the outbreak. One fact which is clearly brought out is the prevalence of the disease among enemy troops. The hospital captured at Mersa Matruh contained two wards—one on the Italian side and one on the German side—full of cases of clinically diagnosed enteric fever.

Bacteriophage Types of Strains of Bact. typhosum

The bacteriophage types of those strains of *Bact. typhosum* isolated from prisoners that were sent for investigation are shown in Table II. It will be noted that all three outbreaks were caused by a different type. In Dec., 1940, to Jan., 1941, only Type G was found. In the summer of 1941 Type B4 and Type C were both present. At the same time a large number of cases of paratyphoid A infection occurred. In Nov.-Dec., 1942, the predominant strain was Type A, which had previously not been isolated from prisoners in the Middle East for over a year. Other types were also found, and 41 cases of paratyphoid B infection occurred among Germans.

TABLE II.—*Bacteriophage Types of Bact. typhosum among Prisoners of War: Dec., 1940, to Feb., 1943*

	Dec., 1940 to Jan., 1941	Feb., 1941 to May, 1941	June, 1941 to Sept., 1941	Oct., 1941 to Oct., 1942	Nov., 1942 to Feb., 1943
Type A	—	3	2	—	65
Type B4	—	3	16	1	1
Type C	—	—	64	—	1
Type D2	—	—	—	—	3
Type G	22	10	1	11	3
Imperfect V	—	1	7	4	5
No Vi antigen	1	1	29	1	1

These facts are of interest in that they indicate the widespread nature of enteric group infection among Axis troops.

Enteric Group Fever among British Prisoners in Enemy Hands

In comparison with this, information obtained from Capt. E. T. Gilbert, R.A.M.C., who was captured by the enemy at Gambut on June 23, 1942, and placed in medical and administrative charge of the P.O.W. camp for British and other prisoners at Sidi Hussein, near Benghazi, is of great interest and significance. Capt. Gilbert was unable to give exact figures, as he had no means of keeping written records, but there is no doubt the details are substantially correct. The original strength of the camp was approximately 16,000, the prisoners being British, South Africans, Indians, Free French, Mauritians, and a small number of New Zealanders and Australians. It rose to 24,000, maintained this level for about four weeks, and then fell to approximately 12,000 on Oct. 18, when Capt. Gilbert left the camp It should be noted (see Table I) that this period, June to October, covers the months when the incidence of fevers of the enteric group is likely to be at its maximum.

The sanitation of the camp was primitive in the extreme. For some time the latrines were of the shallow-trench type. Flies abounded, and there was no means of washing (water ration, 1/2 to 1 water-bottle a day per man for all purposes). Almost at once an outbreak of dysentery started, which finally totalled between 11,000 and 12,000 cases in the four-months period. Despite the fact that circumstances appeared equally favourable for an outbreak of enteric group fever, no cases of a suspicious nature were observed during the same period. This cannot be taken to mean that none occurred, but the incidence at most must have been insignificant. This state of affairs was a matter of considerable surprise to Italian medical officers of the Benghazi Military Hospital, to which the more serious cases from the prison camp were admitted. They questioned Capt. Gilbert on the subject, and admitted to him that numbers of cases were occurring among Italian troops in the vicinity.

Comparison of Enteric Group Fevers in British and Axis Troops

Here, then, are two series of events which form a very striking contrast On the one hand the Axis Forces have a constant high endemic level of fevers of the enteric group. Despite inoculation with their own vaccine an epidemic of considerable proportions occurred in the summer of 1941. Supplies of British Army T.A.B. were obtained and administered as the outbreak was on the wane. It ceased abruptly, and the endemic level thereafter remained low even during the "typhoid season" of the summer of 1942. The prisoners captured in El Alamein were heavily infected, but the outbreak was quickly stamped out. On the other hand the Allied prisoners at Benghazi, living in a camp in which sanitation was of a primitive type and conditions were such that a major epidemic of dysentery occurred, and where typhoid was rife among their captors, escaped apparently unscathed.

It is difficult to explain these facts except on the grounds that the Allied troops possessed an immunity which the Axis troops did not. If so, this may have arisen from the use of a more effective vaccine

Comparison of British and Italian T.A.B. Vaccine

Two types of Italian vaccine were captured. One, of which only small quantities were obtained, bore the honoured name of Castellani. The other was a T.A.B. and tetanus-toxoid mixture (T A.B Te.), manufactured by the Istituto Sero-Terapeutico Nazionale, Naples. These vaccines were tested in parallel with British T.A.B. vaccine by mouse-protection test, with the following results. The figures indicate survivors after 30 hours.

Test Dose	Control	British T.A.B.	T.A.B. Castellani	T.A.B.Te.
2 m.l.d. ..	0/5	3/4	4/4	3/4
5 m.l.d. ..	0/5	3/3	2/3	1/3
10 m.l.d. ..		3/3	0/3	0/3

Investigation revealed that the mouse in the British T.A.B. series which died after 2 m.l.d. was a weakly and emaciated specimen that should not have been included in the test.

These results show that, whereas the British T.A.B. vaccine is of the standard normally attained by vaccine made from strains rich in Vi antigen, the Italian vaccines have the limited protective power of a vaccine made from non-virulent strains. Owing to a shortage of mice it has not yet been possible to test the German vaccine, of which supplies have only recently been obtained.

Conclusion

In the absence of any other explanation—and it has been impossible to think of any other which would fit the case—it appears justifiable to conclude that the relative immunity to enteric fever enjoyed by British troops in captivity is attributable to the use of a potent vaccine. Similar immunity is not enjoyed by the Axis Forces, who seem to have a high endemic rate, and among whom an outbreak of considerable magnitude occurred despite inoculation with vaccine of Italian manufacture.

FAMILIAL IDIOPATHIC METHAEMOGLOBINAEMIA

WITH A NOTE ON THE TREATMENT OF TWO CASES WITH ASCORBIC ACID

BY

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It has been known for some time that ascorbic acid is related to haematopoiesis in human beings. The nature of the association is not clear. Dunlop and Scarborough (1935) showed that a rise in the number of red blood cells, a fall in reticulocytes, and an increase in haemoglobin followed when vitamin C was given to a patient suffering from scurvy, although the iron content of the diet was unchanged. Barron and Barron (1936) observed that ascorbic acid reduced the red cell count in rabbits suffering from polycythaemia induced by cobalt poisoning. It was thought that polycythaemia is caused by inhibition of the respiration of immature red blood cells and their expulsion from the bone marrow into the circulation as mature non-respiring cells. Kandel and LeRoy (1938) treated two cases of polycythaemia vera with large doses of ascorbic acid without altering the red cell count or haemoglobin level.

Hawley *et al.* (1936) found that sodium bicarbonate raised the renal threshold for ascorbic acid and reduced the amount excreted. In an investigation of the ascorbic acid metabolism in two cases of polycythaemia (Deeny, 1940) it was found that a comparatively low level in the blood was accompanied by the excretion of appreciable amounts of ascorbic acid. On raising the threshold with sodium bicarbonate, large doses of ascorbic acid caused clinical improvement in the two subjects. Impressed with these results, we believe that this treatment might correct a defect in a function of the red blood cells occurring in polycythaemia. One of us (J. D.) observed its beneficial effect in cases in which cyanosis indicated difficulty in maintaining a sufficient supply of oxygen to the tissues—as in congenital heart disease. Clinical changes characterized by improvement in the cyanotic colour and alleviation of symptoms occurred, but the results were somewhat inconclusive and difficult to measure accurately. In a search for subjects in whom objective changes could be demonstrated two cyanosed brothers were discovered who proved to be suffering from familial idiopathic methaemoglobinaemia.

Case I

A clerk aged 29 had been a livid blue colour since birth. There was no history of previous occurrence of the condition in his family. One brother (Case II) was cyanosed. His father, mother, two other brothers, and a sister were healthy and normal. The father died recently from cardiac disease, and a brother from whooping-cough at 6 months. The present subject had had measles, whooping-cough, scarlet fever, and chicken-pox in youth, and lobar pneumonia two years ago. He was in the Royal Victoria Hospital, Belfast, for three weeks in 1933, under Dr. R. Marshall, for investigation, and as a result of spectroscopic blood examination a diagnosis of methaemoglobinaemia was established. No cause for the condition was found, and treatment with potassium permanganate enemata did not improve him.

When we first saw the patient he stated that he felt moderately well, but was very constipated, and breathless on exertion. He could not take strenuous exercise, and noticed that his condition became more pronounced in cold weather. He was keenly aware of his colour, and as a consequence had become rather "nervous." On examination the skin of the face—including the ears and neck—the hands, feet, mucous membranes, and to a lesser extent the trunk, were a deep bluish colour. In contrast to the cyanosis usually found, there was no underlying reddish tint. The skin of his face was coarse and thickened. He was of medium height and slight build, and was moderately nourished. His heart was normal in size and rhythm, and no valvular defects were observed. B.P. 140/90; R.B.C. 5,900,000; spleen not palpable. Haemoglobin estimations carried out with the Dare haemoglobinometer were not satisfactory owing to the abnormal pigment present. The chest was moderately developed, but expansion was poor. No abnormality was found on percussion or auscultation. Mild dyspnoea was noted on exertion. All deep and superficial reflexes, and co-ordination and sensation, were normal. The tongue was moist, with white fur on a blue background; the fauces were congested. The abdomen was normal. Urine examination did not reveal the presence of any reducing or other abnormal substances. An estimation of the oxygen-combining capacity of his blood was carried out by means of the Barcroft method, and was found to be 13.2 vols. per 100 c.cm. (normal, approximately 20 vols. per 100 c.cm.).

Treatment was begun on March 30, 1942. He was given 50 mg. of ascorbic acid night and morning by mouth on the first day, then 100 mg. similarly the next two days, followed by 150 mg. twice daily thereafter. Sodium bicarbonate (2 drachms) was given each day at noon. On the eighth day, when he had taken a total of 2 g. of ascorbic acid, a sudden and noticeable change occurred in his colour, and on the twelfth day his complexion became natural. Since then he has continued with 300 mg. of ascorbic acid and 1 drachm of sodium bicarbonate a day, and has remained normal in appearance. The ascorbic acid was given in graduated doses, as it was uncertain what might result from any possible rapid increase in available oxygen. In this respect the only significant feature was a sudden attack of vertigo on the third day of the treatment, which lasted for 30 minutes, but passed off without ill effect. After one month the oxygen-combining capacity of his blood was 22 vols. per 100 c.cm.

Case II

A shop assistant aged 19. The condition was possibly present at birth, though only to a slight extent; but it became much more pronounced at the age of 11 years. He is not so deeply cyanosed as Case I, is much more strongly built, is athletic, and plays hockey for the local team.

The dramatic change in Case I brought about by the treatment was of such interest that the two men were shown to Profs. H. Barcroft and D. C. Harrison of Queen's University, Belfast, and Profs. J. M. O'Connor, E. J. Conway, and F. Kane of University College, Dublin. As a result it was arranged that Profs. Barcroft and Harrison and Dr. James McMurray should carry out certain investigations during the course of our treatment of Case II. (Details of these investigations will be published elsewhere.) The following is a brief summary of their report:

The diagnosis of methaemoglobinaemia was confirmed by spectroscopic examination of the chocolate-coloured blood. This diluted blood showed an absorption band in the red waveband 632–634 mμ, which disappeared on adding ammonium sulphide. Sulphaemoglobin was absent. The methaemoglobin was intracorpuscular.

Case II was seen before treatment and about a dozen times after treatment began. The aim of each visit was the collection of data on the following: (1) The colour of the skin. Objective records were made by an experienced artist, who painted strips of canvas to match chosen spots on the head and hands. (2) Subjective symptoms. (3) The blood ascorbic acid by Deeny, Murdock, and Rogan's (1942) method. (4) The percentage of the total blood pigments in the form of methaemoglobin calculated from: (*a*) the oxygen-combining haemoglobin by Peters and van Slyke's (1932) gasometric method; (*b*) the total blood pigments by Rimington's (1942) method standardized with blood of known haemoglobin content (Peters and van Slyke's (1932) gasometric method). All determinations were done in duplicate. Some of the results were checked by an independent spectroscopic method. (5) The R.B.C. count. (6) The reticulocyte count.

Treatment began on the evening of May 4, 1942, with 100 mg. of ascorbic acid b.d.s., morning and evening, and 1 drachm of sodium bicarbonate at midday. On the evening of May 20 the dose of ascorbic acid was doubled. During the first month a striking change occurred in the patient's appearance. The slate or battleship blue of his lips and ears gradually disappeared, yielding to the normal reddish tones. The strips of canvas of the tint of the ear-tip, for instance, showed the gradual transition from blue-black to normal beyond any question. He felt great satisfaction that his appearance was now normal. Strenuous exercise was less exhausting.

The blood changes are summarized in the following table. The initial whole-blood ascorbic acid was 0.19 mg. per 100 c.cm. During treatment it rose eightfold in 3 weeks and became stabilized at a level of about 1.73 mg. per 100 c.cm.

Date	Blood Ascorbic Acid mg./100 c cm.	Total Blood Pigments g /100 c cm	% Hb as MetHb	R.B.C. millions/ c mm	Reticulocytes per cent.
4/5/42	0·19	16·9	43		
100 mg. vitamin C b d.s., and ʒi sodium bicarbonate given daily:					
7/5/42	0·29	17·7	40	5·8	
10/5/42	0·46	17·5	30	6·2	5·5
13/5/42	0·68	17·7	28		4·2
16/5/42	0·94	18·9	19	6·1	2·5
20/5/42	1·58	17·3	17	6·0	
200 mg. vitamin C b d s., and ʒi sodium bicarbonate given daily					
23/5/42	1·64	16·5	15		
28/5/42	1·75	16·7	12	5·2	0·5
4/6/42	1·73	14·4	6	5·3	<0·5
30/6/42	1·72	13·7	6	4·4	
13/1/43	1·52	14·75	9·5	5·2	0·25

During the first month, as might be expected from the disappearance of the cyanosis, the proportion of abnormal pigment fell sharply from 43% to 6%. After two months it was still 6% (0.8 g. methaemoglobin per 100 c.cm. of blood). The red cell and reticulocyte counts fell decidedly. This may have been due to the subsidence of a mild secondary polycythaemia stimulated by the diminished oxygen-carrying power of the blood.

The following observations were made on Case I on June 1, 1942, the 63rd day of treatment: blood ascorbic acid, 1.55 mg. per 100 c.cm.; 11% methaemoglobin (sulphaemoglobin absent); R.B.C., 5,080,000; reticulocytes, 0.5%.

Comment

These are the first cases of familial idiopathic methaemoglobinaemia described in Great Britain and Ireland. Abroad the disease has been definitely established in two families, and questionably in another two. Bensley, Rhea, and Mills (1938) reported cases in a brother and sister in Canada, who first became blue at the age of about 11. Their blood contained 5 to 10% of methaemoglobin. An interesting point was that the sister had eight normal children. Lian, Frumusan, and Sassier (1939) reported two brothers in France blue-black from birth with a 35 to 45% blood methaemoglobin, while three other brothers and one sister were alive and normal. A brothe and two sisters—said to have been blue—died young. Bot brothers had an increased red cell volume and a diminishe liver function, which may have been signs of other hereditar abnormalities.

Hitzenberger (1932) reported the case of a mentally defectiv dwarf, aged 23, a "schwerarbeiter," born blue; 40% of hi haemoglobin was in the aberrant form. There was a famil history of two mentally backward dwarf brothers, who ha died aged about 20, and who were said to have been blu The cause of death was unknown. Another probable familia case was that of van Thienen (1933)—a woman aged 33, bor blue, otherwise healthy. Her father was said to have bee blue, but this could not be verified. Isolated cases of wha was probably idiopathic methaemoglobinaemia have bee described by Miller (1930), Dieckmann (1932), van Lier (1933 and Leiner and Minibeck (1935).

Those suffering from the disease usually have little or n physical disability, and first seek treatment for some othe complaint. The blue colour usually dates from birth. Con genital heart disease is often suspected. Physical examinatio shows nothing abnormal in the cardio-pulmonary system. sample of blood is then taken for examination for abnorma blood pigments. The blood is a dark chocolate shade whic persists after it has been aerated. The spectroscope show methaemoglobin. Methaemoglobin may of course appear i the blood for other reasons. Bensley, Rhea, and Mills (1938 classify methaemoglobinaemia as toxic, haemolytic, entero genous, or idiopathic. The toxic form follows the excessiv use of acetanilide, antipyrine, phenacetin, etc. The abnorma pigment usually disappears 24 to 72 hours after discontinuin the drug. The haemolytic form may occur in infection b anaerobic bacteria, in eclampsia, in blackwater fever, etc. Th plasma contains methaemoglobin. Enterogenous methaemo globinaemia (intracorpuscular) occasionally accompanies sever diarrhoea.

At the time we began treatment of the two blue brother we were unaware of Lian, Frumusan, and Sassier's (1939) pape in which they describe the treatment of one of their cases wit 100 mg. of ascorbic acid intravenously, daily for three weeks They tried vitamin C because from the chemical relationshi of methaemoglobin to oxyhaemoglobin it seemed possible tha ascorbic acid might convert the former directly into the latte A free translation of their conclusions reads: "It is absolute certain that this therapy has been followed not only by complet disappearance of the functional symptoms (dyspnoea an headache), not only by sensation of well-being, of euphoria but by remarkable diminution in the abnormal colour. At th same time the proportion of the pathological pigment droppe from 45 to 26% of the total quantity of haemoglobin. . . An interruption of 10 days in the ascorbic acid treatme has been followed by a marked aggravation of the cyanos and a rise from 26 to 35% in the blood methaemoglobin. They have not recorded any further attempts to treat th condition.

We have now observed the effects of treatment on our tw subjects for a period of one year, and during that time both hav had improved health and normal complexions.

Summary

Two cases of familial idiopathic methaemoglobinaemia ar described.

This is the first time this very rare disease has been reporte in Great Britain and Ireland.

A permanent blue colour of the skin, usually dating fro birth, is sometimes the only symptom.

The findings of Lian, Frumusan, and Sassier (1939) tha administration of ascorbic acid diminished cyanosis and me haemoglobinaemia are confirmed.

In our cases the skin colour became normal a few weeks afte beginning daily doses of vitamin C and sodium bicarbonate b mouth. In one case methaemoglobin in the blood fell fro 43 to 6% at the end of the fourth week of treatment. Th change has been maintained in both cases for one year.

We wish to thank the Medical Research Council of Ireland fo assistance; Profs. Barcroft, Harrison, and their associates in Queen' University, Belfast, for the effort and labour which their participatio in this work entailed; and Profs. O'Connor, Conway, and Kane, University College, Dublin, Dr. James McMurray and Dr. Robert Marshall, Belfast, for their interest, advice, and help.

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A NEW METHOD OF GRAFTING

BY

P. GABARRO

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In order that the principles of the new method may be understood it will be useful first to give a short review of the usual types of skin graft. According to the thickness of the graft four types will here be considered: (1) the thin Ollier-Thiersch graft, which has been described—not quite accurately—as only epidermic; (2) the intermediate or split graft, which contains the whole epidermis and a portion of the dermis; (3) a thicker graft of about three-quarters of the skin, which leaves just enough epithelial elements from the sweat and sebaceous glands for the epithelization of the donor area; (4) the whole-thickness skin, or Wolfe, graft.

In the main, two considerations regulate the choice of graft: the thicker the graft the better the quality of the skin obtained; and the thinner the graft the easier it "takes." The area from which the graft is taken should epithelize in less than 15 days if the graft is thin. In thick grafts epithelization may be retarded, and subsequently some scar reaction may spoil the site for further use as a donor area. In the Wolfe graft there is a complete loss of skin, which must be replaced. It will be seen, therefore, that the donor area has its limitations. The kind of graft to be used depends, too, on the local condition of the area to be grafted and on the general condition of the patient, and is not an easy matter to decide upon. One of the chief problems arises when the area to be grafted is very big and the donor area is limited. When the donor area available is small, or the local and general condition of the patient is poor and none of the above-mentioned grafts is considered advisable, use is often made of small rounded grafts, of which there are two types: the thin or Reverdin graft, and the thick or deep graft devised by Davies and commonly called the "pinch" graft. Both are obtained by the same technique. The latter is the one generally adopted in England.

The Pinch Graft

It is necessary to review the pinch graft for the better understanding of this article. It is usually a small graft (3 to 5 mm. in diameter), rounded, deep, and containing all the layers of the skin. To obtain it a needle is used to pick up a cone of skin, which is cut at its base with a knife. The same needle carries the graft to the recipient area. Usually the pinch graft "takes" in raw areas in which no other graft will properly do so. This is why it is so useful. Moreover, it is easy to carry out. Many reasons are given to explain why the pinch graft takes so easily. In my opinion, the main reason is that the grafts are so placed that enough room is left between them to allow of free discharge, and nothing intervenes between the graft and the recipient area. This is an application of the well-known principle of general surgery that no infected area will heal unless there is ample room for the discharge to escape.

From this consideration there arises a conclusion that is one of the main supports of the new method of grafting: *any graft will take more easily, and in poor raw areas, if there is enough room for discharge inside the whole area grafted.* Certainly, then, pinch grafts have many advantages, yet they have several very important disadvantages.

Disadvantages of the Pinch Graft.—(*a*) The donor area of a pinch graft is practically always spoiled as a further donor area for other types of graft. Numerous small scars or keloids are very common. (*b*) A big donor area is necessary if the pinch grafts are placed very close together—sometimes as big as the area to be grafted. (*c*) It is necessary to employ a large number of them, which may prove to be a very long and tedious job. (*d*) Because, through the instruments, contact is established between donor and recipient areas—very often slightly infected—infection may develop in the donor area. (*e*) Usually the site covered by pinch grafts consists of the good skin of the original pinch grafts surrounded by an area of fairly good skin; the rest is more or less keloidal tissue, in many cases with all the disadvantages of scar tissue.

The Ideal Graft.—It seems to me that if the pinch grafts were placed so close together that the distance between them was less than the possible easy spread of the grafts (from 6 to 9 times the original size of the pinch graft), the likelihood of the formation of good skin and quick epithelization would be much greater. Only experience can confirm this. If I am correct in my assumption, therefore, the ideal graft for the type of case mentioned must conform to the following rules:

1. Plenty of room must be left between the grafts for possible discharge.
2. The donor area must not be spoilt, so that it could be used again and again.
3. The graft should take easily—as well as or better than any other graft.
4. The technique must be fairly rapid in use and the number of grafts unlimited.
5. Contact, direct or indirect, must be avoided between donor and recipient areas.
6. The space between the grafts must be less than the possible easy and early spread of the epithelium.

Technique of the New Method

A graft of the desired thickness and from one-sixth to one-ninth of the raw area to be covered is cut from the donor area. It is placed on stiff sticky paper (I have been using the greasy and sterile paper supplied with boxes of "tulle-gras") or any other material of similar qualities, and skin and paper are cut in strips as thin as convenient (Fig. 1). The strips are again placed on the same type of paper, at the distances desired,

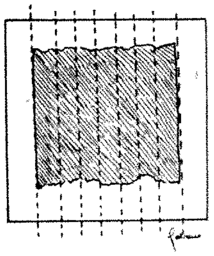

FIG. 1.—The graft, raw side up, is placed on sterile, stiff, sticky paper and cut into strips.

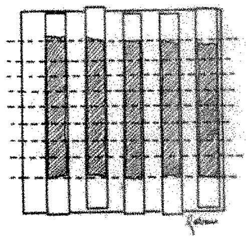

FIG. 2.—The strips, placed on another piece of paper, are cut horizontally.

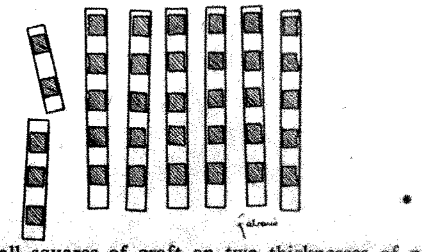

FIG. 3.—Small squares of graft on two thicknesses of paper (only one thickness shown here). The grafts, which retract somewhat, are ready to be placed in position, with the paper.

and the graft and the two thicknesses of paper are cut, but this time at right angles to the first series of strips (Fig. 2). The result is to obtain strips of paper with square grafts, well spread and evenly spaced (Fig. 3). The strips may, of course, be cut narrow or wide, and triangular or any shape desired. Ten cuts in one direction and ten in the other will give 100 grafts, which can be arranged in chessboard fashion, or in a square, a cross, or any desired shape. The chessboard pattern is easy to arrange and is very even in distribution.

Up to now we have employed this type of graft only when the usual graft has failed, when the condition of the raw area made it unsafe to use an ordinary graft, or when there was much limitation of the donor area. Some of the cases were clinically poor.

It is too early to draw final conclusions, but up to the present the results have been striking. The grafts took completely on the following types of raw areas: old burns with bad granulating tissue, after several entire failures of grafts and after recent infection; old lacerations at the heel, also after several failures; a burn five weeks old—one area all round the protruding stump of a humerus; a five-weeks-old laceration of the leg, with much sloughed tissue; 14-days granulation tissue, on recently cut parietal bone; the *bare bleeding bone* of the skull after removal of the necrosed outer wall.

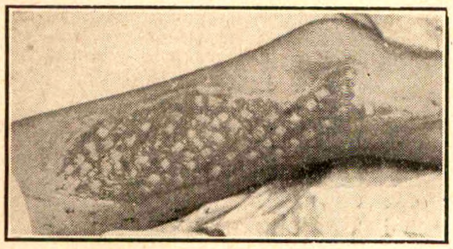

FIG. 4.—Seven days after the grafting operation.

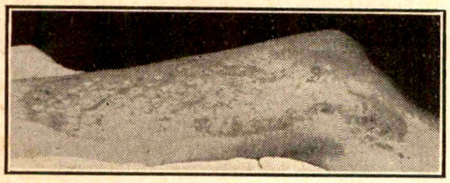

FIG. 5.—Seventeen days after the grafting operation.

The photographs here reproduced (Figs. 4 and 5) are taken from the following case. The main points of the case history are as follows:

Illustrative Case

An engine-driver aged 42 was pinned under a locomotive on Sept. 5, 1942, for 2½ hours while steam blew down upon him. His injuries were third-degree burns of the right arm and the inner aspect of both thighs. His condition on admission to hospital on Oct. 14 was as follows:

Right Arm.—Guillotine amputation had been performed elsewhere. The skin of the stump was retracted for 1½ in. and the humerus covered by fairly clean granulations. Outside the stump there was a granulating area of about 3 in. by 3 in.

Right Leg.—Granulating surface at the buttock, clean, about 7 in. by 4 in. Granulating surface with some adherent slough at the inner surface of the thigh, about 15 in. by 2 in.

Left Leg.—Granulating surface, clean, at the inner side of the thigh, about 12 in. by 4 in.

Oct. 21: Operation (Mr. P. Gabarro).—Local anaesthesia to the donor area; chessboard grafts on burnt areas. A Thiersch graft about 5 in. by 2 in. was cut from the inner side of the left arm with the Blair knife. Following the technique described this graft was divided into 160 square grafts and distributed to the above-mentioned areas. Dressing was carried out with tulle-gras, flavine-paraffin wool, and bandaging with some pressure. Time taken, 2½ hours. Each dressing took a long while.

Oct. 28.—First dressing. All grafts had taken on arm and both thighs; on the buttock only 30% (defect of fixation ?).

Oct. 30.—On arm and both thighs apparently no grafts were lost. They looked healthy, were spreading well, and in several parts had already united, bridging the gaps. On the left thigh there was almost a complete bridge across the whole area.

Nov. 5.—Right arm: All grafts were united, leaving only very small raw spots. Right thigh: Almost completely epithelized. Left thigh: The majority of the grafts were united by epithelium, and only very small raw areas were left.

Nov. 8.—Arm and both thighs completely healed.

Nov. 16.—The patient now up and walking inside the ward.

Nov. 18: Operation.—Local anaesthesia to the donor area. Gabarro's grafts to the buttock. A Thiersch graft was cut with the Blair knife *from the area which was used about a month previously.* The graft was divided into 24 squares and placed on the remaining raw area of the buttock, with some pressure by means of elastoplast. Time taken, half an hour.

Remarks

The time from the operation to the complete epithelization in three areas was 17 days. The first dressing was done on Oct. 28, the seventh day after the operation. The grafts had all taken, but there were still no signs of epithelium growing from the edges. Ten days later, on Nov. 7, the whole area was covered with epithelium.

The surface area of the graft was less than one-tenth of the grafted area, which means—astonishing though it may seem—that during 10 days the epithelium had grown at a daily average of 100% of the original graft. This is not so surprising when one considers that in the three areas in which complete success was obtained there were 120 grafts, each having 26 mm. of edges (6½ mm. × 4), making a total of 312 cm.—much more than 3 yards of growing epithelium edge. That was the position on the first day: once the grafts started to spread the growing area increased. In fact, we obtained in this case a culture of epithelium on the living body.

Conclusion

I think it has been shown that the six conditions which I consider essential for a good graft, in the type of cases mentioned, have been obtained, because in the above case: (1) there was plenty of room between the grafts for possible discharge; (2) the donor area was not spoiled, and was already in use again in less than a month; (3) the grafts took easily; (4) the procedure was fairly quick, considering that it was carried out under local anaesthesia and that the grafts amounted to 160; (5) there was no contact at all between donor and recipient areas; (6) the grafts were placed as close as the possibilities of their growth demanded: in 17 days the raw area was closed.

I wish to express my thanks to Prof. F. Wilkinson for his interest and encouragement; to Mr. A. W. Moule, the dental surgeon of the plastic unit, who was kind enough to take the photographs; and to the staff of the plastic unit, who by their enthusiasm, care in handling the patients, and patience made possible the results obtained.

TREATMENT OF THE FRACTURED GREAT TOE

BY

G. N. TAYLOR, M.B., M.Ch.

Fracture of the great toe is in itself of minor significance in traumatic work; it is, however, the commonest fracture in industry. In the past, many hours, days, and even weeks of disability have followed its occurrence. Its treatment—e.g., splints manufactured from spatulae, or collodion dressings—has been almost beneath the dignity of overworked casualty officers, and many cases are not even referred to the fracture clinic.

Under present conditions the great effort which is being made by both combatants and civilians often means less care in the handling of war weapons and other commodities, so that these articles frequently drop on the not too carefully placed feet, and thus the incidence of this fracture must be greatly increased. It was Mr. Griffiths (1935) of the Albert Dock Fracture Clinic who pointed out the lengthy off-work period that some of these cases demanded—the average duration of incapacity being 18 weeks—and under him a system of treatment has been evolved which reduces this period often to less than 10 days.

Method

The subungual haematoma which forms, more especially with fracture of the distal phalanx, is not large. However, owing to the firmness with which the nail is attached to its bed and the bed in turn attached to the periosteum of the phalanx, the tension developed is great and the pain sometimes excruciating. The nail has on occasion been avulsed in the treatment of such a case, a procedure which is little less than a crime. Such a sacrifice deprives the broken phalanx of an ideal splint and exposes a singularly tender area which will not permit of a return to work for some weeks. In order to save the nail and at the same time to relieve the tension and therefore the pain, it is a simple matter to trephine the nail: a little patience and a sharp operating knife are all that is required. The trephine opening need not be more than 2 mm. in diameter, and should be placed over the most prominent point of the haematoma. With this simple manœuvre the relief is dramatic as soon as the free blood is released. Vaselined ribbon gauze 3/4 in. wide is applied to the toe, and when the fracture is confined to the distal phalanx a plaster-of-Paris thimble enclosing the whole toe provides adequate immobilization. When, however, the proximal phalanx is fractured a plaster toe-splint is fashioned to enclose the sides and plantar surface of the toe; this extends along the medial surface of the foot to about the tubercle of the navicular bone and across the sole of the foot for about half its breadth. The splint is either bandaged or strapped in place. The vaselined gauze lubricates the inside of the plaster and allows an easy and painless removal of the splint. Failure to do this can result in the most tedious and painful task, especially when the blood has leaked under the plaster.

It was always our custom to admit these cases to hospital for 48 hours, with immediate elevation of the limb, and we found that the comfort in each and every case was great. It may be argued that admission to hospital is quite unnecessary. This may be so providing the patient goes home by ambulance and assumes a recumbent attitude with elevation of the limb. Owing to the comfort induced by plaster immobilization and the trephining, these instructions are not always carried out, and treatment in hospital, when space permits, we found more desirable.

The patient is allowed up on the third day, when, by borrowing a boot about two sizes larger than his own, he can accommodate a thimble; the stout leather sole, being unyielding, prevents movement of the toe. The larger plaster sole-splint cannot be accommodated inside an ordinary boot, but it can almost invariably be abandoned for the plaster thimble. The patient is encouraged to use heavy working boots, and by the eighth to the tenth day he may return to work. This date is, of course, variable; sometimes a fracture causes so little incapacity that a return to work on the following day is possible. On the other hand, severely comminuted fractures or grossly lacerated soft tissues will demand a longer incapacity period. This short period of immobilization will not cause any stiffness of the metatarso-phalangeal joint, mobility of which is so essential for comfortable walking.

As with compound injuries of fingers and thumb, conservation of tissue is the great aim. Such aim is no less applicable in the case of the great toe. Excision and débridement are carried out in the same manner as in other compound fractures. When the great toe is severely mutilated and amputation is deemed advisable, preservation of the metatarso-phalangeal joint must always be the goal. The importance of this joint is not always realized, and the simple operation of disarticulation is too often undertaken. Following this procedure, the late result of pain while walking forward on the tread, which entails pressure on the antero-inferior aspect of the metatarsal head, causes many weeks of disability. Where possible a small portion of the proximal phalanx should be left to maintain the integrity of this very important joint. It is almost unnecessary to state that the head of the first metatarsal must be preserved at all costs, because it, together with the remaining metatarsals and the os calcis, forms the tripod on which the weight of the body is borne.

Conclusion

To summarize, the points I wish to make are: (1) trephine and save the nail; (2) plaster-splint, with elevation, for 48 hours; (3) encourage use of a heavy boot during convalescence; (4) condemn disarticulation at the metatarso-phalangeal joint.

Again my thanks are due to Mr. H. Ernest Griffiths for his guidance and encouragement in this and many other matters relating to traumatic surgery.

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Medical Memoranda

Bilateral Fracture of the Patella

The following case of fracture of both patellae, treatment of which had an interesting sequel, may be thought worthy of record.

CASE HISTORY

Private A. was admitted to a general military hospital on Aug. 21, 1942, complaining of pain in both knees. At 2 a.m. he had been returning from a dance, travelling as a " passenger " on the crossbar of a bicycle. While descending a steep hill his " pilot " attempted to take a sharp right-hand bend at speed, but at the crucial moment the brakes failed and the bicycle crashed into a stone wall. Private A., by reason of his posture, took the brunt of the impact on his flexed knees.

I examined him at 9.30 a.m. I found a well-developed intelligent youth of some 18 years. He had several abrasions on the knees, both of which were much swollen. The legs were held in extension and any attempt at flexion of either caused severe pain. He volunteered the information that his legs " wouldn't hold him up " after the accident. Shock was entirely absent.

Operation.—Radiographs revealed fractures of both patellae; the right was grossly comminuted, and displacement was severe; the left was a " cruciate " fracture, and displacement was not marked. I decided to remove the right patella. Owing to the multiplicity of dirty abrasions great caution was exercised in preparing the skin, and operation was finally fixed for Aug. 27. Under general anaesthesia the fracture was approached through a midline vertical incision. On separating the fragments an enormous haematoma under pressure was evacuated. Loose fragments were removed and the upper and lower fragments dissected free from the quadriceps tendon. The free ends of the latter were then bunched together with mattress sutures of No. 3 catgut in the manner described by Watson-Jones (1941). The wound was closed and a compression bandage applied. Attention was then directed to the left knee, and it was found that the displacement was easily corrected by direct pressure against the femoral condyles. A mid-thigh plaster cast was applied.

Post-operative Measures.—During the immediate post-operative phase severe pain in the right knee required the frequent use of sedatives, and on the third day transient swelling of the right ankle necessitated slight relaxation of the compression bandage and elevation of the limb, with immediate benefit. The left limb was trouble-free. Stitches were removed on Sept. 5, the wound being soundly healed. Active exercises were begun cautiously on Sept. 7, and the following day the patient was allowed out of bed in a wheelchair. From this time onwards he showed excellent co-operation, and persisted tenaciously at his exercises. The plaster was removed from his left leg on Sept. 21 and he was allowed to bear weight. Radiographs taken on Sept. 28 showed firm union of the left patella in good position; the right knee was clear of fragments and there was no new bone formation. He was discharged on 14 days' convalescent leave.

End-result.—The patient was readmitted on Oct. 15 for a course of physiotherapy, and was finally discharged to duty on Dec. 2. I made a " follow-up " examination on March 19, 1943. He was then in excellent health and spirits. Examination of the right knee showed the wound firmly healed, with painless flexion up to 140 degrees. The left patella was firmly united; the articular surface was smooth, and flexion was possible up to 150 degrees. The patient then volunteered the interesting information that, although naturally left-footed, he now found the right knee not only stronger than the left but also stronger than it had ever been previously. He added that he had no trouble whatsoever with the right knee, but that he got occasional twinges of " rheumatism " in the left knee, especially in frosty weather or after prolonged marching. He referred this pain to the ligamentum patellae. Both quadriceps were equally redeveloped, but tests revealed that the right was undeniably now the more powerful. The efficacy of the " bunching " method of suturing the quadriceps tendon was strikingly demonstrated by the fact that the contours of both knees were indistinguishable.

I have to thank the Director of Medical Services and the Command Medical Officer, Southern Command, for permission to publish this case.

JOHN J. MURPHY, M.B., B.Ch.,
Captain, A M.S.
Cork, Eire.

REFERENCE

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Unusual Case of Obstruction by Worms

The following case may be considered interesting enough to merit publication.

CASE HISTORY

On March 4, about 1.30 a.m., I was called to a child aged 5 years who had become ill on the previous morning. She then complained of abdominal pain and vomiting. This got worse towards night, and she was sent to Nenagh General Hospital. Appendicitis was a suggested diagnosis. On examination the child was restless; her temperature was normal, pulse 100, and respirations 26. She had general abdominal discomfort, most marked about the umbilicus. There was no definite rigidity. Restlessness was the most pronounced feature.

She was operated on that morning about 10.30 o'clock, the anaesthetic used being open ether administered by Dr. Mary Ryan of Nenagh. When the patient was asleep a very distinct and rather large swelling could be felt in the lower abdomen and slightly to the right of the umbilicus. This felt like a possible intussusception. The abdomen was opened by a lateral incision over the appendix and the mass delivered through this opening. It consisted of small intestine, which was under very great tension for an extent of about nine or ten inches. It was bluish, and evidently the obstruction was due to a mass inside and not to an intussusception. The intestine had a rope-like feeling, and at one point what looked like the outline of a long worm was firmly compressed against its wall. I opened the intestine at this point and found that it was packed so tightly with worms that the loops of three or four at once bulged through the incision, which was only three-quarters of an inch long. I drew these out with a tissue forceps, and in a couple of minutes had removed 66 full-sized roundworms! This relieved the obstruction, and although it was now evident that there were other worms in the intestine I closed the incision by two layers of catgut sutures. The child was restless and ill that night, her temperature being 100° and her pulse 148. After that she made a complete and uninterrupted recovery, except for a slight cold which remained a few days. Her temperature was normal on the fourth day and did not again pass 99°. After a week she was given five 2-gr. santonin powders at two-day intervals, when she passed 13 further worms. The child returned to her home on April 2 in very good health.

COMMENT

Notwithstanding the large number of worms which are occasionally found in children, I feel that 79 must be extremely high. The comparatively good health which the child enjoyed before her acute attack is also, I think, rather remarkable in view of the severe symptoms frequently caused by the presence of two or three worms in a child of that age. I have to thank Dr. Ryan for an excellent anaesthetic.

Nenagh, Co. Tipperary. A. D. COURTNEY, M.B., B.Ch.

Macrocytic Anaemia following Partial Gastrectomy

Macrocytic hyperchromic anaemia is a rare sequel of operations involving removal of stomach tissue, and has been described as following total as well as partial gastrectomy (see Gordon-Taylor *et al.*, 1929; Rowlands and Simpson, 1932; Hartfall, 1934). Such operations are probably more often followed by a hypochromic "secondary" type of anaemia (Vaughan, 1932; Hartfall, 1934; Joll and Adler, 1942). As only about a score of well-authenticated cases of anaemia of the macrocytic hyperchromic type as a result of partial gastrectomy have been recorded we consider the subject to be of sufficient interest to publish details of a further example of the condition, which responded to injections of liver extract.

CASE RECORD

The patient, a woman aged 61, gave a history of having had an operation for perforated gastric ulcer 30 years before. She had had a partial gastrectomy performed 15 years ago, when three-quarters of the stomach was removed. A few months before admission to our hospital she complained of pallor and some oedema of her legs.

On examination she was pale, there were signs of chronic bronchitis, and the epigastrium was slightly tender. A blood count (Nov. 4, 1942) showed the presence of a macrocytic hyperchromic anaemia: Hb, 33%; R.B.C., 1,410,000; C.I., 1.2; mean cell diameter, 8.2 μ; mean corpuscular volume, 116 cubic μ; reticulocytes, under 1%; no increase in B.S.R.; W.B.C., 3,200—polymorphs 64%, lymphocytes 36%. As has been described in similar cases, the indirect van den Bergh was negative and the serum was not icteric. A fractional test meal showed achlorhydria, with presence of bile in all specimens. The stools did not contain occult blood. A sternal puncture carried out before the administration of liver showed a typical megaloblastic marrow: myelocytes, 15.75%; metamyelocytes, 2%; basophils, 0.25%; eosinophils, 2.5%; polymorphs, 5.25%; lymphocytes, 2.25%; plasma cells, 1.5%; proerythroblasts, 0.75%; early megaloblasts 13%, intermediate megaloblasts 40.5%, late megaloblasts 16.25% (total megaloblasts, 69.75%).

On the basis of the examination of the peripheral blood and the sternal marrow a diagnosis was made of macrocytic anaemia of pernicious type, following partial gastrectomy, and appropriate treatment with liver extract and iron was started. With this therapy the condition gradually improved, and on Feb. 10, 1943, the haemoglobin percentage was found to be 90 and the red cell count 4,900,000 per c.mm.

We wish to thank Dr. A. D. Rope for allowing us to publish details of this case.

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A. GRUNBERG, M.D.Vienna,
House-physician.

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Reviews

SURVIVORS FROM SHIPWRECK

Shipwreck-Survivors: A Medical Story. By Macdonald Critchley, M.D., F.R.C.P. (Pp. 119. 7s. 6d. London: J. and A. Churchill. 1943.

Our great seafaring tradition has been painfully built upon the sacrifices and sufferings of generations of our sailors, and at no time have the stresses of exposure and tribulation been borne with such consistency and to such an extent as to-day. Yet there has always been an unfortunate lack of medical interest in these problems, which we may hope Surgeon Capt. Macdonald Critchley will succeed in rectifying by his admirable little book. He attributes this neglect largely to the increasing rarity of accidents in peacetime, yet shows that although such disasters as the loss of the *Titanic* aroused enormous general interest they never held medical attention. Such neglect has become intolerable at the present time, and it behoves our profession to place its accumulated experience and physiological knowledge humbly at the disposal of the Royal and Merchant Navies in order that some of the elemental hardships may be prevented and others of them assuaged. In this spirit Critchley offers his own contribution. It is indeed a grim story he has to tell; surely never have the depths of human infamy and the heights of human courage and endurance been shown in sharper contrast. Nor is it the courage of ignorance, for many men have endured these trials not once but many times, yet have not faltered.

The author presents his material under the headings of the effects of cold, thirst, hunger, and tropical conditions. He then describes the state of the survivors at the time of rescue, and discusses the psychological aspects of their experiences. Finally he considers methods of mitigation of risks and treatment in general. He succeeds in painting a graphic picture in the small compass of 112 pages, aided by photographs of poignant interest. The longest recorded survival on a float is 3½ days, on a raft 48 days, and in a lifeboat 70 days, though lifeboat voyages of more than three weeks are exceptional. Indeed, if a lifeboat is not picked up within 24 hours there is still a 50% chance of being rescued within five days. Other conditions being equal, large persons stand immersion better than small, since they have a lower ratio of surface area to mass. The tendency of the exposed men to fall asleep in a flexed position should not be regarded or treated as a dangerous complication, for it is comparable to hibernation. When the body warms up after rescue severe pain is felt in the feet, which may not develop for several days, when it becomes persistent, reaching its acme during the second to the fourth weeks. It is worst at night and is increased by any pressure. Naturally, ulcers and gangrene may ensue. A table is given of the symptoms compared with those of trench foot and frost-bite, showing much more prolonged after-effects from "water-bite." Thirst is, after cold, the most distressing and dangerous hardship, and the disastrous results of trying to alleviate it by drinking sea-water are well known. Food is of very secondary importance, for adequate water supply is the dietetic factor which will determine survival; and the limited stowage space within life-saving contrivances could be more fruitfully devoted to water than to food would the layman but realize it. On physiological grounds there is a case for advocating fats, and especially carbohydrates, to the virtual exclusion of proteins. The severe cold of the North Atlantic may overwhelm a man in a comparatively short time, whereas in a hot climate a high morale will triumph over the greatest physical hardships. Anything up to two weeks in a boat is then borne well, despite minimal food and water. In the Tropics a 50% survival rate has been recorded after almost entire submersion for 32 days. Blistering, salt-water burns, and boils, and even gangrene, may occur, and the risk from carnivorous fishes is by no means negligible, though the dreaded shark is really less deadly than the "tiger fish."

On rescuing, the survivors will probably present a macabre picture wherein shock, cold- or heat-prostration, emaciation, dehydration, local tissue destruction, or focal infective lesions are conspicuous. Almost certainly a mental reaction will be present—whether of simple relief or excited elation—it may well be with a background of confusion, mild delirium, apathy, or simple depression. Surgeon Capt. Critchley has done good service in emphasizing what extremity the human body is capable of withstanding and impressing upon us anew our deep debt to our seamen.

GENERAL SURGERY, 1942

The 1942 Year Book of General Surgery Edited by Evarts A. Graham, M.D. (Pp. 848; 306 figures. 19s.) Chicago: The Year Book Publishers; London: H. K. Lewis and Co.

The yellow jacket of this yearbook reads like an examination paper of some 20 questions, but the answers to these can be found within. We are invited to test ourselves on "a 10 minutes quiz" consisting of such questions as, What is the one safe inhalation anaesthetic ("anaesthesia" is the word actually used) for patients with acute respiratory disease? and, Is there any hereditary factor in the development of ingrowing toe-nail? All this probably has some selling value, but to the discerning, and to those already familiar with this valuable perennial, is quite unnecessary. To our readers the value of the yearbook of surgery is too well known to need any such boosting.

Like its predecessors, the present volume sums up well the year's contributions to surgery, and contains condensations of many of the most important papers. In an introduction the well-known and distinguished editor reminds us that much of the surgical literature of the last year has been devoted to war wounds, and yet most of the articles reveal nothing essentially new. Since the last war, chemotherapy and the tannic acid treatment of burns are perhaps the two outstanding contributions to surgery, but there is still no general agreement as to what is the best local treatment for severe burns.

In a brief review such as this it is difficult to know what to choose as representative samples of its contents; but perhaps some idea of these will be gained by referring to one or two at random, such as the evaluation of the Miller-Abbott tube, the surgery of tumours of the pancreas, and the present position of the surgical treatment of hypertension. The busy surgeon will need this book to keep him in touch with recent developments.

UROLOGICAL PRACTICE

The 1942 Year Book of Urology. By Oswald S. Lowsley, M.D., F.A.C.S. (Pp. 456. 19s.) Chicago. The Year Book Publishers; London: H. K. Lewis and Co.

This book is a valuable companion and should be near to the hand of those who are anxious to keep pace with urological progress. No advance in urology worthy of mention is omitted. The *Year Book* is, in fact, a reference library, containing in condensed form not only the recent views of recognized authorities but also where and when these views have been published. "General Considerations" occupy the first 65 pages. Under this heading a variety of subjects are discussed, including injuries, infections, calculi, tumours, and anaesthesia. There is perhaps a tendency towards repetition of these discussions in the later pages devoted to specific organs. However, no change in the arrangement of the contents would be an improvement. Many useful hints are given under the various headings. For example, it is suggested that, whereas rupture of the bladder or urethra requires immediate operation, injuries to the kidney are as a rule better left alone. In order to avoid delay in the diagnosis of urinary lesions it is recommended that every patient, whatever the nature of the trauma, should be made to void or be catheterized as one of the first steps in the general examination. This is sound fundamental advice. Occasionally, however, catheterization is misleading. The reviewer catheterized a patient with multiple widespread injuries. The result appeared satisfactory. Later it was found at operation that the catheter on two occasions had passed through a rent in the bladder wall, and that fluid, including urine, was drawn from the peritoneal cavity.

The book contains much valuable information on the subject of sulphonamide therapy, and draws timely attention to the many dangers and complications which may arise from this therapy in treatment of infections of the urinary tract. Injuries and diseases of the kidney and ureter are discussed in full measure. There are useful reminders of the anomalies and malpositions which are such ready traps for the unwary diagnostician. In the final pages a good account is given of transurethral resections and of the surgery of the prostate and the genitalia.

War brings patients with multiple injuries. The patient with a fractured femur and lacerated lung may also have a ruptured bladder or urethra. He will still survive if handled with skill and judgment. The general surgeon at the front line—and nowadays the front line is everywhere—will strengthen his resources by having the *Year Book of Urology*, in company with a few similar volumes, close at hand. He will be familiar with most of the contents, but sometimes he will need mental refreshment, and after a long war service may wish to make quite sure that, from year to year, he has kept in pace with the times.

Notes on Books

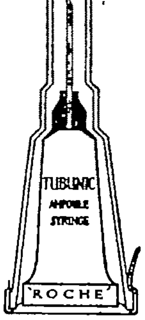
Dr. F. M. R. WALSHE's book *Diseases of the Nervous System Described for Practitioners and Students* is by now well known to many readers. A feature, noted in these columns when the book first appeared in 1940, is the avoidance of complex and technical terms so far as possible. As an introduction to clinical neurology it is written in simple and direct language which the least experienced in this branch of practice should be able to follow. In the accounts of the commoner nervous diseases, the degree of detail given varies according to the relative importance of each malady in the general practice of medicine. A third edition has now appeared (E. and S. Livingstone; 15s.). Dr. Walshe has thoroughly revised the text, and has introduced brief new sections on ocular movements and on the pituitary–hypothalamic complex, on infantile hemiplegia, and on sinus thrombosis; recent work on the aetiology of acute poliomyelitis is summarized. There are some new diagrams and reproductions of radiographs.

The "Practitioner" handbook entitled *Minor Medicine*, under the editorship of Sir Humphry Rolleston and Dr. Alan Moncrieff, is published by Eyre and Spottiswoode at 16s. Most of the twenty-four chapters have already appeared in the pages of the *Practitioner*, but in each case the author has revised his material for its reappearance in book form. Throughout these miscellaneous practical contributions to everyday medicine the point is made, directly or indirectly, that maladies commonly spoken of as "minor" may nevertheless play a major part in the discomfort of the individual; and the editorial preface enforces the maxim that the man rather than his malady should be treated, and that it is the peculiar province of general practitioners to observe and note the early human reactions to adverse factors and to act on the principle *obsta principiis*.

With reference to Dr. PERCY TURNER's *Tropical Medical Manual* noticed in this column on May 29 we are now informed by the Salvation Army International Headquarters that the price mentioned is only for missionaries, and is plus postage. The manual cannot be supplied to the general public, nor to bookshops for re-sale

Preparations and Appliances

AN AMPOULE SYRINGE



The "tubunic" ampoule syringe illustrated in this column has been evolved as a result of numerous conferences between Roche Products Ltd. (Welwyn Garden City, Herts) and advisers of the medical services. Since the first British "tubunic" syringe was introduced improvements have been effected in several directions, and the latest model is claimed to be an advance on all its predecessors. The figure gives a diagrammatic representation of the new safety outfit. This ampoule syringe is protected by a transparent plastic case which carries a collapsible tube with hypodermic needle in position, the entire apparatus being kept unsoiled by means of a basal cap. In emergency the cap can be removed instantly, the stylet used to pierce the container, and the released solution injected by compressing the tin container.

PROTEOLYSED LIVER (EVANS)

Evans Sons Lescher and Webb Ltd. announce that, in response to numerous inquiries regarding proteolysed liver (see *British Medical Journal*, May 29, 1943, p. 655), the preparation is not yet available commercially. Limited supplies are available, however, for *controlled* clinical trials, and requests for samples should be addressed to the medical director, the Evans Biological Institute, Runcorn, Cheshire.

BRITISH MEDICAL JOURNAL

LONDON

SATURDAY JUNE 12 1943

T.A.B. VACCINE VINDICATED

It is notoriously difficult to obtain conclusive evidence of the value of vaccination against enteric fever. In civilian populations the incidence of the disease and the proportion of vaccinated persons are both usually so small that evidence can be obtained only during an epidemic, and results of this nature are complicated by the possibility that infection may occur before or during immunization. Armies are our most fruitful source of information, but conclusions cannot be based on comparisons between different wars, in which the frequency of enteric fever was influenced by sanitary conditions as well as by the state of immunity of the soldier. A valid comparison can be made only between vaccinated and non-vaccinated men in the same army and under the same conditions. The presence of a small proportion of men in the British Army in France during the war of 1914-18 who had refused or otherwise escaped immunization provided this necessary control; the proportion was small, but the total number in so large an army fully adequate, especially in the early part of the war. The most striking figures refer to the incidence of typhoid fever in the year 1915, when the incidence was more than ten times greater in non-vaccinated men: there was comparatively little difference in the incidence of paratyphoid, and the vaccine used until then had contained typhoid bacilli only.

Since the last war much has been done to improve the immunizing power of T.A.B. vaccine, and the Royal Army Medical College has led the way in requiring that the cultures used shall be fully virulent as well as smooth. That such a vaccine has greater immunizing power can be proved by protection tests in mice, and strong presumptive evidence of its practical value was furnished by the very low and diminishing frequency of enteric fever in the Army in India. It is this vaccine which has hitherto been used in the Army during the present war—that is, a heat-killed and phenol-preserved vaccine made from virulent cultures. Whether the alcoholized vaccine advocated by Felix and shown by him to stimulate the formation of Vi as well as O agglutinin has a greater protective effect has yet to be proved in the field. Striking testimony to the value of the present R.A.M.C. vaccine comes in an account of enteric fever in the North African theatre of war by Colonel J. S. K. Boyd at page 719 of our present issue. This concerns prisoners' camps on both sides. In an enemy camp near Benghazi which at one time contained as many as 24,000—mainly British—prisoners, where the sanitary conditions were bad, and dysentery attacked a large proportion of the men, no cases of enteric fever were recognized, although the disease existed among enemy troops in the neighbourhood. The freedom of British prisoners from enteric fever occasioned surprise among Italian medical officers in Benghazi. Contrasted with this is the course of events in a British camp containing mainly Italian prisoners, also in large numbers. Here, in spite of sanitary precautions, cases of enteric fever occurred in considerable numbers, and continued to occur in spite of immunization with captured Italian T.A.B. vaccine. Only when the prisoners were later given R.A.M.C. vaccine did the incidence of the disease fall to a low level. Particularly interesting is the analysis of cases among prisoners taken at El Alamein: more than half of these attacks developed within ten days of capture, showing that the disease was active among the enemy at the time of the battle. Of the remainder a majority occurred so soon after vaccination that its full protective effect could not have been attained.

These observations are not all of a kind to withstand statistical analysis: some indeed are not strictly numerical at all, and the conditions under which they were obtained did not lend themselves to the collection of exact and unassailable data. Of their general significance there can nevertheless be no doubt, and there is neat and gratifying confirmation in the experimental comparison made between Italian and British vaccines. By mouse protection tests it was shown that, although the R.A.M.C. vaccine produced resistance to 10 m.l.d. of culture, neither of two brands of Italian vaccine saved the life of a single animal so infected. These results, both clinical and experimental, deserve the serious notice of all R.A.M.C. officers responsible for the inoculation state of their units. All inoculations in the Army are on a voluntary basis, and how efficiently they are carried out depends much on the zeal of the individual officer concerned, which in turn will depend in part on his own conviction of their usefulness and necessity. Colonel Boyd's paper affords an ample basis for that conviction, and T.A.B. vaccination should be regarded throughout the Army not as a tiresome formality but as a safeguard which may materially affect the success of an entire campaign.

PLANNING FOR MENTAL HEALTH

Amalgamation of voluntary associations is always a difficult matter, not from lack of good will but because of wide variations in their origins and constitutions. In the broad field of mental health the Central Association for Mental Welfare was formed in 1913 to undertake community care of defectives and to supplement the work of statutory authorities. This Association has enlarged its borders and is now the focus of those whose lack of social co-operation prevents them from realizing the full responsibilities of citizenship. The war of 1914-18 brought to the surface many forms of mental ill-health that had been buried during the period of shock and strain. With the object of preventing these disorders by education and propaganda a new voluntary association was created shortly after the war—the National Council for Mental Hygiene. This body has carried out important pioneer work in public education and in directing attention to the social and industrial background of mental illness. A third voluntary body, the Child Guidance Council, was formed later to develop the far-reaching discovery that many mental troubles and social maladjustments have their origin in early childhood. This Council received generous support from the Commonwealth Fund of America and was able from the start to develop clinics and to offer training facilities for both medical and social workers.

With all these extending and diversified branches of the work it was inevitable that overlapping, with its consequent waste of effort and money, should occur; to remedy this a bold scheme of amalgamation was undertaken by the leaders of the voluntary movement. Unfortunately, the present war cut short the scheme before it could be perfected, but in the meanwhile an Emergency Committee, with representatives from the Central Association of Mental Welfare, the National Council for Mental Hygiene, and the Child Guidance Council, was formed in 1939. This committee foresaw many of the problems created by the war and was ready to meet them, and the work it has done up to now has been invaluable. After the evacuation of children it set up local organizations to assist authorities in reception areas in dealing with "difficult" children. They also found special billets for nervously unstable cases and provided specially trained supervision for hostels in which difficult children were housed. Many authorities showed their appreciation of the work by appointing permanent officers to continue what had been begun as a voluntary contribution to the war effort. This has again been a successful demonstration of voluntary and statutory bodies working together for the common good. In connexion with the latest Government regional development of medical services the committee has arranged for regional representation in its own field which links up with existing mental health organizations. From all over the country the hospital authorities—Army, R.A.F., and E.M.S.—have increasingly sought help from the committee in after-care work for mental cases in the Services, and advice has been asked in connexion with very many civilians suffering mentally as a result of the war.

Emboldened by its successful career the Emergency Committee again considered the possibility, even in war-time, of closer co-operation and greater permanency, and a Provisional National Council for Mental Health has just been formed under the chairmanship of Sir Otto Niemeyer. This Council is to act as a single central body covering the whole mental health work of the three participating associations. It should accomplish much and prove to be a most important achievement in centralized control. News of its work will be recorded in *Mental Health*, the journal of the constituent bodies. The Mental After-Care Association, which was for many years the only organization of its kind, has announced through its chairman that it is in full sympathy with the ideals of the Provisional National Council.

EXPOSURE AND THIRST AT SEA

There are two most essential needs for the shipwrecked sailor exposed in boat or raft, and for the airman who has had to take to his dinghy: the first is a protective suit to prevent death from cold, and the second an adequate supply of water. As was stressed in the excellent M.R.C. "guide" for the shipwrecked,[1] food is a less pressing need, for with body warmth conserved and water enough to drink a man can keep alive without food for many days. Sir Leonard Hill pointed this out when he was asked by the Board of Trade some twenty years ago what food ought to be supplied in lifeboats and rafts fitted on passenger ships, and he and Dr. Argyll Campbell then carried out experiments on the East Coast with a one-piece dress designed for them by Sir Robert Davis. This was made of thin waterproof material and enclosed the whole clothed body; it lessened the body heat loss by one-half when the wearer was exposed to cold wind and the splashing of waves. In 1940 Sir Leonard Hill drew the attention of the Liverpool Association of Steamship Owners, and of the Ministry of Transport, to these experiments published in an M.R.C. report on the katathermometer, body heat and efficiency. For use in lifeboats and rafts it was determined at the Ministry of War Transport that a three-piece suit was more convenient, consisting of trousers, tunic, and hood, made of thin oilskin and of light weight. The whole dress folds up into the hood, and is carried, as a gas mask is, so as to be available on any emergency. The dress is coloured bright yellow and is thus easily seen from the air. In an admirable waterproofed book of advice provided by the Ministry for each lifeboat or raft full instructions are given as to the use of this dress and all other means of saving life. About a quarter of a million protective suits have now been issued to merchant seamen, and reports on their utility have been most striking. The dress protects the wearer from the tropical sun no less than from cold.

The Ministry of War Transport likewise recognized the need to provide as much fresh water as possible, and directions are given for catching and storing rain. The hood of the protective dress comes into use for this purpose. A simple form of still has recently been designed in which compressed briquettes or paraffin can be burned. Working 10 hours a day, such a still produces in 14 days 70 gallons of drinking-water from sea-water—about twice the amount carried in a lifeboat intended to hold 40 people, giving in all more than a pint and a half a day for each person. The still can also be used to provide hot drinks and for drying clothes. Briquettes can be stored in odd corners of the boat. In the U.S.A. another and most ingenious method has been devised for obtaining the necessary water, and that is the catching of fish, chewing the raw flesh, swallowing the juice, and discarding the solid not needed for food.[2] Salt sea-water cannot be drunk without danger to life, and the suggestion put forward that it can be injected into the lower bowel, and water safely absorbed from there, has been proved wrong. Animal life in the sea has, however, the power of forming a body fluid, without excess of sea-water salt, similar to human body fluid. With the help of a press, minced raw flesh of sea-fish yielded about 25% of its weight as juice. The carrying of a press is, however, not required, for the teeth in the mouth can do the work. Two sailors who volunteered for the trial lived for 10 days in full health on fish juice so obtained and the food rations supplied in a lifeboat. Now all the rubber dinghies for the Air Force, and the lifeboats and rafts of ships, are being supplied in the U.S.A. with fishing tackle; for bait pork rind is used which has been treated so that it will keep. Fish tend to gather under any shelter such as seaweed or a boat to escape the gulls, and big fish follow small ones, so there is every chance of good catches. With hooks, lines, leads, and bait are included a grapple and a small harpoon, which, attached to an oar, can be used for spearing birds, turtles, or sharks. There are provided also a dipper for catching small fish for bait, and a knife with a wooden handle which floats. The kit weighs only a few pounds and contains a small waterproof book of instructions. About 83,000 small kits have already been put in dinghies for aeroplanes, in rafts and boats; and of a larger kit about a quarter of a million are being prepared.

The introduction of the fish-juice method of obtaining water is due to Mr. Pinchett, a former Governor of Pennsylvania, and now 78 years old. A traveller used to living on the wild, he ascertained that Polynesian natives are in the habit of getting along without water for a good while by chewing raw fish flesh and swallowing the juice. He was able to secure the attention of the Naval Bureau and get the method tried out and taken up. No doubt our own Ministry of War Transport, Admiralty, and Air Ministry will follow the example of the U.S.A. and provide fishing tackle for lifeboats and rafts, which will occupy the interest of the shipwrecked while awaiting rescue, as well as providing fish juice for preserving their life.

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[1] See *British Medical Journal*, 1943, 1, 167, 168.

[2] *Reader's Digest*, May, 1943.

YOUTH REGISTRATION AND HOURS OF WORK

By Order under the Defence Regulations, all young persons aged 16 or 17 were registered in 1942 with the object of enabling local education authorities to make contact with them and to encourage them to find the best way of fitting themselves to do their duty as citizens and of assisting the national effort. A recent report,[1] presented to Parliament by the President of the Board of Education and the Secretary of State for Scotland, affords a brief but interesting summary of the main results of the inquiry. Altogether 1,442,361 boys and girls were registered in England and Wales, and about 800,000 of them were invited to an interview, of whom 610,600 attended. (Corresponding figures were obtained in Scotland.) The local education authorities set up small panels composed of two or three men or women who met on one or two evenings a week for several months for the purpose of the interviews, and as a rule about three-fourths of the young people were advised to join one or other of the youth organizations in the locality. Probably about half of them accepted the advice, the favourite choices of the boys being the A.T.C., Sea Cadets, Army Cadets, Home Guard, and Youth Clubs; and of the girls, Girls' Training Corps, First Aid Units, and Youth Clubs. Of those who did not respond to the advice, a number said that they were too tired owing to long hours of work, coupled as they often were with the fatigue of long times spent in daily travel. Quotations are recorded from the statements made by various interviewing panels of the strain upon young people from the excessive work so many were undertaking. On the farming side, for instance, the hours worked usually equalled, or exceeded, the longest demanded by the industry, owing to the shortage of labour. Extraordinarily long hours were recorded by some boys and girls who were doing two jobs, such as factory work by day and service in fish-and-chip shops or cinemas in the evenings. Physical tiredness was more evident with the girls than the boys, the more alarming symptom being that of mental lassitude. A considerable body of the evidence indicating the strain of long hours was published in the summer of 1942, and probably this had a substantial restraining influence on those in authority, for a report made by the Ministry of Labour showed that in January, 1943, very long hours in factories were comparatively rare. Ten sample areas were investigated, and it appeared that about half of all the youths and girls were working 48 hours or less a week, whilst a quarter were working over 52 hours and 5% over 55 hours. No recent evidence was adduced by the committee about the hours worked in shops, but it is to be remembered that on occasions of seasonal pressure the young people may be asked to work for 60 hours a week. In factories and in employments covered by the Young Persons (Employment) Act, 1938, they are ordinarily limited to a maximum of 54 hours a week, but the Minister of Labour has power in wartime to make Orders which have the effect of modifying the peacetime provisions so far as may seem expedient in the national interest.

The evidence obtained by the interviews has stimulated the Government to make definite proposals for improving wartime conditions, and it has decided "to review immediately . . . all cases of wartime relaxations of hours of employment with the object of providing that (*a*) young persons of 16 and 17 years shall not be employed for more than 48 hours in any week except where the hours allowed were necessitated by the particular circumstances; and, similarly, (*b*) that young persons of 14 and 15 years shall not be employed for more than 44 hours a week." Other proposals relate to canteens, the question of double employment, and other factors designed to improve working conditions. We must be thankful that the Government has at last arrived at its decisions, though we cannot forget the long delay.

TYPHOID FEVER DUE TO INFECTED CHEESE

The question is sometimes asked whether butter and cheese are not as often responsible as raw milk for human cases of tuberculosis due to the bovine type of bacillus. The survival of tubercle bacilli in these products depends mainly on three factors: how heavily the original milk is infected, whether raw or pasteurized milk or cream is used for manufacture, and how long after preparation the articles are stored before they are eaten. Numerous observations made by the early bacteriologists showed that tubercle bacilli died out gradually in both butter and cheese, owing presumably to the effect of acidity. The length of time during which they could be demonstrated varied from a few days to several months, depending to some extent on the degree of the original infection. As a rule, however, they were all dead within two months. It follows, therefore, that neither butter nor cheese which has been stored at the usual temperatures is likely to cause human infection unless eaten fairly soon after manufacture. On the other hand, farm butter and soft cheeses, which are often consumed within a few days of production, are both potentially dangerous. In this country before the war over 80% of the butter was imported, and almost without exception imported butter was made from pasteurized cream. Of the butter manufactured in this country, the greater part was made in factories from pasteurized cream, and only a very small proportion on farms from raw cream. The consumption of soft cheese was trivial compared with that of the hard cheeses. It could therefore be stated with some assurance that the risk of contracting tuberculosis from butter or cheese was almost negligible compared with that from raw milk or cream. The war, however, has brought about a change. Considerably less butter is consumed, and the manufacture of farm butter for sale has practically ceased. Butter is therefore even less liable than before to be infective. With cheese the position is more complex. Cheddar cheese used to be ripened for 5 to 9 months or so. Two types of Cheshire cheese were sold—one a quick-ripening variety marketed between 14 and 28 days after manufacture, the other a long-keeping variety marketed between 3 and 5 months after manufacture. Now the ripening period has been controlled and, on the whole, shortened. Small quantities of Cheddar cheese may be marketed within 3 months, and practically all Cheshire cheese within 1 to 3 months. Against this consumption of less fully ripened cheese must be set the closure of several of the smaller cheese-making units which were using raw milk, resulting in an increased proportion of cheese coming from the larger units, which usually pasteurize their milk. In addition, cheese is reaching this country from the United States which has been stored there in a refrigerator for some weeks or months, and is put on to the English market within a month or two of its arrival. The rate of death of tubercle bacilli in refrigerated cheese is not known with certainty, but it is almost sure to be less than in cheese ripened at the usual temperatures.

The danger of eating unripened cheese is exemplified by a recent epidemic of typhoid fever in Manitoba.[1] Dr. M. Bowman, who was responsible for its investigation, says that there were three separate outbreaks affecting three different places, between the end of December, 1939, and the end of March, 1940. Altogether about 100 persons contracted the disease. The only common foodstuff was cheese prepared at a given factory. Examination of the personnel on all the farms supplying milk to the factory revealed the existence of a persistent carrier of typhoid bacilli who had lately come to the district and had started to ship milk about a month before the onset of the first case. He continued to do so till he was stopped at the beginning of April. Infection of the cheese may also have occurred from the first assistant cheese-maker, who developed typhoid fever in the middle of January. Inquiry into the mode of preparation of the cheese showed that it was allowed to dry for 7 or 8 days, then waxed and shipped to the wholesaler about the tenth day. The cheese was given no proper period of ripening, and may well have reached the consumer within 2 to 3 weeks of its manufacture—a time too short to ensure the destruction of even the typhoid bacillus. The remedy proposed by Dr. Bowman to combat such a risk in future is to supervise milk for cheese-making as rigidly as that intended for consumption in the liquid state, and to insist either on pasteurization of the milk before it enters the cheese vat or on adequate ripening of the cheese before it is sold.

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[1] *Youth Registration in 1942.* H M Stationery Office. Cmd 6446. 1943. (6d.)

[1] *Canad. publ. Hlth. J*, 1942, **33**, 541.

A BIRTHDAY IN MEDICAL JOURNALISM

With its June issue our contemporary the *Practitioner* completes its seventy-fifth year. Journals, unlike individuals, do not grow old as the result of the mere passage of time, but an existence of three-quarters of a century excuses one privilege of age—that of looking backwards. The history of the *Practitioner* is remarkable for its succession of editors. With the exception of the first editor and founder, F. E. Anstie, who died nearly seventy years ago, just after he had become first dean of the London School of Medicine for Women, all the editors have been men whose names are familiar to the present generation of medicine. Sir Lauder Brunton, the author of a famous textbook on pharmacology and therapeutics, succeeded Anstie in the editorship in 1874. After a few years he was joined by Sir Donald MacAlister, afterwards president of the General Medical Council. A third editor was added a few years later in John Mitchell Bruce, and this distinguished triumvirate was in editorial control for eleven years. Then, with a change of ownership, the direction passed to Sir Malcolm Morris, the well-known dermatologist, and after him to W. C. Bosanquet, a classical scholar and philosopher as well as a physician. He reigned until 1904, after which, for a number of years, the names of the responsible editors did not appear upon the title pages of the volumes. In 1924, for two years, Sir Arbuthnot Lane was controlling editor, and from this time, over a period of eleven years, Mr. R. Scott Stevenson was actively associated with the editorship. In 1928 Sir Humphry Rolleston (who has written an interesting introduction to the birthday issue) became editor, and with him, since 1934, Dr. Alan Moncrieff has been joint editor. The original subtitle of the *Practitioner* was "A Monthly Journal of Therapeutics." It was regarded from the first as a special medium for information about remedies; its monthly articles upon the treatment of disease and its epitome of articles upon this subject in foreign journals were highly valued at the time when it was realized that, in the words of Sir Thomas Watson, then President of the Royal College of Surgeons, "we want to know distinctly what is the action of drugs, and of other outward influences, upon the bodily organs and functions." The first number contained an article by Dr. (afterwards Sir) J. Russell Reynolds on the therapeutic use of bromide of potassium, which at that time, after having been a fashionable remedy, had, in the manner of fashionable remedies, come under a cloud. In the first volume there is an article by Sir Benjamin Ward Richardson on blood-letting as a point of scientific practice. Sir Clifford Allbutt appears in the second volume, writing on the subcutaneous injection of morphia. Several articles in the early volumes are by E. A. Parkes on the effects of alcohol. The index of the 150 volumes is a short history of therapeutics. We congratulate the joint editors not merely on having reached an interesting date but on a consistent record of high achievement. To have published 900 consecutive monthly issues of such high quality and practical usefulness is legitimate ground for satisfaction.

THEOPHYLLINE FOR ASTHMA

The chronic asthmatic has to be his own doctor, at least to the extent of being able to administer his own adrenaline. Even the most formidable attack may be averted by early treatment, and the asthmatic becomes by constant practice the best judge of his own condition. Among methods of administration, inhalation of 1 in 100 adrenaline from a fine spray has proved useful in aborting early attacks in individual cases; and the intramuscular injection of adrenaline in oil leading to a prolonged liberation of the active constituent has sometimes been effective. But when a patient has struggled on with his occupation in the face of increasing dyspnoea, and has delayed effective measures until too late, adrenaline may lose its efficacy and 10 to 50 times the normal dose prove necessary, spread out over a number of hours. The time involved is a serious matter, for the patient should be under constant supervision.

Most asthmatics know by experience that hot coffee is an excellent palliative in the early stages of an attack, and as long ago as 1912 Pal showed that caffeine would reduce the bronchial spasm induced in guinea-pigs by peptone. It was subsequently found that caffeine also stimulates the medullary centres. Recently other purine derivatives have been used in the treatment of bronchial asthma, and theophylline seems the most efficient. In 1931 Hermann and Aynesworth successfully treated a refractory asthmatic with theophylline injected intravenously, and since then many other authors have had similar success. Thus Carr[1] has treated 22 patients with status asthmaticus who were received as acute emergencies and who did not respond satisfactorily to adrenaline. In half of the cases 0.48 g. theophylline in 2 c.cm., given intravenously over 2 minutes, brought immediate relief. In the remainder the effect was evident within half an hour and lasted for a variable time, from one hour upwards. In 5 cases out of the 22 there was no recurrence: that is to say, a single injection had effected an immediate cure. In about one-third of the cases there were undesirable toxic reactions, such as dizziness, nausea, vomiting, "pounding of the head," or pain in the chest; these were transient and unaccompanied by gross cardiovascular changes. No fatalities have been recorded, either here or elsewhere in the literature, with this dosage. These results are most encouraging, though the exact mode of action of the theophylline is still under dispute. It has been suggested that it restores the sensitivity of the tissues to adrenaline in some unexplained way. It seems more probable that by a direct action on the bronchi and upon the medulla it breaks the vicious circle for a sufficient length of time for the patient to recuperate. While it is at present advisable to restrict the use of theophylline to the refractory cases until further experience has accumulated, it may well be that in the future it will prove to have a still more extended use.

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[1] *J. Lab. clin. Med.*, 1940, **25**, 1295.

FUTURE OF MEDICAL SERVICES

ADDRESS BY Dr. CHARLES HILL

A discussion meeting under the auspices of the Catholic Organization known as "The Sword of the Spirit" was held at Essex Hall, London, on June 5 to discuss the future of medical services in the light of Assumption B of the Beveridge report. The chair was taken by the Bishop of Lamus (Rt. Rev. Edward Myers).

Dr. CHARLES HILL, Deputy Secretary of the British Medical Association, who was the principal speaker, said that the Government, in the debate in February last, had accepted Assumption B and had elaborated it in two ways—one that the service should be administered by a Government Department, and the other that its local administration should be through major health authorities grouped for the purpose. The Government had then started non-committal consultations with various interested groups—local authorities, hospitals, and the medical profession—and had pledged itself that when it had made up its mind in a tentative way it would publish its provisional conclusions in a White Paper which would be submitted to the interested groups and to the public.

In these non-committal conversations, conducted in parallel with the different groups, no secret was made of the desire, powerful in the bureaucratic mind, to establish a whole-time State salaried service administered centrally by a Government Department and locally by grouped local authorities. One fundamental issue which must be resolved by the public was whether such a general development was in the public interest. Was it in the public interest that what was now a comparatively independent profession should be translated into a branch of local government service?

The Doctor–Patient Relationship

One consideration, said Dr. Hill, seemed to him to be paramount—namely, that the relationship essential between doctor and patient was a single relationship in which the doctor's loyalty was to his patient and not to any third party, certainly not to the State. But free choice of doctor, resulting in unequal demands upon different doctors according to their attractiveness to their patients, could not continue in a whole-time State service. Free choice, with a single contractual relationship, was essential. The medical profession had no reason to be ashamed of the quantity or quality of the service that had been rendered to the community under this arrangement in the past and present. Unless free choice of doctor was carried over into the new administrative set-up the change would be for the worse and not for the better.

But there were other considerations. Medicine should be divorced as far as possible from party political affairs. With the State not only the provider of medical and allied facilities but the master and employer of the hitherto independent profession which rendered the service, there would be greater danger of political interference with medicine. Take the central administration. They did not want a Minister whose claim to political favour would lay in the brilliance of the gloss he could put on his report of the country's "stubborn good health." When he read such statements he sometimes for the moment forgot that the Minister was not himself responsible for such a result, and that it was due to the spirit of the people, to say nothing of the service of doctors and nurses! But that sort of thing gave an inkling of what awaited them when the State became the universal employer.

As for local government, there were many men and women who gave fine and disinterested service in that field, but it must not be pretended that local government was satisfactory in all places. There were all too many examples of local government as a party theatre, with political considerations and local prejudices intervening, and there was no guarantee that the calibre of members of local authorities was of a kind capable of the management of personal health services. Yet in the Ministerial mind to-day there was an assumption that the centre-cum-local health authority set-up, because of democratic election, was suitable for such administration. In his view the tendency to increase the number of people whose interests were associated with the State and to decrease the number who could bring to bear an independent view upon the activities of the State would threaten to disintegrate the best democracy.

Promotion for the Doctor

Dr. Hill confessed his belief that the best service was forthcoming with free choice and a system which rewarded those who rendered medical service in proportion to the services they rendered. This might be unacceptable doctrine to many, but with most the reward motive played an important part in their life and work. The man whose promotion lay with officials and committees tended insensibly to groom himself to catch their favour. He knew that it was said that the patient was incompetent to judge the technical value of the doctor's services, and that he might be influenced rather by sartorial than by scientific achievement. But the person who received care and treatment at the doctor's hands was better able to decide its value than the superior officer who made his judgment in the sterile atmosphere of the town hall. The bulk of the conditions which brought people to a doctor were not susceptible to the exact appraisement of the stethoscope or ophthalmoscope; they were due to poverty or frustration, to difficulties at work or at home, in fact to the social set-up, and only the doctor who looked upon the patient as a living unit in the community and dealt with him in a spirit of complete confidence could render him the necessary service.

What Might be Done

For twenty years or more the medical profession had been pleading for an extension of existing services, for bringing dependants into national health insurance, and for enlarging the scope of its benefits, but the appeal had fallen on deaf ears. There was need for the recasting of administration at the centre. The Ministry of Health was weighed down with non-health functions, and other health functions were distributed among half a dozen or more Government Departments; but there was no proposal on the Government side for comprehensiveness at the centre. What was wanted was a genuine central health department, with the Minister responsible to Parliament for the health services as a whole. Some new machinery was needed which would enable the administrator to combine with the doctor actually on the job. He believed that a corporate body such as the Unemployment Assistance Board or the War Damage Commission had much to recommend it. Into such a body not only administrators but men and women engaged in the actual job of medical work might be brought.

At the periphery there should be a recasting of the form and composition of local government bodies and of the areas over which they exercised authority. Under the Ministry's proposal the large authorities would group themselves to appoint representatives to a joint committee, but urban and rural district councils and borough councils would still be left with their environmental health functions, education committees would still be responsible for the school medical service, and mental hospital services—until the Minister changed his mind—were to have been left outside. The recasting of local government areas should have relation to areas convenient for hospital and medical services, and there should be on those bodies ample representatives of the people and voluntary bodies who actually did the job. This would take time—but it should come first.

He went on to speak of the voluntary hospitals, which, he said, were to receive some Beveridge and Treasury money but were to receive it through the grouped local authorities—that was to say, the proprietors of the municipal hospital system. That would lead to domination by the latter system, and it was not domination but partnership that was wanted. He deprecated leaving with any local authority the decision as to the bankruptcy or solvency of a voluntary hospital.

Removal of Barriers

"All that can be done at any one moment is to remove the economic barriers between the community and the services which exist. Beveridge does not increase the services, the Government in the House of Commons debate did not increase the services, the Ministry in its confidential discussions with us is not increasing the services. The removal of barriers, which is the immediate thing that can be done, could be immediately brought about by a two-way extension of existing national health insurance. I want to see an exhaustive independent inquiry into the administrative structure *before* a revolution is introduced into the methods of general and specialist practice."

Take the health centre, for example. To some people it appeared as a modern innovation, but in fact group medicine had made the voluntary hospitals what they were. The profession, he thought, wanted to see health centres tried out. It was not certain that in fact it would turn out to be an advantage to convert general medical practice into centre practice. Possibly there might be epidemiological disadvantages in the assembly in one building of a large collection of waiting patients. It was not settled whether the opinion of the profession was in favour of consultant and specialist diagnostic centres or communal surgeries, and it seemed fantastic to throw the organization of the profession upon a health-centre basis until at least one or two experimental centres had been tried out. During this period while the local government organization was being re-examined the support of the medical profession should be enlisted in trying out these centres and the methods of running them in different areas. There should be administrative as well as clinical experiment.

"We are ready," Dr. Hill said in conclusion, "to make available the existing facilities to all those who need them, and to extend those facilities. But we are not ready—and this is not the time to contemplate it—for a form of recasting in which the freedom of the profession would be exchanged for a form of civil or local government service. Quite frankly I do not think it is the time, when the most virile section of our community are away, to do anything more than remove any barriers which exist between the people and the existing services. It is not the time to develop a 'Socialist' cell within a 'Capitalist' organism. All I ask in the public interest is that the profession, which has done such good work on a basis of freedom, should not be converted into an ant-heap of organized mediocrity."

Discussion

The discussion was continued by Dr. E. E. LARKIN, who, as the occupant of a salaried post and also as a private practitioner, was able to speak of the advantages and drawbacks of both forms of employment. He distrusted bureaucratic interference with the work of doctors and gave some instances of the way in which the official mind tended to lose sight of human needs.

Dr. LETITIA FAIRFIELD said that a point which was sometimes overlooked was that from the patient's point of view a great deal of organization and planning was needed in order that the benefits of modern science might be brought to the community. Medical services had become so elaborate that the very wisest organization and distribution would not be possible if people were left to pay for medical services for themselves and their dependants. There was a great part of modern medicine which was much better done by whole-time officers than by part-time or by private individuals, but that was quite a different thing from taking into whole-time service an entire section of medicine which called for a different attitude on the part of doctor and patient. Here it seemed to her a question of further experiment by testing out the extension of the national health insurance system, and leaving practitioners with a certain independence even though part of their income was forthcoming from the State.

Among several other speakers in the discussion were Dr. MICHAEL SMYTH and Dr. H. B. MORGAN, M.P. The latter described the speeches from the platform as "High Toryism."

Dr. HILL, in reply, repeated that in his view there was room for change and for great improvement in the organization of medical practice, but the present was not the time, with the State encroachments on civil liberty which were necessary for war, to plan theoretical organization for the future. Rather was it a time to remove barriers which lent themselves to effectual removal without disturbance of the entire structure, and to encourage co-operation and partnership.

Nova et Vetera

A GUNSHOT WOUND IN 1814

Mr. W. S. EDMOND, F.R.C.S., of Shrewsbury writes:

At the Battle of the Nive, towards the end of the Peninsular War, Lieut.-Col. Tulloh, C.B., Royal Artillery, was severely wounded. The following account of his treatment, furnished to the Officer Commanding Royal Artillery under the Duke of Wellington, has recently been found among the papers now in the possession of the Royal Artillery Institution, and may, it is thought, be of some interest. Col. Tulloh's wound compelled him to leave the Army, for which he subsequently received a pension of £300 per annum.

Copy of the Staff Surgeon's Report

Toulouse 23rd May 1814.

I certify to have attended Lt.-Colonel Tulloh Royal Artillery from the 13th Dec. 1813 to the 25th March 1814 for a very severe gun shot wound received by him on the 13th Dec. 1813 in an action with the enemy near Bayonne.

The Ball entered the outer edge of the belly of the gastronamie muscles of the right leg, passed through the Tibia near to its head, where the texture is still spongy, & splintered it downwards without actually fracturing the bone, and was cut out on the inside of the shin. Some pieces of bone & gold lace came out with the ball, and he lost a good deal of blood.

For the first five days the local inflammation ran exceedingly high, & could only be kept down by the constant pouring of cold vinegar & water upon the parts; meanwhile that the orifices of the wound were covered with wax cloths to prevent their being irritated. The inflammatory diathesis excited in the general system was not strong, and only required the frequent use of cooling purgatives, salines, & other refrigerants.

On the 5th day the pain & irritation from the tension of the parts were great, but the strong action of the vesicles was beginning to subside & the wound began to suppurate—the cold applications were then changed for Fomentations, and poultices with great advantage & relief, which were continued for a long time to relax the parts in order to promote free discharge & loosen the splinters of bone & bring away extraneous substances which still remained in the wound.

From the *great* injury done to the bone in the first instance and the quantity of extraneous bodies as cloth, lace, and detached pieces of bone which were long retained in the wound by their getting entangled on the spiculated surface of the wounded Tibia & was a source of continual irritation; a high degree of inflammation took place, and extended itself along the front of the bone nearly as far as the ankle—various abscesses & sinusses formed—profuse & unhealthy suppuration ensued—the pain was *excruciating*, & the strong symptomatic irritative Fever which attended, reduced him to the *lowest state*.

For this the orifices of the wound were deeply and extensively dilated & various incisions made to prevent the extension of the matter by giving it a free outlet; the fomentations were continued—the bowels were kept regular by gentle warm aperients & glysters—the air of the chamber was kept fresh cool & *equitable*—his diet consisted of the most light & nourishing food—he was allowed porter & a certain quantity of wine so as not to heat him—and he took a mixture of Decoction of Columba, compound ʒss of Bark acidulated with sulphuric acid. and Laudanum in *large* doses at night.

By these means and as careful attendance as could be given him he recovered from this very dangerous state, & when I left him his general health was considerably improved—the extraneous bodies seemed to have all come away from the wound in the course of the ball excepting some small pieces of bone that remained yet firmly attached—but no Callus was thrown out to fill up the vacuity in the bone—and an extensive exfoliation was going on from the anterior part of the tibia which threatened to be a very tedious process, & to accelerate it he had begun to use the waters of the hot sulphureous spring at Cambo in the mode of topical bath, which seemed to be of some service.

He had the use of the knee joint, & could move the leg when in a horizontal position in bed, but had no other use of it, and it seemed doubtful whether he would ever recover the perfect use & former strength of the leg.

(Signed) JOHN MURRAY
Staff Surgeon.

More than a million dollars has been raised by the Canadian Aid to Russia Fund to provide medical and other supplies for Russian civilians.

BIRTHDAY MEDICAL HONOURS

The names of the following members of the medical profession were included in a Birthday Honours List published in *Supplements* to the *London Gazette* on June 2 and 4:

Baronetcy

Sir John Fraser, K.C.V.O., *M.C.*, M.D., Ch.M., F.R.C.S.Ed., Regius Professor of Clinical Surgery, Edinburgh University. Honorary Surgeon in Scotland to the King.

K.C.B. (Military Division)

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Knighthood

Herbert Lightfoot Eason, C.B., C.M.G., M.D., M.S., F.R.C.S. President, General Medical Council.

John Hutson, O.B.E., V.D., M.B., C.M., D.P.H. For public services in Barbados.

C.B. (Military Division)

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Alister Argyll Campbell McNeill, M.B., B.Ch. Major-Gen., Indian Army. Honorary Surgeon to the King.

Oswald William McSheehy, D.S.O., O.B.E., M.B. Major-Gen., late R.A.M.C. Honorary Surgeon to the King.

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C.I.E.

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Cecil Homer Playfair. Lieut.-Col., R.C.A.M.C.

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O.B.E. (Civil Division)

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Peter S. Campbell, M.D., C.M. Medical Officer, Public Health Department, Nova Scotia.

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Robert Davies Defries, M.D. For outstanding services in medical research.

Gerald Sylvester Harvey, M.B., B.Ch. Surg. Capt., R.N. (ret.). Senior Medical Instructor and Deputy Commandant, Ministry of Home Security School, Falfield.

Robert Thomas Hicks, M.R.C.S., L.R.C.P. Major, I.M.S. Civil Surgeon, Cuttack, Orissa.

Ernest Villiers Hunter, L.M.S. For missionary medical work in the Uganda Protectorate.

A. Lesage, M.D. Dean, Faculties of Medicine, University of Montreal. For valuable services to medical research.

Edward Salterne Litteljohn, M.R.C.S., L.R.C.P. Medical Superintendent, L.C.C. Certified Institution, Epsom.

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M.B.E. (Military Division)

Clive Ormsby Barnes, M.B. Capt., R.A.M.C.

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Ronald Edscer Johnson, M.B., Ch.B. Capt., R.A.M.C.

John Clifford Richardson. Major (acting Lieut.-Col.), R.C.A.M.C.

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Milton Augustus Strieby Margai, M.B., B.S. Medical Officer, Sierra Leone.

Frederick Charles Middleton, M.D. For valuable work as Secretary, Saskatchewan Cancer Clinic Service.

Kalidas Mitra, M.B., D.P.H., D.T.M.&H. Officer-in-Charge, Nutrition Scheme, Bihar.

Muhammad Junaid Quraishi, M.R.C.S., L.R.C.P. Colonel in State Forces and Chief Medical Officer, Rampur State.

A. Marguerite Swan, Winnipeg. Chairman of the Manitoba Nutrition Committee.

Rowland Paterson Wilson, M.B., Ch.B., F.R.C.S.Ed. Medical Officer-in-Charge of the Giza Eye Hospital and Laboratory in Cairo.

Hon. M.B.E. (Civil Division)

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Kaisar-i-Hind Gold Medal

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Correspondence

Reaction to Typhus Vaccine

Sir,—It may interest some of your readers who are contemplating a course of typhus vaccine if I relate my personal experience following a second injection of Cox's typhus vaccine. The first injection of a second course (the first course of three injections was twelve months before and symptomless) had no local or constitutional reaction, and a week later I received the second injection—on Nov. 24, 1942, at 12.30 p.m. On the following day at 4.30 p.m. I experienced the most alarming symptoms, for, suddenly, while sitting down to tea, I became aware of a tachycardia, and a few moments later, without any impairment of reasoning power, I felt that my mind had left my body and I appeared to be looking down on myself sitting in a chair. I felt convinced that I was experiencing the transition stage between life and death. It was not until some months later, while relating this experience to a well-known epidemiologist, that I had my attention drawn to this state of dissociation as a symptom of typhus which was frequently referred to by Murcheson in his treatise on *Continued Fevers of Great Britain*, and recently described by Dr. Melville Mackenzie in the *Proceedings of the Royal Society of Medicine* (1941, Nov. 21, 35) as follows: "Dissociation delusions are often characteristic in the later stages of typhus. Thus the patient asks for his chin to be taken off for shaving, for his legs to be hung up at the foot of the bed or in the wardrobe, or he imagines that he has left a leg lying about downstairs." Dr. Mackenzie states that he has been so struck by this type of delusion that it may be of great value in the diagnosis of typhus in the second week of the disease.—I am, etc.,

Southampton. H. C. Maurice Williams.

Control of the Head Louse

Sir,—Dr. Gamlin's observations on the new methods of treatment for head lice deserve careful attention. Some of his conclusions are, I believe, unjustified, but all are significant.

The lethane hair oil has been investigated in many centres by a great number of doctors and nurses, the almost unanimous opinion being that it is better than others hitherto used, both on grounds of efficiency and convenience. This was a judgment of comparison: as regards absolute effectiveness there was a considerable difference of opinion. The figures that Dr. Gamlin quotes (0.916% to 35% failures) are the extremes of the range of variation. I believe that this difference of absolute values depends on the relative efficiency of the operators in two respects—viz., thoroughness of application and care in examination for surviving larvae. Dr. Gamlin rightly describes the way in which a few small larvae can be overlooked. As regards efficiency of treatment, this mainly depends on the amount applied, which is difficult to standardize owing to variations in the amount of hair.

The statement that thiocyanates kill nits is called into question, so that I would like to quote laboratory data proving that this is true. By lightly spraying lice or nits with solutions of various insecticides it is possible to determine the amounts necessary to kill 50 or 100%. Figures for the substances in question are as follows:

	Amount (mg./sq. cm.) to give a complete kill of:	
	Lice	Nits
A. β-butoxy-β'-thiocyanodiethyl ether	0.027	0.036
B. Thiocyanethyl laurate	0.090	(Not determined)
C. Lauryl thiocyanate	0.077	0.186

(N.B.—Lethane hair oil contains 6.25% A and 18.25% B.)

It is clear that minute quantities of thiocyanate are lethal to louse eggs. Failure to obtain a complete kill in practice must be due to the difficulty in wetting every nit on an infested head with a small quantity of fluid.

The volatile principle in "lethane 384 special" which Dr. Gamlin mentions is the β-butoxy-β'-thiocyanodiethyl ether. The other ingredients (thiocyanethyl laurate and lauryl thiocyanate) are scarcely volatile (vapour pressures similar to that of mercury). Much oily material can be drained out of a head by contact with pillows and hats.

In the original paper by Prof. Buxton and myself (*Journal*, 1942, **1**, 464) we stated that the insecticide should not be distributed by combing. That has sometimes been misread as a positive injunction not to use steel combs. Removal of nits may be desirable for several reasons—e.g., aesthetic, to reassure patients or parents, or to differentiate new infestations. Fine combing can easily be combined with the lethane treatment by applying the oil after combing, if conscientious nurses or orderlies can give the time. But lethane treatment alone will probably be more readily used by many infested persons not under discipline or compulsion. In our experiments Buxton and I obtained about 95% success with one treatment only. Two treatments spaced a week apart should give a vanishing proportion of failures.—I am, etc.,

J. R. BUSVINE.

Psychiatric Treatment in General Hospitals

SIR,—The admirable facilities described by Dr. Dalton Sands (May 22, p. 628) as obtaining at the Sutton Emergency Hospital, and advocated in your leader as measures meriting wider application in post-war reconstruction, nevertheless constitute no real advance upon those obtainable in the best examples of the public mental hospitals to-day. That this should be the case is not surprising, since it was by the adoption of methods already proved in the modern mental hospitals that those of Sutton and similar emergency hospitals were derived. The alleged advantage of the general hospital as against the mental hospital is, in fact, reducible solely to the matter of "stigma," from which it is argued that the former are free. Now this plausible suggestion upon examination has been found to be invalid, since precisely the same stigma we know speedily becomes attached to the "mental ward" of the general hospital; this, we would add, is not surmise, but actual knowledge which could be exemplified and independently attested. To suppose that the substitution of the word "neuropsychiatric" for "mental" will change the connotation is to underestimate the powers of public discernment. To attempt to relegate the mental hospitals proper to their former melancholy role of custodianship largely of the chronic incurable (our diminishing heritage of pre-therapeutic days) not only would be a poor return to those who have initiated and evolved those therapies, which Dr. Sands now seemingly wishes to appropriate for more particular use elsewhere, but would be a public disservice, since, if implemented, it would deprive the mental hospitals of opportunities for further advances, because potential recoverability is here an indispensable prerequisite. Fortunately, the public have already become aware of the merits of, and facilities offered by, the mental hospitals of to-day, and the success of the voluntary system testifies that the bogy of "stigma" is a rapidly diminishing deterrent.

The following statistics refer to the Warlingham Park Hospital, which is the mental hospital for the County Borough of Croydon, and serves a population of approximately 240,000:

Year	Total Number of Direct Admissions			
	Certified	Temporary	Voluntary	Total
1932	119	0	6	125
1942	40	12	225	277

They demonstrate clearly that there has been a revolution in the mode of admission duing the last decade. The great increase in the number of admissions is not attributable to any increase in the incidence of mental illness, but to the rapidly diminishing prejudice against mental hospitals, resulting in large numbers of psychoneurotics as well as psychotics seeking admission. They also demonstrate how the number of patients needing certification in an area can be materially reduced when full use is made of the provisions of the Mental Treatment Act, combined with active therapeutic procedures.

Dr. Sands's figures regarding the financial advantages of neuropsychiatric units are particularly misleading. They are based on the assumption that his patients would have been untreated and become chronics had they been admitted to mental hospitals. On the contrary, there are many county and county borough mental hospitals where exactly the same facilities for treatment are available to the patients as obtain at the Sutton Emergency Hospital, at a cost to the ratepayers of below 35s. a week, which is less than half the sum he mentions as the cost of their treatment in a general hospital.

While we recognize the desirability of having mental wards or blocks attached to the great teaching hospitals, we are of the opinion that the mental health of the community will be best served not by setting up new centres of treatment and calling them neuropsychiatric units but by concentrating attention on the already existing mental hospital, and would urge that the first change called for is a substantial increase in the numbers of both the medical and the nursing staffs of the mental hospitals. Such changes, combined with the full utilization of the provisions of the Mental Treatment Act, would transform our hospitals, and incidentally might prove that the "chronic insane" are not so chronic after all.—We are, etc.,

T. PERCY REES.
W. H. SHEPLEY.

Warlingham Park Hospital, Surrey.

SIR,—Dr. Dalton Sands's article (May 22, p. 628) on the treatment of psychiatric patients in general hospitals marks a distinct advance in the approach to the extensive psychiatric problem, and I suggest that he send, with his compliments, a reprint to the Board of Control, so that the matter may be brought officially to their notice. It is true that Dr. Sands's cases were carefully selected. But, in view of the control possible by modern methods of treatment, the time has clearly come when all large general hospitals should have a neuropsychiatric ward or unit to which every clinical type of psychiatric disorder could be admitted.—I am, etc.,

London, W 1

FREDERICK DILLON.

Slow Union of Fractures

SIR,—As a general surgeon I approach the subject of slow union of fractures with trepidation and due humility. However, my experience of fractures dates from before the last war and, of late years, has been extensive. Certain aspects of the problem have not had the attention they deserve. Causes of slow union may be classified as constitutional and local. In these days stress is laid on the latter to the exclusion of the former. Experts have, quite rightly, broadcast the importance of accurate reduction and adequate immobilization. My object in writing this letter is to bring forward the suggestion that there is a specific constitutional factor, peculiar to the individual, which is responsible for callus formation. How, otherwise, can one account for the great variation in time taken to obtain union in similar fractures in patients of similar type? Again, in some patients muscle may lie between the bone ends and yet union will take place by means of a bridge of bone over the muscle.

I have formed the impression, difficult to substantiate, that union is delayed when fractures are multiple—as if the callus-forming capacity of the body is limited. Among the large number of fractures that I have treated the few that have required a bone graft have been in apparently fit, muscular men. Shaft fractures in the aged and frail usually unite without trouble. I have treated a number of fractured femurs in which the bone has been affected by osteitis deformans. Even when reduction has been imperfect union has been rapid and accompanied by abundant callus formation. In these disjointed observations may lie the clue to the problem. The biochemist who can solve it will do a service to humanity. In conclusion I will quote one case.

A soldier 21 years of age sustained a closed fracture of the femur and an open fracture of the leg bones. About two inches of the middle of the shaft of the tibia was comminuted into three fragments, each, apparently, detached from any blood supply. I removed one fragment and wedged the other two into position as grafts. The limb was encased in plaster and slung on a bent Thomas splint, with moderate skeletal traction to femur and leg bones. The outlook seemed to be bad: there were multiple fractures and one was compound; union in fractures below the middle of the tibia is notoriously slow; the loose fragments were avascular. Yet note the result. In six weeks the femur appeared to be firmly united. In twelve weeks a mass of callus united the tibial fragments, and the patient was able to get about with the aid of a calliper. Surely this patient was lavishly endowed by Nature with the specific factor which I venture to postulate.

—I am, etc.,

Northampton C. C. HOLMAN.

Night-vision Tests

SIR,—The papers on testing night vision by Dr. K. J. W. Craik and by Dr. John Yudkin and Mr. Andrew Ferguson in your issue of May 22 are without doubt of great interest. But there are certain points which these writers and investigators overlook—at least, according to my reaction to eye work of such a type. These three writers are research workers of distinction. The work they do and can do is impressive; but it is wholly or mainly associated with first-class laboratories, where equipment is as perfect as it can be and where exceptional construction can be carried out by technicians. In their criticism of my disk-spotting night-vision test they write wholly from the point of view of the laboratory; whereas I, in relating my experiments and observations on night-vision testing, took my impressions and made my arrangements as a worker now cut off from all laboratories and alone, in a position similar to that of the majority of ophthalmic medical practitioners. I had evidence of other tests being made, and was sure that these tests, however perfect they might be in theory and in the care given to their make-up, were not tests that independent and solitary eye-men could get or could make use of effectively. So my test was designed to meet solitary needs, and from the personal evidence of colleagues it appears to meet those needs.

In my papers on the disk-spotting test I made it plain what was the basis of the test It was a simple imitation of what we see in the sky on a clear night—spots of light-stars. Folk with good sight and good night vision can see and count stars with amazing accuracy. Some stars shine with their own light, and planets reflect the hidden sunshine. The disk-spotting test is an imitation of the latter. The candle in its box shines on the white disks, which reflect the light. The distance at which the folk could see and count the disks showed their measure of night vision. Children said the disks were stars! And the reaction of interest to the test by men, women, and children, and by colleagues, showed that it is attractive; and a test that has an attraction generally gets the best reaction Further, I have shown how easily the lighting can be varied to test those who are suspected of shamming night-blindness.

The next point I had in mind in designing this test was to make it so simple that anyone, anywhere, could make it for himself and obtain a reasonably accurate reaction The first test I made myself. It worked well. The description given of the test is such that I am sure any eye-man could make one for himself if he were unable to get one from the London makers. That, I maintain, is a point of high value in comparison with the elaborate tests designed in the research laboratories. These cannot be made except by expert technicians.

Certain criticisms are made by these three writers on the use of the disk-spotting test. Rightly it is said that the disks vary in size to the eye of the subject according to the distance at which he stands That is true. I found no disadvantage in that. People with poor night vision go closer up, where the disks are larger and easier to see; they get some reaction. The keen-sighted folk go further back, where the disks are smaller and harder to see: the returns by young people who could count at 8 metres are amazingly good.

The critics state their dislike of the use of the "standard candle." To most of us who have electricity the candle is an ancient light. But when the electricity is off, the candle is precious even to-day. The variation of the "candle power" shown in the use of a candle by the critics amazes me. It is evident that they did not take any steps to adjust the working of the candle. My candles behaved well, and I always had a means of accurately, quickly, and easily checking their burning, and without looking at them. The candle was lighted and put into position, and shone on the disks for 15 minutes. Then I could always count the disks myself at the distance of 5 metres. If at any time during a series of tests the light varied so that I could not count at 5 metres or could count further away, then I knew the candle was burning poorly, and I duly adjusted it, wearing dark glasses. Also, I never used a candle for more than one hour; it was then discarded. I think all eye-men would use the candle in this way, for we are always watching the test submitted to the patient.

I have used this test in five different sorts of places—a corridor, large rooms, a big hall, an Army Nissen hut, and at my home. In each it worked well. It is of light weight, easily carried, and independent of any wired connexions. So it may be of use in conditions that demand an easy and convenient night-vision test. The charts of the reactions of groups of subjects of different ages seem to me to be reasonable evidence of its effectiveness in classifying individuals.

Regarding the time of adaptation to the darkness, I found 15 minutes generally useful. But anyone who failed to pass the test reasonably at the distance of 5 metres was given a double time—sometimes, when the person desired it, even more. But cases that showed a gain by such extra time were very few. All my folk were well fed.

—I am, etc.,

N. BISHOP HARMAN, F.R.C.S.

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An Unusual Retrocorneal Phenomenon

SIR,—Dr. H. M. Tietze's report (May 29, p. 665) of a globule of vaseline floating in the anterior chamber is very interesting and must be very rare. His citation reminds me of a case (first seen at Newcastle by Mr. Arkle) in which a spicule of glass remained free in the aqueous for many months. In the erect position it disappeared, and could be seen only when the subject was directing his gaze downwards: in this position it could be detected in the corneal concavity. Symptoms of irritation (probably endothelial) indicated operation. This necessitated an incision in the periphery of the cornea, with the patient lying on his front, his head protruding over the end of the table, and the eyes turned downwards. The aqueous being released, the glass spicule was found in the wound and easily removed. The eye retained useful vision, and the attacks of irritation ceased (see *Trans. Ophthal. Soc. U.K.*, 1930, **50,** 118).—I am, etc.,

London, W 1 F. A. JULER.

Treatment with Tuberculin

SIR,—Dr. H. V. Morlock and Dr. N. L. Rusby (May 22, p. 648) confirm the timely warnings regarding "ambulant" A.P. treatment which have been appearing in your correspondence columns lately, and rightly state that the cure of phthisis can only be attained by the patient developing resistance to the disease by the measures embodying the "sanatorium routine." Yet, failing actual residence in a sanatorium owing to shortage of accommodation—the point which originated the correspondence under the above heading—there is a remedy that acts by raising and developing the patient's natural resistance—namely, tuberculin. The successful clinical application of this property of the drug requires fine appreciation and judgment of the degree and variations of the natural resistance of each individual patient—a difficult art, which seemed to have been acquired by a few tuberculosis clinicians in the years immediately preceding the last war. Since that event, and apparently largely for reasons directly and indirectly consequent on it, the use of tuberculin has practically died out.

In the sanatorium in which I was a patient, and later A.M.O., some thirty years ago, the majority of patients in the earlier stages of the disease were given tuberculin, and from correspondence my wife and I have kept up, since I gather that quite a number of my fellow patients are still alive, well, and working—a number considerably in excess of the statistical figures relating to the expectation of life for consumptives. Others, it appears, remained well until carried off in the course of time by other illnesses. Some of us had prior courses of autogenous vaccines with the object of reducing mixed infection, a procedure which in my case was very successful. Tuberculin was not given to cases with pyrexia unless it became reduced to a low degree by this means, or by "typhoid" rest. It was not withheld from apyrexial laryngeal cases.

Looking back on twenty-five years' clinical tuberculosis work, and as the result of my experience of their administration to and by myself and others, I believe that tuberculin and autogenous vaccines would be the most generally applicable and successful specific means of therapy alternative to sanatorium treatment. The ideal, of course, would be to inaugurate it while in sanatorium residence and continue it under the environmental conditions in which the patient is to live and work.—I am, etc.,

Old Colwyn. W. B. MARTIN.

Diet and Insulin in Diabetes

SIR,—The articles by Dr. Micks (May 15, p. 598) and Dr. Crooke (Jan. 16, p. 64) on the diet in diabetes have certainly caused a great deal of disturbance in people's minds who think that a scientifically worked out diet with an appropriate amount of insulin is always required to keep our diabetic patients under control. Though an imaginative and intelligent patient will learn to eat the required calories of each foodstuff, the less gifted and more casual diabetic will frequently follow a less arduous routine and may keep quite well on it so long as he takes sufficient insulin to prevent ketosis. There must be many who will have observed this in their daily practice, and Dr. Micks and Dr. Crooke have made public some facts which really were common knowledge but were against the scientific teaching on the diet of diabetes.

One frequently sees patients who have been stabilized on a carefully controlled diet and a certain amount of insulin and who religiously continued with this treatment over a number of years. They were periodically seen, and as they appeared to be well were advised to carry on. I have met a number of patients recently who were kept on 40 to 60 units of insulin daily for ten years or longer. They were admitted to hospital, and it was found that they could be kept stabilized on a very much smaller daily dose of insulin. Some required no more insulin, and a calorie control diet was found satisfactory in all cases. There must be many diabetics whose insulin requirements have become less but who are still continuing on their original diet and insulin doses.—I am, etc.,

Essex County Hospital, Wanstead. E. FRANKEL.

Treatment of Blackwater Fever

SIR,—A few years ago, before I had to cease practising in East Africa owing to an accident, I found that 8 to 10 gr. of sodium luminal (the soluble salt) intramuscularly cured blackwater fever at once. On leaving East Africa I asked my partner, Dr. J. R. Gregory of Nairobi, to continue this treatment and to let me know his results. He has written me recently that he has had a series of thirty cases, all of which he cured at once by giving each an intravenous injection of 1.5 gr. of phenobarbitone. He also mentions that Dr. D'Souza of Nairobi, whom he had told of this treatment, has had similar success with it.

I had always been struck with the great restlessness of mind and body in this illness in all races, and I reasoned with myself that if I could counteract these symptoms I should be master of the situation. Thirty years ago I used to give morphine for this restlessness, but I was never satisfied that it did any lasting good. Seeing that blackwater fever is now likely to be commonly met with by our medical officers in the Forces I think this treatment might be made known. I would have brought it to your notice before, but I have been laid aside since coming home.

In my series of eight cases the injection was given immediately on my seeing the patients about 7 p.m. At 10 a.m. next day, when I next saw them, there was no trace of blackwater fever. Of course they were given drinks of a solution of sodium bicarb. and glucose (or sugar); they were wakened during the night to be given these drinks. I had not to give any more luminal after the first injection; there were no recurrences.

Dr. Gregory has had the same experience in all his cases. He suggests that the luminal in this treatment may act in other ways than by doing away with restlessness. He has reasons for thinking so. When I hear from him again on the subject I shall let you know.

I have used the unscientific expression "cured at once" for the express purpose that it gives the picture exactly. I have had a life's experience in the treatment of blackwater fever and have tried every conceivable method and experiment, but I have never been even temporarily satisfied that I had found a cure until I hit on luminal. Vomiting and diarrhoea are common in this state; hence the necessity for giving the drug by injection.—I am, etc.,

Ballycastle, Co. Antrim. R. W. BURKITT.

Diagnostic "Tricks" for Pleurisy and Peritonitis

SIR,—The interesting diagnostic trick given by Dr. Stanley C. Raw (May 22, p. 648) prompts yet two others. There is a well-established central inhibition of respiration which occurs during swallowing, in order to prevent food particles being drawn by the ingoing current of air into the bronchi and lungs. This inhibition of respiration on swallowing a bolus of food or a mouthful of saliva lasts for five or six seconds. If the rigidity of the upper half of the abdominal wall is due to pleurisy, relaxation occurs during this period; if due to peritonitis, the rigidity is unchanged. Yet again, flexion of the head and neck on the trunk, as in looking at one's feet, produces contraction of the upper half of the rectus sheath. During such a movement the pain of pleurisy is not sharply increased, that of peritonitis is.—I am, etc.,

Anatomy School, Cambridge. H. A. HARRIS.

Pain and Cancer

SIR,—The late Lord Moynihan was lecturing to a lay audience on cancer and was pleading for the early case: "Get the case to the surgeon early and cures can be effected." One insignificant man in the back of the audience got up and asked, "How are we to know when we have got early cancer?" The peer was nonplussed. I am about to start some work on the signs and symptoms of early cancer, and appeal to readers for criticism of the following observations; they do not pretend to be facts but are impressions I have formed.

Much is being spent on discovering a cure for cancer. I submit that, while no one could consider the knife to be the ideal weapon, in the present state of our knowledge, or rather ignorance, of cancer, it offers the best prospect for internal cancer—excluding that of the mouth and uterus, which respond so well to radium. But for operative success the case must be seen early, so it would appear to be most profitable to discover what are the signs and symptoms of the early case.

Pain is the commonest symptom for which medical advice is sought; it is one of the blessings man is heir to, since it directs attention to dysfunction. Just as the first thing a gardener does before pruning a tree is to cut out the dead wood, so in the approach to early cancer we must cut away all useless signs, chief of which is pain. Cancer is essentially painless in itself, it destroys nerves without stimulating them painfully. The lay public think cancer is painful from the start; nothing could be further from the truth; many cases, they would be surprised to know, run their course painlessly. Particularly is this so in gastric cancer, the disease pursuing its inexorable course till the end, which would appear to be like a Buddhist's haven.

The causes of pain in cancer would appear to be:

(1) *Secondary Infection.*—This is the rule in cancer of the lip and mouth; also of the breast.

(2) *Occlusion of the Lumen of a Hollow Organ.*—The stomach provides a good example of this; while the more usual is a painless malignant ulcer, less commonly a cauliflower growth, causing an *x*-ray filling defect, occurs; this occludes the lumen with the production of pain, which focuses attention to the stomach, which can be dealt with surgically. Cancer of the rectum impinges on the lumen of the gut late in the disease and so is painless until inoperable, when agonizing pain may develop. Pain localized to a definite point in

the course of the transverse or descending colon is a valuable symptom of a "ring" carcinoma. A hypernephroma may be palpable in the loin or cause painless haematuria long before it occasions pain, when this is due to clots or pieces of growth. Cancer of the bladder is painful only when it obstructs the ureters or urethra. A bronchial carcinoma gives rise to pain when it obstructs the bronchus. Headache, vomiting, and optic neuritis were the triad of symptoms on which cerebral tumour used to be diagnosed; the headache was due to disturbance in the circulation of the cerebrospinal fluid. Uterine cancer sets up pain when it occludes the lumen.

(3) *The Formation of Adhesions.*—By this not very fortunate term I mean the prolongations and secondary fibrosis which accompany a spreading cancer; it is best seen in the breast. At the outset there may be some discomfort as the breast is pendulous and the tumour has a tendency to congestion. Soon, however, it spreads along the fibrous tissue of the breast and becomes, as Mr. Sampson Handley has pointed out, palpable to the flat of the hand; previously it was only palpable to the fingers. At this stage the cancer becomes somewhat painful but by no means so painful as many cases of interstitial mastitis.

—I am, etc.,

London, W.1. A. P. Bertwistle.

Coarctation

Sir,—Dr. H. S. Gaskell's criticism (April 3, p. 426) of the diagnosis in Dr. C. W. Walker's case of labour associated with congenital coarctation of the aorta contains so much that is inaccurate and obsolete as to call for comment. The view that necropsy is necessary to demonstrate the enlarged collateral vessels developed in coarctation is entirely out of date. Boyd, in his *Pathology of Internal Diseases*, explicitly states that the condition is diagnosable during life, and adds that the diagnosis is often not only possible but easy. Enlarged vessels along the dorsal border of the scapula may show pulsation not only palpable but visible. Characteristic crenations of the ribs produced by dilated mammaries and intercostals are demonstrable by x rays.

The stenosis in coarctation is not necessarily confined to the "isthmus." It can occur at the insertion of the ductus or below it. The left subclavian artery does not come off the aorta below the ductus, as stated by Dr. Gaskell, but above or proximal to it. Even a misapprehension as to the origin of the left subclavian, however, can hardly explain the extraordinary statement: "Common sense would seem to dictate that the blood pressure distal to the constriction would be low whereas a hyperpiesis is present." Common sense and an appreciation of physical principles would surely indicate a high pressure proximal as well as a low pressure distal to the constriction—i.e., the precise findings reported by Dr. Walker. Even in the rare cases where the constriction is proximal to the left subclavian there is a hyperpiesis in the right arm.

The view that the murmur described is the only item in favour of the diagnosis is more extraordinary still when one considers that high brachial and low femoral pressures, marked arterial pulsation in the proximal and collateral vessels, diminished or absent femoral pulsation, and cardiac enlargement are not only to be expected on theoretical grounds but are referred to in practically any modern textbook dealing with the subject. Incidentally coarctation is now regarded as more common than was formerly thought, and examination of the femoral pulse is advised in all cases of high blood pressure when first discovered.—I am, etc.,

Killygordon, Co Donegal. John G. O'Brien.

Multiple Muscle Herniae

Sir,—It was interesting to read the article on this subject (May 15, p. 602), because two years ago I came across some cases identical with those described, save that there were only two or three such muscle herniae. They were in infantrymen, who had recently had strenuous physical training and marching, and who were complaining of pain and aching after marching and drill. I operated on one to see whether anything could be done, but found the whole of the muscle sheath in that area was very thin and friable and the stitches mostly cut out. A darning suture, however, was done, and on discharge from St. Michael's Hospital after a short period of walking they had not recurred. Whether they did later I do not know as the patient went away from this area.—I am, etc.,

Hayle, Cornwall. W. H. Palmer.

Medicine and Politics

Sir,—Dr. Geoffrey Bourne, in two articles in your columns, has entered the field of politics which he otherwise so much despises. To him, apparently, everything is either good or bad, black or white, democratic or bureaucratic, political or scientific. However, reality is not a bit like that, and, despite his assertions, local government is not so black nor are voluntary hospitals so democratic as he depicts them. Local government is essentially a democratic institution, but the apathy of the electorate, the development of multiple authorities, the irregular size of the areas controlled and their historically developed peculiarities, forms of administration too rapidly outgrown—all call for a reform which cannot be postponed merely because solution is difficult. It is not surprising, therefore, that their hospitals have suffered. On the other hand, the voluntary hospitals have demonstrated the advantages of decentralized management, but they are not democratic in the sense that their management committees only represent the subscribers of about 30% of their total income. It must be remembered, too, that a medical service is not solely staffed by doctors; and nurses, for example, find no democracy *for them* in either type of hospital, though some local government hospitals are enlightened enough to grant a 96-hour fortnight, the right to live out and to get married, and an entrance into the service without an inquiry into social background.

Dr. Bourne is equally wrong when he contrasts politicians and doctors. We are all politicians, we all have a vote, can be members of political parties, argue in pubs or clubs, oppose progress or promote it, and write letters to the *Times* or the *Daily Worker*. Those who are elected by the people vary in their knowledge of history, government, and economics as much as doctors vary in their knowledge of science, despite the latter being qualified.

However, let us listen to Dr. Bourne: "History proves that scientific freedom and research are of vastly greater importance to humanity than administration." I suppose that this means that Dr. Bourne can prove from history that, etc.; but can he? How does he define scientific freedom, and, more important to us at this moment, how does he define medical and professional freedom? Is it the freedom to practise medicine in an unchanging way in a changing world; the freedom to treat rheumatism with salicylates instead of preventing it by rehousing; the freedom to prescribe bromides to those whose sufferings are psychogenic; the freedom to isolate the illness from the patient in his environment?

No, Dr. Bourne, it is not, for medicine is a social function, and the doctor's freedom is the freedom to serve man as he lives in society, and this cannot be done by groups of doctors sitting by themselves round a table, nor by research workers selecting subjects in "pure" medicine to contemplate in an ill-financed laboratory in disregard of the needs of the public. And then, if a neglected but conscious public starts consciously to plan for its needs, will we really lose our intellectual freedom if we help them?

Dr. Bourne, however, prefers the idea of doctors controlling themselves in splendid isolation to working in co-operation with the rest of society, because he is unable to see the alternative. He cannot imagine that the people and the doctors can work together without producing a rigid machine; he cannot see that the people and the doctors together can produce a living organization, and can devise forms that will enable a comprehensive health service to come into being which will preserve initiative and preserve the doctors' role of advising the public. Many things must be reconstructed after this war, and the public might well expect the doctors to take a part. Dr. Bourne prefers to pass pious resolutions: "Medicine and science must not be political"; I need add nothing to such a political statement.—I am, etc.,

London, W.1 Hugh Gainsborough.

Sir,—Now that you have opened your columns to political propaganda I do hope that we can all arrive at some clearer understanding of what we mean by politics. I myself cannot conceive of any definition that does not entail medical science being closely linked with political activity—acknowledge it or not as you will.

Dr. Geoffrey Bourne's article will confuse any genuine student. For instance, consider "a national comprehensive medical service"—this is obviously a political matter on any definition. Does Dr. Bourne suggest seriously that doctors should not concern themselves or medical science is not concerned? It is quite possible and desirable that a political programme should feature medical research and scientific freedom prominently. It is quite impossible to do research or practise any science *in vacuo*. Stagnation and death inevitably follow even tendencies in that direction. Somewhere and sometime the research worker must relate himself to the society he works in, and he must enter the political field, either personally or through contacts.—I am, etc.,

TOM GARLAND.

*** We fail to understand the meaning of Dr. Garland's opening sentence. It has for some time been the custom of the *B.M.J.* to report activities of the Socialist Medical Association, of which Dr. Garland is a member.—ED., *B.M.J.*

State Control of the Medical Profession

SIR,—I think that it is important to analyse what is meant by the "State," for one is apt to look upon that word as symbolic of some super-power. Presumably it means, in effect, "Parliament," and we must attempt to analyse Parliament. This body contains a certain group of wise, and sometimes great, men and women, a large group of intelligent and sub-intelligent worldly-wise men and women, and a modicum of the ever-present "climbers" who will sacrifice all and anyone to achieve personal success, and of fanatics. No one doubts fanatics have done great things, but in a stable institution in an old country they are generally dangerous. The success of Parliament can be seen in two terrible wars in which our bravest, most honest, and truest have been sacrificed, and in the efforts of members to advance their political creeds when our country and empire are fighting for dear life and freedom.

If our great profession—and it is a very great profession—thinks it wise to put itself completely into the hands of this "State," I think all should recognize that, once done, there will be no escape. The profession will not be bound in chains but enclosed in an impenetrable net of steel from which no escape is possible, but the strength of the steel steadily increases. Naturally there is diversity of opinion on State control, but there can be little doubt as to what this implies in the great cry for freedom we hear on all sides: slavery for a great profession.—I am, etc.,

Bath F. JOHN POYNTON.

Doctors and the Future

SIR,—The seven signatories from Bournemouth (May 22, p. 649) did well to pose their question. Is anything, they ask, really seriously wrong with our profession, and, if so, cannot something radical be done about it? They are even prepared, if the worst came to the worst, to consider "a panacea envisaged by idealists." Let them, anyhow, listen to the following.

Whoever wants to understand the real problems that beset the medical art at present must imperatively study them in connexion with what is going on in the State as a whole. The present holders of power in this country, basing themselves on the usual assumption that competition is the law of life, intend to make post-war Britain (or quite possibly Britain-America) the biggest "business" in the world, able to defy all competitors. To this end "our country" must obviously be mechanized through and through, turned into an industrial machine, and the vast majority of its inhabitants made either cogs in that machine or, at best, machine-tenders. The scheme indeed is already working in its early stages, and arrangements are being made that the medical profession shall progressively be enlisted to help in procuring the smoothest possible running of the works. In other words, the future role assigned to the doctor will be that of a "machine-minder." He is already becoming so, as witness the almost automatic and predominantly clerical duties which he is at present called upon to perform; to many a medical man, "signing lines" is now almost the chief business of his day.

To what I have said, however, quite a number of people will probably reply, "Well, if the doctor is properly paid for this, and if the work 'needs' to be done, why should he not do it?" My answer is that man is not, by his nature, a machine, and that therefore a persistent effort to mechanize the bulk of people will finally so violate their natures as to provoke terrible social convulsions. The present plan is not going to work, and practising doctors are infinitely better qualified than politicians to think out one that will. In any case, I have mentioned the essential preliminary considerations. What is happening in medicine is merely a symptom of a disease in a wider field, and doctors, above all people, should know that when a disease does not cure itself it must be tackled as a whole and not symptom by symptom. Let the members of our profession gird up their loins and become medico-sociologists.—I am, etc.,

North Queensferry, Fife. A. J. BROCK.

SIR,—Is it not a fact the dissatisfaction felt both by public and medical men alike with the present system of medical practice can be completely removed by three (relatively) simple measures?—the inclusion of the dependants of "panel" patients in the National Health Insurance scheme; the provision of wider consultation and laboratory facilities for these patients; and the institution of some form of insurance (on the lines of the Oxford Provident) to guard the "middle-class" patient against the disastrous expense of surgical operations and the like.

These three steps having been taken, would not any totalitarian system of State medicine appear to be ill timed, because of the years of crisis through which we are passing and have to pass; impractical, because of the vast expenditure involved at a time when economy will be the nation's imperative need; and ill conceived, because such a system must inevitably be negatived by the weight of stultifying bureaucratic control to which it would be subject? And, finally, are not your correspondents from Bournemouth, in the issue of May 22, to be congratulated on knocking the first piece of stuffing out of a singularly unconvincing medical "scaredoctor"?—I am, etc.,

Harrogate. FALKLAND L. CARY.

The Government's Proposals

SIR,—The Beveridge report provides for an increase of sick benefits, to qualify for which a medical certificate will be necessary. Sir William knows only too well that the whole scheme will collapse if the patient continues to receive the benefit of the doubt, as he always does and as he should always do. He will always receive it so long as his doctor remains his friend.

It is vain to argue about the precise form of control we are prepared to accept. Free treatment for all means a machine to work it, and that machine must be staffed and the financial control must be lay, and whoever controls the money will control the profession. We now see clearly the imperative need to kill private practice and to degrade a great profession. Starting with a comprehensive service and increased benefits, a free profession at once is encountered as a fatal obstacle. To a truly democratic mind a free profession would be axiomatic; to the modern planner it becomes quite clear that it must be liquidated. Safe with a salary the medical man of the future, recruited from the safety first section of the young, will have no difficulty in deciding that it is better to please his employers than to please his patients, and the funds will remain solvent.

Movement is not necessarily progress. We took a wrong step long ago when we consented to feed the hungry sheep with certificates. It has turned out rather badly, and the suggested remedy is a great new step in the same direction. Perhaps it would be wiser to halt awhile and consider whether we should not move back a bit. We shall produce only despair if we persist in supposing that the great evils from which humanity has so long suffered can be cured by a cash payment.—I am, etc.,

Hendon, N.W.4. R. W. COCKSHUT.

SIR,—I have talked with several general practitioners in this district and find that they are all in agreement with what Dr. Samuel Grasse states (May 29, p. 679). The only thing that we dislike about the proposals of the Government is the administration of the scheme by the local authority.

The things which I find we all want are: (1) compensation for loss of practice; (2) an adequate salary based on the Government's proposal (previous service to be taken into account for seniority and salary); (3) all expenses paid; (4) one month's holiday with pay per annum; (5) a fortnight's study leave per annum; (6) a pension of two-thirds of the retiring salary at the age of 60; (7) a rota of duty so that the practitioner is not on duty for 24 hours a day and has the chance of an occasional week-end to himself.

As Dr. Grasse says: "Let a plebiscite be taken from the profession on the particular and specific issues involved." I find that there is absolutely no desire among the practitioners with whom I have discussed the matter to have an extension of the panel system with its inadequate remuneration, long hours of arduous work, and iniquitous competition.—I am, etc.,

Doncaster. H. M. BROWN.

SIR,—It is heartening to general practitioners, overworked and withal a little tired, to see signs of a general rebellion against a new planning of medical practice and the regimentation of medical men. It is heartening to know that some are daring to say that from the point of view of the general public the profession is the best organized in the country. Few organizations composed of free-acting individuals could work in fuller harmony with each other and the public they serve. The public realize the general efficiency of the organization, and their remarks on State interference on a broad scale are mostly unprintable.

The principles of this service to the public have been evolved by the profession and through its own initiative. Over and over again it has had to find the material with which to make its own bricks. The general public and notable individuals have not been backward in finding that material, and rapid progress has been maintained. The profession and the public are inseparably linked up, each a little jealous of the satisfaction of giving to the other of their best, and the intrusion of a third party—the State—with its infinite capacity for the destruction of initiative and gallant individual enterprise, will not be acceptable to any but the misfits on either side.

The Ministry weaken their case with the call of "urgency." There is no urgency except for them. Thousands of medical men are solely occupied with their Service duties and commitments, and those at home are dealing, not unsuccessfully but at the expense of much overtime, with the civil population. The Ministry must be aware that their chances of "planning" the profession will be slender indeed if they wait until normal, or comparatively normal, conditions return.

Let us be told simply what reforms the Ministry consider necessary, but let us see to it that they listen closely to those reforms that we consider necessary and help us to their attainment. We will willingly accept their help, but they will be unacceptable as senior partners. Their influence is too deadening for the progress which is rapid now and will be far more rapid after the war, and whose aim is the maintenance of health and the war against disease.—I am, etc.,

Kineton, Warwick C. J. L. WELLS.

Obituary

FREDERICK GYMER PARSONS, D.Sc., F.R.C.S., F.S.A.

Prof. F. G. Parsons will be remembered by a long succession of former medical students of St. Thomas's Hospital as an able teacher who knew how to make all things seem simple. He was appointed lecturer in anatomy in 1886, and was professor of anatomy in the University of London and director of the department of anatomy at St Thomas's from 1899 till 1929. In his early years he had a short experience of private practice, but quickly made the decision to give himself to the scientific side of his profession, with such notable results.

Parsons made many solid contributions to anatomical science and was prominent in the activities of the Anatomical Society. At the time of his death at the age of 80 he was its oldest member, having belonged to it for 54 years. He acted as secretary from 1895 till 1898, was treasurer from 1903 till 1908, and held office as president in 1912–14. He made notable contributions to discussions on subjects on which he had come to be recognized as an authority. In a long series of publications towards the end of the last century he provided a comparative study of the muscular systems of a large number of mammals, in the patterns of which the influences of natural affinity and of functional adaptation were alike recognized. This work was the outcome of meticulous dissection and exact observation combined with careful interpretation, and it remains outstanding principally for the enduring value his records hold for future workers. His masterly Hunterian lectures of 1897 and 1899 summarized the principal results of this phase of his researches. During the same period he published a number of articles on human topographical anatomy, of which particular mention may be made of those dealing with the cervical fascia, the caecum, and the parotid gland. At the same time he was developing his interest in the human skeleton, and published papers on bone and joint morphology.

A new phase in his work came with the examination of individual variation in bones of the human skeleton, which led on to his anthropological studies. Beginning with a survey of the hyoid bone, he produced papers on the English clavicle and femur. He made no attempt at the elaborate statistical methods of treatment subsequently employed by biometricians on similar studies. To their criticisms he pointed out that his data were available for those who cared to analyse them mathematically, and he in his turn criticized the type of mathematician who, with the most elementary biological knowledge, attempts to treat bones as geometrical figures rather than as living structures with a form closely related to function. Parsons's osteological studies led him to the examination of ancient skeletal remains, the comparison of which with modern populations gave him particular interest. He reported on the collections of crania at Hythe and Rothwell in 1908 and 1910 in the *Journal of the Royal Anthropological Institute*. In 1920 he gave an account of the Long Barrow race and discussed its relationship to the modern inhabitants of London, his conclusions being summarized in his book *The Earlier Inhabitants of London* (1927).

During the last war he took the opportunity provided by the presence of German prisoners of war in this country to examine their racial features, and he showed that the "Nordic" contribution to the modern population of Germany is very slight except along the coasts and in the Rhine valley. Subsequently he collected a considerable number of the skulls of Anglo-Saxons who lived in this country, and in 1928 he published an atlas showing the results of his measurements. Many other anthropological contributions appeared at short intervals. Parsons was elected a Fellow of the Royal Anthropological Institute in 1904, was a member of its Council for many years between 1910 and 1930, and held office as vice-president from 1920 to 1923. He was elected president of the Anthropology Section of the British Association in 1927, when he contributed an address on "The Englishman of the Future."

Beside all these activities Parsons concerned himself with the medical curriculum. In co-operation with William Wright he produced in 1912 a short practical dissecting manual designed to focus the attention on essentials and relieve the student of much burdensome attention to detail. This attempt came somewhat too early for complete success, but it paved the way to the present recognition of danger in the over-elaboration of students' textbooks. The London Anatomical Committee, which has played so valuable a part in the maintenance of anatomical supplies to the medical schools of London, virtually owed its creation and preservation to Parsons, who served as its secretary for over fifty years, and many colleagues remember his labours with gratitude.

Parsons was devoted to St. Thomas's, where he spent the whole of his academic career He is remembered by his contemporaries for his zeal in developing the amenities available to students and for his encouragement of a healthy social life in the medical school. A more lasting memorial of the interest he felt for his Alma Mater as well as for his antiquarian leanings is given by his outstanding *History of St Thomas's Hospital*, in three volumes, published from 1932 to 1936. In these he shows us the beginnings of a great London hospital, the development of a medical school at St. Thomas's Street in the Borough, where a part of the St. Thomas's Hospital buildings now remain (with some recent damage) as the entrance courtyard to Guy's Hospital, and the eventual removal of hospital and medical school to its present magnificent and breezy site on the Embankment.

For many years Parsons was an active member of the Society of Apothecaries, in which he attained high office He joined in 1898 and was a member of the Court for the last seven years of his life. He was elected Senior Warden in 1941. For over 40 years he acted as examiner in anatomy to the Society. He also examined for many of the medical schools of Great Britain and Ireland in the course of his long career. His objective outlook and sense of humour are illustrated in the amusement he felt on recalling the irreverent attitude of the students in Dublin to the "foreigner."

Parsons was a man of many activities and wide interests. In later life he recalled that he had sometimes been urged to confine his work to some narrower field. But he maintained his preference for a life in which full rein can be given to one's interests rather than for one in which too much is subordinated to ambition; he had no regrets at having allowed himself a varied life. He was a man of transparent honesty coupled with a bluntness at times disconcerting to his friends. He was an assiduous worker. Even on his holidays he seemed to scorn ordinary delights and lived laborious days. He would make long cycle trips to visit French cathedrals or old English towns. On these journeys he was never happier than when tired out, wet through, and shelterless. On one occasion when an influenza epidemic had come to England he was discovered absent from the hospital. His friends became concerned at this unheard-of thing and sent an emissary to his home to see how ill he was, only to find that he had gone out to "walk it off." A hobby in which he excelled was wood-carving, and his own house was decorated with charming work of his own creation. On his retirement Parsons went to live in lovely surroundings at Princes Risborough, and there pursued his antiquarian bent to the end in the study of local archaeology. During the present war he was compelled to leave this home and went to live at Thame, where he promptly became engaged in an account of local inns, for which this old market town is so well known. And so has ended a fruitful and contented life.

A. B. A.

G. R. FOOTNER, O.B.E., M.B., F.R.C.S.

George Rammell Footner, who died on May 16, was educated at Marlborough, at Pembroke College, Cambridge, and at St. Thomas's. He obtained the University scholarship to the hospital and later on tied with L. E. C. Norbury for the Beaney scholarship in surgery. He was a good cricketer and was one of the outstanding batsmen in his college and hospital teams. He held all the junior surgical house appointments, but when Norbury obtained the surgical registrarship in 1907 Footner went as R.S.O. to the Royal Infirmary, Derby.

In 1910 he joined the Sudan Medical Service, then the most highly qualified though smallest Service of its kind. His work at first gave little scope for his surgical talent, but when the Civil Medical Service gradually took over from the Medical Corps of the Egyptian Army the work in the Southern Sudan, Footner was appointed medical inspector to the Upper Nile Province. With his headquarters at Malakal, and making great use of the Nile hospital ship the *Lady Baker*, which he helped to organize and fit out, he began the pioneer medical work among the Dinka, Shilluk, and Nuer tribes which later on assumed great proportions. Unfortunately an encounter with a wounded lion nearly cost him a limb and resulted in an almost completely ankylosed knee. On recovering from the injury he was transferred to Khartoum as the first senior surgeon appointed in the Sudan Service, which was then passing through a stage of rapid development. Later he became as well the first lecturer and teacher of surgery in the newly constituted Kitchener Medical School. In 1928 he retired from the Sudan and from medical practice, living first at Winchester and later in Cornwall. At the outbreak of war he undertook work of various kinds, mainly medical boards and helping in local general practice.

Footner's tall spare athletic figure commanded attention. He was a fine example of the type of surgeon most needed in the Tropics, where character and example as well as professional ability are particularly important. He had strong sensitive hands and a sound surgical technique. A man of high purpose, he demanded a very efficient standard from others as well as from himself. He was intolerant of anything slipshod or second-rate, and he exercised an enduring influence on those Sudanese medical students that were the first to pass through the Kitchener School. He bore his last illness with exemplary courage and fortitude and was actually working to within ten days of his death. He leaves a widow, a daughter and two sons, and a large circle of friends and acquaintances to mourn his loss.

H. C. S.

G. F. WILSON, L.M.S.S.A.

We regret to announce that Dr. G. Frederick Wilson, secretary of the West Ham Panel Committee and a former chairman of the Stratford Division of the B.M.A., died on May 20. The following tribute comes from H. C. B.:

The foundations on which any edifice is built are rarely, if ever, exposed to view. Yet without them the visible superstructure could not be erected, or, if erected, would be in imminent danger of collapse. This generalization is as true of associations of human beings as of conglomerations of building materials. The bedrock on which our Association is founded is not its house, its officers, its Council, its A R.M., or any such visible manifestations—it is the work done by a number of hard-working loyal disinterested colleagues who undertake the routine day-to-day work of professional organizations. Much of this work is unseen and unsung, except by those in intimate contact with it—yet without it our Association would be moribund instead of full of vitality. A fine example of such a colleague was Dr. G. F. Wilson, whose death will be felt widely in professional circles. Son of a West Ham doctor, he received his medical education at the London Hospital and then followed his father in his practice. Here the greatest part of his professional life was spent, and here he showed those qualities of painstaking detailed work for his colleagues which bound him so closely to those associated with him. He was chairman of the Stratford Division for two periods, a member of its executive committee for many years, and one of its representatives to the A.R.M. on eight occasions. He was secretary of the West Ham Panel Committee and chairman of the Insurance Committee twice, occupying this position at his death; he was also chairman of several of its subcommittees. Dr. Wilson took a considerable part in the building of the Essex Public Medical Service, of which he was a past chairman. He was also active in medical golfing circles and was secretary to the Stratford Medical Golfing Society. Dr. Wilson retired from practice before the outbreak of the war, but later took up the position of medical officer of civil defence for the western area of Essex. Here also he built up for himself a reputation for hard work and loyal service and became popular amongst his colleagues. In wishing him farewell, and extending their sympathy to his widow, herself a good friend of ours, members of the Stratford Division realize what a difficult place to fill will be that occupied by Dr. Wilson.

LESLIE J. PATON, F.R.C.S.

We regret to announce that Mr. Leslie Paton, consulting ophthalmic surgeon to St. Mary's Hospital and the National Hospital, Queen Square, died in London on May 15 after a long illness.

Leslie Johnston Paton was born in Edinburgh in 1872 the second son of James Paton, F.L.S., Curator of Picture Galleries and Museums. The family migrated to Glasgow when he was 4 years old, and he later attended Glasgow High School and the University, passing on to Caius College, Cambridge, with a scholarship in 1891. There he remained for six years, teaching botany and physiology until he entered St. Mary's Hospital in 1897. At the same time he joined the teaching staff of his friend T. M. Taylor (afterwards Sir Thomas Taylor), who was head of Wren's coaching establishment, in Powis Square, Bayswater, teaching physiology to help his then slender finances. Qualifying B.Ch.Cantab. in 1900 he became house-surgeon to Edmund Owen at St. Mary's in 1901, and took the M.B. and F.R.C.S. a year later. He demonstrated anatomy during that year, and was then appointed assistant ophthalmic surgeon to Henry Juler, succeeding to the senior post in 1911. Meanwhile, in 1907, he had been appointed to succeed Marcus Gunn as ophthalmologist to the National Hospital, where for the four remaining years of Hughlings Jackson's life Paton followed the teachings of that great neurologist. Twenty years later he inaugurated the endowment of the Hughlings Jackson lecture during his term of office as president of the Neurological Section of the Royal Society of Medicine. Paton had the double distinction of being chosen president both of that Section and of the Ophthalmological Society of the United Kingdom. At the Annual Meeting of the British Medical Association in 1909 he was secretary of the Section of Ophthalmology and in 1934 he served as president. He had been treasurer of the International Ophthalmological Council and was an honorary member of numerous foreign ophthalmological societies. He contributed many notable papers to the literature of his subject, the most important probably being "The Pathology of Papilloedema" in *Brain*, 1911, and "The Classification of Optic Atrophies," 1930. His Mackenzie Memorial Lecture in 1937 was devoted to optic neuritis. As chairman and managing director of the *British Journal of Ophthalmology* he wielded much influence and was ever on the look-out for rising talent.

Dr. WILFRED HARRIS writes:

Paton's only form of exercise of late years was golf, of which he was very fond, though never pre-eminent at the game. For years he used to spend his summer holiday on the Elie links in Fifeshire, and later he built a country house on the Wentworth Estate, Virginia Water, near the tenth green of the main course, which he named appropriately "Scotch Corner" Here, on the annual competition days for the "Paton Cup," which he had presented to St. Mary's Hospital Medical School, he and Herbert Smale would meet the tiring competitors and reinvigorate their strained nervous systems with mugs of beer. These annual holidays were much looked forward to by students and staff alike, whom Paton insisted on being his guests for the day.

Leslie Paton made few, if any, enemies, though he was highly successful in practice. His brain was brilliant and analytical, but he took his time in making up his mind. Though unknown personally to the present generation of students at St. Mary's he will be long remembered by his friends and generations of past students for his teaching, his balanced mind, and his cheery disposition.

Dr. DANIEL MILLAR, who died at his home in Rutherglen after a short illness, was a magistrate of Glasgow and for the past five years had been representative of the Dalmarnock Ward in the City Corporation. In his youth he had worked as an engineer in a Clyde shipyard and studied to become a medical student in his spare time. Dr. Miller took the Scottish triple qualification in 1930. In 1941 he was awarded the M.B.E. for the heroic part he played in the rescue of an injured man during the heavy air raids on Clydeside. With Dr. McLaren Ord he crawled through a tunnel made among the ruins of a bombed tenement, and under the light of torches amputated one of the man's feet while the debris threatened to collapse at any moment.

Universities and Colleges

UNIVERSITY OF CAMBRIDGE

On June 1 Dr. T. Shirley Hele, Master of Emmanuel College and representative of the University on the General Medical Council, was elected Vice-Chancellor for the ensuing academical year.

Ronald Aylmer Fisher, Sc.D., F R.S., of Gonville and Caius College, has been elected to the Balfour Professorship of Genetics from Oct. 1, 1943.

Joseph Stanley Mitchell, M.B., B.Chir., Ph D., formerly Fellow of St John's College under Title A, has been elected to a Fellowship under Title E.

At a Congregation held on May 22 the following medical degrees were conferred:

B CHIR.—A. W. Capon, G. F. Panton (by proxy), F. M. P. Eckstein (in person).

UNIVERSITY OF LONDON

The following candidates have been approved at the examination indicated:

THIRD M.B., B.S.—J. D. Abbott, J. V. Aveling, A B Backus, T. E. Barwell, Annette G Bauer, Margaret E Berry, Isobel P Beswick, Margaret A. Billinghurst, J. Birch, W B N Bomford, G. L. W. Bonney, C. Boroda, P W. Brand, A. R Brandreth, D B. Brewer, F. B Bromfield, R J. Bush, N R. Butler, L. Capper, G. M. Coupland, W. G Cross, J. B M. Davies, R G. Davies, D Dewhirst, F G B. Dodd, J T Doyle, A. Elton, D A. T. Farrar, T. R. Fink, H J. W. Fisher, R. J K. Fleming, A W. Fowler, W. Fox, Edith V. Foyle, R. S. Francis, T L Frank, J. H. Friend, P. S. Fuller, D. S. Gibbs, G. H. Gilford, T. H. B Gladstone, K Greenwood, G. Gremson, R. F. Griffith-Evans, T. A Grimson, D L. Gullick, H. C Hamilton, W J. Hanbury, B. H. Hand, S. F Hans, J Hardwicke, D M. Hare, E J. Harries, H J Harris, M F. Hart, L. W Hefferman, Margaret I. Hendrie, K R. Hill, E. O. Hohn, M. Holborow, F. C. N. Holden, Reba N G. Holloway, Betty D Holt, J. P. Hopewell, J F. Horley, D. D. C. Howat, J. G. Howells, N. H. Howes, W H Humphreys, A D M. Jackson, G A. James, Elizabeth M. Jenman, E. L John, J. L. Jones, R N. H N. Kahan, Mary P. Karney, Madeline K. Keech, P R N Kerr, M. Knowles, S. Kramer, P L. Langton-Lockton, D. Lawrence, J. Lee, A. M. Levy, J. Lister, R I. McCallum, I. S. MacLeod, Madeline J. MacKenzie, A. C. Macrae-Gibson, L. J. Morgan, N. F. Morris, P B. Newcomb, Edith F Newling, Helen M. Noble, C. C Packman, F T. Page, B. D Patel, A. C. Pearson, R J. N. Pellow, A B. Philip, M P. Pick, Dorothy P Potter, Mary Pringle, G. S. Ramsay, A. J. M. Reese, S M A Rizvi, M Roth, J. W. P. Salt, Isabel B. Schooling, J. Sebel, R E Shaw, R. G Sheppard, A. J. Shillitoe, Esther E. Simpson, P. J. Spencer-Phillips, D. A Stanley, A. Stoddard, B. Stone, D G H. Stone, A. B Stratton, D. F Street, R J. C. Sutton, J. McN. Tainsh, G W. Taylor, M. V. P Thomas, B E Tomlinson, P. A Trafford, Frances M Ulyatt, E Waddington, G. Watkinson, C E. C Wells, H Whitworth, E. A Williams, J. R. F. Williams, Marion Williams, Mary F. Wright, J. A. H. Wylie, Judith C M. Yuill, J. H. S Zibll.

UNIVERSITY OF EDINBURGH

The Medical Faculty of the University of Poland was established within the University of Edinburgh in order to keep together a group of Polish professors, physicians, and other medical workers, to give them an opportunity for research and teaching, and generally to keep an eye on the academic spirit, so that at the end of the war Poland would have at least one active medical school. The project has already met with much success, and there is now a Polish hospital associated with it for clinical work. The course of study and the examinations are arranged to fulfil the requirements of the Polish law and so far as possible to approximate to the Edinburgh standards. At a recent ceremony in the M'Ewan Hall, attended by representatives of the University of Edinburgh and the Polish Faculty of Medicine, the President of the Republic of Poland conferred the Order of Polonia Restituta on Sir Thomas Holland, D.Sc., Vice-Chancellor and Principal of the University of Edinburgh; Prof. Sydney A. Smith, M.D., Dean of the Faculty of Medicine; and Prof. F. A. E. Crew, M.D., in recognition of the "great service which the University of Edinburgh has rendered to Poland by the invitation to found a medical school within her walls." His Excellency, in the course of his address, said that it was a historical moment when, in March, 1941, Edinburgh solemnly inaugurated the Polish School of Medicine in a memorable ceremony in that hall. He was therefore happy to express in the same place his gratitude, and the lasting gratitude of his country, to three of the eminent scientists of Edinburgh University, who were responsible in the first instance for this magnificent testimony of brotherhood and common idealism.

The Services

The D.S.C. has been awarded to Surg. Cmdr. J. L. S. Coulter, R.N., and Temp. Surg. Lieut. J. G. C. Murray, R.N.V.R.

Temp. Surg. Lieut. R. S. Slessor, R.N.V.R., has been mentioned in dispatches.

Capt. A. R. P. Ellis, R.A.M.C., has been awarded the D.S.O., and Capts. J. H. Dorman and W. G. Edwards, R.A.M.C., have been awarded the M.C., in recognition of gallant and distinguished services in the Middle East.

The following medical officers have been mentioned in dispatches: Air Vice-Marshal A. E. Panter, K.H.S.; Acting Group Capt. C. J. S. O'Malley; Wing Cmdrs J. P. Huins, O.B.E., A.A.F., T. C. Macdonald, A.F.C., R. Thorpe, J. H. Williams, A.A.F., O. S. M. Williams; Acting Wing Cmdrs. R. W. Durand, R.A.F.V.R., J. S. Wilson; Squad. Ldrs. H. S. Barber, D. G. Evans, R.A.F.V.R., K. B. Redmond, (Mrs.) A. L. J. Dovey, D. Stafford-Clark, R.A.F.V.R.; Fl. Lieuts. J. L. Morgan, R.A.F.V.R., T. Hepburn, R.A.F.V.R.

CASUALTIES IN THE MEDICAL SERVICES

Capt. **SAMUEL DAVID CORRY**, who has died of wounds as a prisoner of war, studied medicine at Belfast, graduating M.B., B.Ch., B.A.O. of Queen's University in 1938. He joined the R.A.M C. at the end of 1939 and was promoted twelve months later. He was mentioned for gallant and distinguished services in the *London Gazette* of April 3, 1942, and was reported missing after the Dieppe raid.

Flying Officer **ARCHIBALD CLARK WARNOCK** was killed in a flying accident on May 7. He was born in Dec., 1917, studied medicine at Glasgow University, and qualified M B., Ch.B. in Oct, 1940. After holding house appointments at the Royal Infirmary, Glasgow, and at Motherwell, he was appointed to a commission in the Medical Branch of the R.A F.V.R. in May, 1942. At the time of his death he was medical officer to a Fighter Squadron.

Died of Wounds.—War Subs. Capt. W. D. Miles, R.A.M.C.

Prisoner of War.—Major W M. Stewart, R.A.M.C.

Wounded or Injured.—Temp. Surg Lieut. R. B. Stark, R.N.V.R.

Medical Notes in Parliament

REORGANIZATION OF MEDICAL SERVICES

In the House of Lords on June 1 Lord **DERWENT** initiated a debate on the Beveridge report and the medical services. He moved that as the medical provisions of the Beveridge plan concerning the future status of doctors and the medical treatment of the population in general did not appear to be designed to further the best interests of British medicine or of the population, the Government should not adopt them without careful examination. He quoted the address by Dr. Hill, Deputy Secretary of the B.M.A., at a meeting of the Metropolitan Counties Branch of the Association on the tentative proposals of the Government for implementing Assumption B of the Beveridge report.

Lord **DAWSON** pointed out that the organization of a comprehensive medical service was no new subject to the medical profession. It had been under consideration since 1920, but the demand for it had always been received by Governments with deaf ears. It was not till the Beveridge report came out that any idea of a comprehensive medical service was put on the political map. The Government had introduced a state of haste and hustle into what, in the words of the Prime Minister, should be a gradual process spread over four years, and they expected the whole medical profession to be turned upside down in six weeks. All he could say was that it was not going to happen so long as they were there to prevent it. It was the duty of the medical profession to devise the best service on its merits which would bring about that improvement in the health of the nation which all were agreed in desiring. It would be disastrous if doctors were regarded as agents to control benefit in the interests of the social security fund.

The first and most important thing to do was to bring together preventive and curative medicine into a single service, so that the furtherance of health, and especially the personal health service, would be brought within the ambit of medical practice, both individual and institutional. Preventive and curative medicine should be brought into the structure of every teaching hospital and occupy an important part of medical education. The second foundation was a pattern of health and inter-related hospital services, distributed according to the needs of the population, in areas sufficiently large to secure a good and efficient service, with, at the head of each area, a key hospital which would afford intellectual leadership to the whole area. That would be done by close co-operation between the local authority and the voluntary hospitals working together in partnership.

Local Administration

Lord Dawson admitted local government in some form to be the seat of the ultimate administrative authority. That would not only conform to constitutional usage, but to the fact that local government already administered health services and its own hospitals. On the other hand, the voluntary hospitals, which had the bulk of the experience, demanded their partnership, and the medical profession would refuse to accept such local administration unless the latter were guided by representative expert bodies. It was not to be expected that a learned profession was going to give up its freedom to think and do as it considered best. The only way of solving the difficulty of the local authority being accepted as the ultimate administrative agent was by having at the elbow of each health authority in each area an advisory council consisting of representatives of the staffs of local government and voluntary hospitals, a considerable proportion of whom would be medical men.

As a profession they would support the proposal that health services and hospitals must be referred to a larger health authority corresponding to each area. This would involve a combination, in many instances, of major local authorities for that purpose. Provided that authority followed the precedent of the education authority and permitted the co-option of a minority of non-elected members—people chosen from among those who had special knowledge and experience of the subject—he believed that along those lines a practical scheme lay. If, in addition, side by side with each area authority, there was an advisory body such as that to which he had referred, and if the principles of health and hospital authority were laid down by Whitehall, he believed that in some such alliance was to be found a solution of their difficulties in regard to hospital services. Not the least of the merits of these area advisory bodies would be that they would bring together the leaders of all kinds of hospital and health services whether they belonged to the local government administration or to voluntary hospitals. It would take two years of patient work to bring about agreement on the many conflicting interests.

Meanwhile hospital and consultant services would be remunerated by appropriate salaries, and holders of these posts would serve on a part-time or a whole-time service, according to choice and circumstances. During the foundational two years they would see where lay the advantages and the disadvantages of a part-time or whole-time service. In regard to hospitals, though every patient would have the same essential treatment, it would be wrong for them all to have the same dead level of amenities and accommodation. The Beveridge plan only provided essentials for the hospital service. One of the things they were most proud of in their hospitals was that every patient in essentials received the same standard of treatment, and, while they secured equality, for Heaven's sake let them avoid a deadly uniformity.

Turning to health centres, Lord Dawson said that Government after Government had treated the matter with complete indifference, and now at the last moment the Minister of Health woke up and talked about health centres dotted about the country when they had never put the health centres to the test of experience. Although he believed they opened a big field of usefulness for the public, he would be a foolish man who would put health centres into service till he had tested them out and proved whether they were good or bad, and had improved them in the light of experience. Therefore when he saw health centres being used as an excuse for the bringing in of a whole-time salaried service he became suspicious.

Hustle of Political Exigency

The medical services sponsored by the different Government Departments must come in under the same umbrella and be governed by the same broad principles of policy under the Ministry of Health. They could have no contracting out. He referred, for instance, to mental health, to the school medical services, and to industrial medicine of the Ministry of Labour. The Ministry of Health had given way to the hustle of political exigency and was trying to put up a structure in a few weeks which it was beyond the wit of man to do. It would be nothing but a jerry-built structure if anybody tried to build it in its completion now. If that were attempted it would arouse a degree of antagonism and distrust which would bring any scheme to the ground. He referred in particular to their discovery of the idea of a whole-time salaried State service for all doctors as being in the departmental mind. Without the foundations of the service even being laid, to endeavour to enclose all doctors within a bureaucratic ring fence was sheer madness. It might be right ten years hence, but it was sheer madness now. The very mention of it had already produced a degree of distrust and antagonism which, unless something was done to allay it, would bring permanent harm to the prospects of peace. Doctors would not take employment with a local authority naked and unadorned, at any rate not now. There was too much distrust. The medical profession would not consent to be pawns on the local government chessboard. They would not consent to have a highly skilled profession governed by laymen ignorant of medicine who had been elected on a totally different ticket.

In the endeavour to be constructive a great deal of time had been given to reconciling these two difficulties, and it could be done by each local authority setting up a special local health authority with a co-opted minority to act as an advisory council. Its members should include doctors in private practice and hospital experts, including representatives of local government hospitals, because the doctors in those hospitals suffered from having too little power. They had no medical council, and were under the medical superintendent and all the tyranny that that represented. They wanted a change. Let them all meet as an advisory council. It should be made statutory that local authorities must give serious attention to their advice, and then he would be content to leave the decision to the local authority. But all that machinery would come to the ground if anybody suggested such a ridiculous scheme as whole-time State salaried service for the whole medical profession. He admitted that with the passage of time many of them might alter their ideas with regard to the relative merits of whole-time and part-time service. He believed that in the course of the next few years professional earnings would consist of a larger proportion of salary than hitherto and a smaller proportion of fees. That did not frighten him, provided it was done freely in the light of experience.

A Medical Council

Lord MORAN, in a maiden speech, said all activities concerned with health should come under one department and not under six departments, as at present. It was essential that in the Ministry of Health civil servants who were not doctors, and doctors who had long been divorced from the work of medicine by administrative duties, should keep in close touch with those actively engaged in the practice of their profession. How could that be done? He thought advisory committees had become rather discredited in the profession. They appeared to have little power, and the Minister was apt to lose interest in their activities so that sometimes they did not meet for six months or even a year. He had in mind a medical council which should help to frame the policy of the Minister. It should meet regularly and not deal with a fragment of policy every six months. It should deal with all questions of general policy that came up. It should be free to publish from time to time uncensored reports of its activities. Such a council might be composed, say, of twenty medical members—fifteen perhaps elected by the profession and five appointed by the Minister, including the Ministry's Chief Medical Officer. The council would elect its own chairman. He hoped that the Minister would give this council real power. The real opposition to the proposals for a comprehensive medical service was based on the objection of the medical profession to become employees of local authorities. If that was to be overcome it was clear that there would have to be some machinery for referring disputes between the authority—whoever that might be—and the doctors working for that authority to some central court of appeal, and this council might very well act as that court of appeal. Further, a sub-committee of the council could act as an appointments bureau, finding posts for doctors in the parts of the country in which they desired to settle and providing for the authority lists of suitable applicants. It could also administer a superannuation scheme for every doctor in the service, if the service did eventually come.

The second essential was clearly that the conditions under which the rank and file of the profession worked must be made as perfect as they could be made. If doctors, instead of practising at their own houses, were to be banded eight or nine together, and were to see patients at some house built for the purpose, with facilities for diagnosis and with consultants' services at their elbow, they would breathe again that atmosphere of their student days in the wards, and it would be a great gain to the community. The fact must be faced that the majority of doctors at the present time were opposed to these health centres. Certainly members of the public were highly suspicious of them, and on very good grounds. None of these centres had been built. There would be plenty of time to try them out. The question of the local authority was really a thorn in the flesh of the profession. Perhaps the country could be divided into ten or twelve regional administrative units, each working with a university, and from which all local feeling and influence would be excluded. It would be useless to try to dragoon doctors to work under local authorities unless some measure of reassurance could be given them that what was to be done would not interfere with the proper work of their profession.

Consultant Service

The third essential was that there should be a really good consultant service. There was general agreement that everyone, whatever his means, must be able to get consultant opinion when necessary. There were not enough consultants at the present time, and those available were not distributed according to the needs of the community. To get over the difficulty in this connexion they must know how many consultants there were and where they were.... They must have a list. No such list existed at the present time. Three Royal Colleges had agreed to draw up such a list for the Ministry of Health. In the first instance, this list or register must be drawn up on one criterion only: the approval of the profession in the man's neighbourhood that he was a proper consultant. It followed, therefore, that all these lists must be drawn up locally; and in the twelve university cities in England, Wales, and Northern Ireland committees were now sitting. The Vice-Chancellors of all those universities had consented to act as chairmen of those committees. When this list was complete a very different state of affairs would follow; any man who aspired to be a consultant after that, and to have his name added to this list, would have to pass the very strictest scrutiny. He would have to satisfy a board that he had done the years of special training required, and that he was competent to act as a consultant. When all this was done, and when everyone was able to obtain the services of a consultant who had had a proper training, it would be the greatest single step in advance in his own lifetime.

Lord GEDDES said that the only thing that could be done at present to get the medical profession out of the state of alarm which existed was for the Government to make it quite clear that they did not intend to turn every registered medical practitioner into a whole-time servant of the State—because that was what was feared, and not by members of the medical profession alone. There was now developing in this country a rather violent reaction against bureaucratic interference in private life. It was the fear of that bureaucratic interference in private life which was making a very large number of people anxious about the Government's proposals, and about negotiations now proceeding between the Government and the medical profession.

Government Reply

Lord SNELL said he had not really gripped what particular sin the Government had been guilty of in this matter. The principle enunciated in the motion—namely, that any proposal for comprehensive health service should be carefully examined and that no hasty decision should be taken—was precisely the policy of the Government. It was enunciated with perfect clearness by Sir John Anderson in the House of Commons on Feb. 16. The motion implied that the Beveridge report contained detailed proposals about the future status of doctors and the medical treatment of the population, but the Beveridge report itself expressly declared that the problem of the organization of a complete health service was outside the scope of the report. Lord Moran had spoken about the reluctance of medical men to become servants of local authorities. With some knowledge of English local government he (Lord Snell) stated quite firmly that that was not his experience. It was not the experience of any member of a selection committee of a local authority. Lord Geddes had suggested that the whole idea of a salaried service should be abandoned. The Government had made no final decisions about this matter. To the suggestion that a Royal Commission should be appointed without delay the answer was that discussions were proceeding with the medical profession, and if it should turn out that a Royal Commission would be the best instrument the Government would look at it in that sense. The medical profession was being consulted at every stage. The Government had initiated discussions with groups representative of the medical profession, the voluntary hospitals, and the major local authorities, and it was expected that before long the Minister would be able to review the question of organization and to formulate further proposals for public discussion. It was not intended that the decisions so far made should be final or binding.

The Government were not trying to rush this question. They were allowing full opportunities for calm and full discussion.

Industrial Accidents.—Accidents reported under the Factories Act were: 1939, 1,104 fatal and 192,371 non-fatal; 1940, 1,372 fatal and 230,607 non-fatal; 1941, 1,646 fatal and 269,652 non-fatal; and for 1942, 1,363 fatal and 313,267 non-fatal. The percentage of such accidents to the total employed was roughly 3.4 in 1940 and 3.8 in 1941.

No. 20

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended May 22.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for. (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	68	2	19	2	2	158	8	40	4	10
Deaths		2	1				1	1		
Diphtheria	619	41	162	65	19	653	40	171	46	19
Deaths	12	2	1	1	—	13	—	1	3	—
Dysentery	146	18	73		—	97	6	41		—
Deaths				—	—		—	—	—	—
Encephalitis lethargica, acute	—	—	—	1	—	1	—	—	—	—
Deaths		—	—				—	—		
Erysipelas			42	9	1			42	5	2
Deaths	—	—				—	—	—		
Infective enteritis or diarrhoea under 2 years				13					54	
Deaths	63		6	9	3	40	6	6	9	—
Measles	8,377	430	561	17	33	6,437	761	590	115	331
Deaths	7	1	3	—	—	10	—	6	1	—
Ophthalmia neonatorum	97	5	17		—	89	2	34		1
Deaths										
Paratyphoid fever	4		1		—	3		6		
Deaths	—		—		—	—		—		—
Pneumonia, influenzal*	672	38	4	—	3	1,137	50	16	2	14
Deaths (from influenza)	15	3	1	1	—	14	—	4	1	1
Pneumonia, primary			208	23				307	24	
Deaths		26		13	12		—		14	12
Polio-encephalitis, acute	—	—				2	—			
Deaths		—					—			
Poliomyelitis, acute	7	—	1	3	—	4	—	1	—	—
Deaths		—					—	—		
Puerperal fever		2	15		—		4	11	2	1
Deaths		—					—			
Puerperal pyrexia	183	7	18	1	7	187	8	15	—	1
Deaths										
Relapsing fever	—	—			—	—	—			—
Deaths										
Scarlet fever	1,740	155	250	49	41	1,122	45	177	51	14
Deaths	—	—	—	—	—	—	—	—	—	—
Small-pox	—	—	—		—	—	—	—		—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	12	1	2	15	1	5	—		4	1
Deaths	—	—	—	—	—	1	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	—	—
Deaths				—	—			—	—	—
Whooping-cough	2,446	128	287	14	36	1,267	137	63	64	18
Deaths	15	1	4	1	1	13	2	3	—	—
Deaths (0–1 year)	375	53	63	46	27	329	37	65	41	19
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	4,454	637	627	242	143	4,434	619	664	229	132
Annual death rate (per 1,000 persons living)			14·1	15·9	†			14·9	15·3	†
Live births	6,985	817	1,037	389	345	6,140	705	904	459	307
Annual rate per 1,000 persons living			21·2	25·6	†			18·7	30·6	†
Stillbirths	221	18	34			237	22	43		
Rate per 1,000 total births (including stillborn)			32					45		

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* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Medical News

A meeting of the Fever Hospital Medical Service Group of the Society of Medical Officers of Health will be held at Tavistock House, Tavistock Square, London, W.C.1, at 3 p.m. on Friday, June 18. The subject for discussion will be "Diphtheria—Some Problems of Administrative and Clinical Control." Opening speakers: Dr. J. A. Scott (M.O.H., Fulham Met. B.), Dr. N. D. Begg (Med. Supt., Eastern (L.C.C.) Hospital), and Dr. R. Cruickshank (Group Pathologist, L.C.C.). A cordial invitation to attend is extended to members of the Metropolitan Branch of the Society.

The House of the British Medical Association will be closed from Friday, June 11, 6 p.m., to Tuesday, June 15, 9 a.m.

On Thursday, June 17, at 4 p.m., Mr. F. J. Chittenden will give a Chadwick Public Lecture on "Plants causing Irritation," at the Chelsea Physic Garden, Swan Walk, S.W.3. Admission is free without ticket.

At a meeting of the British Association of Physical Medicine, held on May 25 at the Medical Society of London rooms, Lord Horder presiding, the election of the Council was completed. The following are its members, who will hold office until the annual meeting: Drs. F. Bach, L. D. Bailey, P. Bauwens, W. Beaumont, Wing-Cmdr. Bromley, Drs. Hugh Burt, F. S. Cooksey, E. J. Crisp, C. B. Heald, Geoffrey Holmes, Lord Horder, Brig.-Gen F. D. Howitt, Dr. James Mennell, Major J. W. T. Patterson, Dr. M. B. Ray, Sir Morton Smart, Dr. Kenneth Stone, Major Tegner, Dr. Dorothy Wood, Sir Robert Stanton Woods. The Council was authorized to draft a declaration of the objects of the Association; the rules as to membership, procedure, etc., to be guided in these matters by resolutions passed at the previous meeting on May 5. It was also empowered to appoint the officers of the Association.

The attention of doctors generally, but especially of those in London, is drawn to yet another activity of the Joint War Organization of the British Red Cross and the Order of St. John. At 25, Cadogan Square the organization has established a sick-bay for the care of civil defence workers of both sexes and of Red Cross and St. John personnel who are not ill enough to go to hospital but need a brief period of nursing in bed. There are 26 beds for patients suffering from such conditions as influenza, acute bronchitis, jaundice, minor accidents, and overstrain, and patients needing a few days in bed after discharge from hospital are also admitted. Two doctors are attached to the sick-bay and a trained nurse is in charge, but patients can be admitted under the care of their own doctors if they wish. No charge is made, but of course a donation to the funds of the organization is most acceptable.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* whooping-cough notifications rose by 340, measles by 345, and dysentery by 48, but there was a decline of 40 in acute pneumonia.

Five Northern counties recorded rises in whooping-cough: Lancashire 87, Yorks West Riding 61, Warwickshire 53, Cheshire 48, Derbyshire 44.

The higher incidence of measles contrasts with the trend during the preceding seven weeks, when the cases fell by 11,529. Especially notable were the rises in Staffordshire 182, Northamptonshire 91, Northumberland 74, Kent 72, and Shropshire 55. Fewer cases were notified in a number of counties, and the largest declines during the week were in London 88, and in Norfolk 76.

The higher figure for dysentery was due mainly to sporadic cases. In Gloucestershire cases rose from 9 to 19 (all in Bristol C.B.), in Lancashire from 23 to 37, and in Yorks West Riding from 2 to 12. Six county boroughs in Lancashire accounted for 29 of the county total (Manchester C.B. 12). The 12 cases in Yorks West Riding occurred in six administrative areas.

In *Scotland* notifications of dysentery rose from 41 to 73: city of Aberdeen 24 cases, and Banff county 23. In the eastern area 32 cases of diphtheria were recorded, compared with 14 in the preceding week. There were 19 more cases of whooping-cough, but the notifications in Glasgow fell by 31.

In *Eire* the notifications of diphtheria were the lowest of recent months, but those of typhoid were the largest—the 15 cases being reported from eight administrative areas (Kerry, Tralee R.D. 6).

The Week Ending May 29

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,997, whooping-cough 2,233, diphtheria 712, measles 7,395, acute pneumonia 760, cerebrospinal fever 80, dysentery 116, paratyphoid 10, typhoid 5.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

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TELEGRAPHIC ADDRESSES.—EDITOR, *Aitiology Westcent, London;* SECRETARY, *Medisecra Westcent, London.*

B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh.

ANY QUESTIONS?

Oral Blood-blisters

Q.—*A lady aged 72 suffers from recurring blisters on the lips, hard palate, and pharynx at irregular intervals. The blisters appear quite suddenly, usually singly, and are filled with blood-stained fluid. She is of an emotional type but is in fairly good health. What treatment is recommended?*

A.—The recurrence of solitary blood-stained vesicles on the lips in an emotional subject is most suggestive of an unconscious autophytic phenomenon, and a sedative bromide mixture would probably be the best method of treatment. On the other hand, the patient may be allergic to some food or tooth-paste, and this would explain the oedema, which, presumably, accounts for the hard palate and pharynx. The solitary blood-stained lesion is against the diagnosis of allergy, but, presuming the condition is an allergic one, calcium and vitamins A and C might be tried.

Addiction to Nutmeg

Q.—*I have just come across a very strange form of addiction in a man whose general health and appearance are bad. He continually chews nutmegs. I should be glad to have any information about the harm that might accrue through this habit.*

A.—On page 168 of the 1942 edition of Sollmann's *Manual of Pharmacology* the following paragraph appears under the heading of "Nutmeg Poisoning": "In man severe symptoms have occurred from one to one and a half nutmegs, or from a teaspoonful of powdered mace. The effects appear in one to six hours, and are mainly narcotic, varied by excitement and delirium, with some motor stimulation and local irritation; they usually end in recovery in twenty-four hours. Nutmeg is also ecbolic. Similar effects occur in animals. Hepatic necrosis has been demonstrated in cats (Dale, 1909). Cushny and Wallace, 1908, showed that the narcotic effect is produced by 'myristicin,' the high boiling portion of the volatile oil. The oil has been investigated chemically by Power and Salway, 1908. *Myristica,* U.S.P. (nutmeg) is the ripe seeds of *Myristica fragrans.* Dose, 0.3 to 0.6 g., 5 to 10 grains. The *Oil,* U.S.P., is distilled from the seeds. Dose, 0.06 to 0.2 c.cm., 1 to 3 minims, *B.P.* The *Spirit* represents 10% of the oil. Dose, 0.3 to 1.2 c.cm., 5 to 20 minutes [*sic:* presumably minims]."

The Colour of a Bruise

Q.—*A bruise passes through various hues to reach a jaundice-yellow colour. Shed blood and blood massively segregated in the body in cysts and blood-blisters do not undergo these pigmentary changes. What causes the changes, what cells are concerned, and is the process similar to bile formation by the liver?*

A.—No pigmentary changes occur in shed blood unless as the result of decomposition. The haemoglobin from blood in an enclosed body cavity or space is acted upon only by tissue enzymes, and the new pigment formed is haematoidin, which gives such material its chocolate-brown colour. Red cells effused into connective tissue are attacked by histiocytes, which form bilirubin from them, the yellow colour of such an area being due to the presence of this pigment. Whether bile pigment is formed from extravascular blood therefore depends on whether it is accessible to the phagocytic cells of the reticulo-endothelial system. Bilirubin so formed in any part of the body (a process which is normally continuous owing to the removal of effete red cells from the circulation) is excreted by the liver in the bile.

Pathology of Atypical Pneumonia

Q.—*Is the condition known as primary atypical pneumonia an interstitial pneumonia?*

A.—As far as is known—yes. When it has been possible to examine histologically the lungs from cases of this condition, the primary changes appear to have started in the alveolar walls. The exudate which later appears in the alveoli consists of serum, mononuclear cells, desquamated epithelial cells, red blood corpuscles, and polymorphonuclear leucocytes, and the consolidation, when it occurs, is not as dense as in a lobar pneumonia. The view that the condition is primarily an interstitial pneumonia is supported by the x-ray findings, which show as a rule either a reticular shadow or, if a whole lobe is involved, a lobar shadow of only moderate density.

Oral Administration of Liver Extracts

Q.—*As liver therapy was originally oral—raw liver, partly cooked liver, various liver extracts, etc.—is there any reason why the perfected liver extracts could not be administered orally?*

A.—It is generally agreed that the injection of liver extract is 20 to 40 times as effective as oral administration. To treat a patient with anahaemin by mouth it would therefore be necessary to give 200 mg. a day instead of once a month by injection. In other words, the cost of treatment would rise from 4s. 6d. a month to 4s. 6d. a day. It is for this reason that the Government has discouraged the oral administration of liver extracts during the war.

Treatment of Myasthenia Gravis

Q.—*A patient aged 23 years developed myasthenia gravis five months ago. Treatment with prostigmine, ephedrine, glycine, and potassium salts is being given, but loss of weight and muscular power continues. Deep x-ray therapy to the thymus gland is now contemplated. What percentage of success has been obtained with this treatment? What other lines of treatment are available?*

A.—One of the peculiarities of myasthenia gravis is the way in which different cases respond differently to different methods of treatment. There is little real evidence that glycine is of any value, but ephedrine and potassium are both useful, particularly in the less severe cases. Prostigmine has proved of great benefit, but some authorities have preferred to limit its use to the times when the myasthenic is greatly disabled by muscular weakness, and particularly when the weakness is embarrassing respiration, as it does in the actue exacerbations which are called myasthenic crises. The reason for this choice is that prostigmine increases the power at the time, but a few hours after the injection has been given the muscles may be even weaker than they were before. This effect has been likened to flogging a tired horse, and the cause may be that if, as was outlined in a leader in this *Journal* on May 1 (p. 544), an abnormal substance is circulating in the blood which destroys one of the precursors of acetylcholine, the prostigmine is merely facilitating the action of the acetylcholine which is not destroyed, and the real pathological process is going on undisturbed or may even be enhanced by the extra acetylcholine which has been made available by the prostigmine. This is, of course, pure speculation.

Deep x-ray treatment to the thymus has been tried on several occasions, notably at the National Hospital, Queen Square, but workers there have now discarded the method as of little value, and the procedure is not even mentioned in Davidoff and Dyke's new book *The Roentgen Treatment of the Nervous System*. A case such as the one described fulfils many of the requirements which are found desirable in advising thymectomy. Keynes, who recently reported his operative results to the Royal Society of Medicine, has found the effect to be most dramatic in the severe and acute myasthenic who shows generalized weakness. Failure to respond to medical treatment is of course another indication for operation. It is likely that even in this case prostigmine will be beneficial if given in sufficiently large doses, and Keynes has found that really enormous doses are needed to combat the acute myasthenic crisis that occurs after operation. It has been said earlier that some neurologists prefer to reserve the use of prostigmine for these crises, and if operation is considered it would be well to withhold this substance until the patient is handed over to the surgeons. Provided the patient survives the immediate post-operative stage, which is usually critical, the results of operation in this type of case have been dramatic.

INCOME TAX

Appointment—Receipts " in Kind "

" P. Q." is a married woman employed as an assistant at a salary plus " full residential emoluments " for herself and her husband. Is her or the husband's keep liable to tax?

⁂ The value of neither her own nor her husband's keep is assessable; but the result would be different if the terms of the engagement provided for a gross amount of remuneration, subject to deduction for the " keep " provided, as in that case the gross amount is liable to assessment. (The fact that the cost of the " keep " is not assessable on the recipients does not affect the principal's right to treat it as a professional expense.)

Wife's Part-time Earnings

E. W.'s wife has done 12 weeks part-time work as dispenser to the partnership and has been paid £30. He asks, " Do I pay full rate of tax on this? "

⁂ There is a special personal allowance (in addition to the ordinary " married " allowance of £140) up to a maximum of £80 in respect of a wife's earnings. Mrs. E. W.'s earnings of £30 are covered by this £80 and there is accordingly no liability to tax thereon.

War Damage Contributions

J. A. B.'s claim to deduct as professional expenses the contributions paid under the " business scheme " and in respect of the professional portion of the premises has been refused. Is this correct?

⁂ Yes; such deductions are expressly forbidden by Section 84 of the War Damage Act of 1941. (The reason for this is presumably that the Government have undertaken to contribute to the Fund from the Exchequer, and to permit deduction for income-tax purposes would in effect amount to a further contribution from the Government revenues.)

Necessitous Practices Fund

" X Y." Owing to a long period of illness this correspondent received a sum of money from the special fund for " necessitous practices " of the National Health Insurance Committee, for one year. Is this liable to tax?

⁂ The grant is liable to tax if it can be claimed as of right, or if, though not so claimable, it has been made substantially in respect of the services rendered by the practice. " X. Y." might like to put the facts before the Board of Inland Revenue (address: Imperial Hotel, Llandudno) for their ruling; we would not advise contesting the decision if it should be adverse.

LETTERS, NOTES, ETC.

Wheeled Stretcher Carrier

Col. J. GRAHAM MARTIN, A.M.S., T.A. (ret.), writes from Liverpool: Neither Lieut.-Col. C. A. Whitfield (May 22, p. 648) nor Dr. K. Vernon Bailey is probably aware that a wheeled stretcher carrier was in use by the British Army during the South African campaign, 1899–1902, but not exactly of the same type, as the wheels were much larger and shod with solid rubber tyres. I have vivid recollections of being transported on such a wheeled stretcher across the veldt and over the railway line in Natal in 1900. I always found it most useful in moving patients and also equipment.

Wheeled Stretcher for Resuscitation

Surg. Lieut. J. C. BULSTRODE, R.N.V.R., writes: I was impressed by the suitability of the wheeled stretcher described by Dr. K. Vernon Bailey (May 1, p. 542) for use in Dr. F. C. Eve's method of resuscitation of the apparently drowned (May 1, p. 535). The provision of a stretcher of this type, preferably to carry one patient, would be of great value not only for transporting injured in dockyards where railway lines and other obstructions are common but also for the early institution of Eve's method of resuscitation. The treatment of the apparently drowned could be commenced at the dockside by Schäfer's method. On arrival of the stretcher, equipped with blankets and webbing straps for the wrists and ankles, the patient could be transferred to it and rocking started. There is no reason why the loaded stretcher should not then be wheeled to the nearest shelter, whilst rocking is continued, thus minimizing shock due to exposure.

Interstitial Emphysema of the Hand

Dr. R. JOHN GOURLAY (Menston) writes: One evening a patient aged 55 came to my surgery complaining of swelling of the left hand. That morning, while breaking up some lumps of salt with a sharp-pointed knife, she had inflicted a wound on the dorsal aspect of the thenar space. The wound was clean and 1/4 inch long. The back of the hand was considerably swollen, but not red; there was no pain and no sign of infection. On palpating the swelling fine crepitations were felt on the back of the hand and on the back of the first two fingers as far up as the first joint. On tapping the palm of the hand with my finger a hollow sound was produced. Gently I compressed the swelling towards the wound, and had the satisfaction of hearing distinctly the sound of air escaping. A clean dressing was applied to the wound and the patient made an uneventful recovery. It would appear that, owing to the oblique direction of the wound, a valvular mechanism had been instituted which, on movement of the thumb and forefinger, had caused air to be drawn into the subcutaneous tissues of the hand.

Disclaimer

Miss IDA MANN, D.Sc., F.R.C.S., wishes to state that certain irresponsible articles in the Press have mentioned her name (particularly an evening newspaper on June 4) and that this was done without her knowledge or consent.

BRITISH MEDICAL JOURNAL

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PRINCIPLES OF EXERCISE THERAPY

BY

ERNEST A. NICOLL, M.D., B.Ch., F.R.C.S.Ed.

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Remedial exercises have long been recognized as the basis of functional recovery in fractures and other injuries of the locomotor system. In fact, the success of any accident service depends very largely on its organization for the application of therapeutic exercise to all cases and at all stages. In nearly all prolonged or serious illness, however, both medical and surgical, and non-traumatic as well as traumatic, there is a general deterioration of the locomotor system, and this is the chief cause of incapacity during the convalescent stage. In the past, convalescence from these conditions has been entirely negative and loosely supervised, but efforts are now being made by the Ministry of Health to substitute a more positive approach on the lines of the after-care organization in accident services. This, it is hoped, will be brought about by the more extended use of therapeutic exercise, on both a prophylactic and a curative basis. It should be a relatively easy proposition if the right type of organization can be evolved, because it is well known that deterioration of the locomotor system through simple disuse or toxaemia is much easier to cure than the same deterioration following trauma.

Two conditions, however, are essential to success. First, organization is necessary. The benefits of exercise therapy must be brought to all cases at the right time, in the right dosage, and in the appropriate form. Secondly, the physicians and surgeons themselves must appreciate and understand the basic principles of exercise therapy; for only then can they be expected to direct its application and to supervise intelligently the work of their technical assistants—the physiotherapist, the occupational therapist, and the gymnast. It is a defect in medical education that there is practically no teaching in this important branch of therapy, and even our most up-to-date textbooks do little more than advise us to use it. The object of this paper is to formulate such basic principles, for this is all that is required in order to direct the work of technical assistants. The busy specialist cannot be expected to acquire a detailed knowledge of remedial exercises, occupational therapy, gymnastics, recreational therapy, and the like; nor is this necessary. The experience out of which this paper is compiled was gained in directing the work of an accident service—and particularly the work of the Miners' Rehabilitation Centre at Berry Hill Hall—so it has a particular bearing on fractures and other injuries of the locomotor system. But principles are principles, and should remain true for any extension beyond this field. It is hoped, therefore, that, while being of particular interest to those engaged in the traumatic surgery of the locomotor system, the general principles here discussed will also interest that much larger body of physicians and surgeons who are now being urged by the Ministry of Health to incorporate exercise therapy into their systems of treatment. The general principles to be discussed may be stated as follows:

Therapeutic exercise must be: (1) both specific (focal) and general; (2) administered with due regard to dosage; (3) rhythmic in regard to contraction and relaxation; (4) progressive in (*a*) range, (*b*) power, and (*c*) time; (5) variable in form—the chief forms being (*a*) medical gymnastics, (*b*) occupational therapy, and (*c*) recreational therapy.

It is beyond the scope of this paper to discuss the detailed application of these principles. Where this is done it is merely in order to exemplify the principle.

Focal and General Exercises

Specific (or focal) exercises are those which pick out some particular muscle group for selective redevelopment. This in effect means devising exercises which make the desired muscle group work as a prime mover. It may be asked why this is necessary—why, for example, cannot these muscles be developed by general activity? The answer is that in a good many cases they can, but that in such cases the result depends on any general movement in which the muscle normally takes part being performed in the normal manner. In fact, however, most patients learn more quickly how to dodge the use of inefficient or painful muscles. In other words, they learn trick movements resulting in compromises. But compromises are not desirable if the normal mechanism can be regained, so focal exercises differ from general exercises in stressing, not the end to be attained, which is functional movement, but the means whereby it is attained, which is the production of the movement by a particular muscle group acting as a prime mover.

The use of focal exercises, therefore, is of most importance in injuries of the locomotor system, for in these conditions certain muscles and joints are affected a great deal while the rest are comparatively normal. Such a situation lends itself much more readily to the development of trick movements than does a *generally* weakened locomotor system following ordinary sickness; for if the *whole* system is depressed the muscles still retain their normal *relative* action even if each muscle is itself inefficient. Trick movements, on the other hand, depend on functional inequality. All faulty gaits, for example, are trick movements acquired by a patient who is made to walk when his muscles or joints are physically incapable of producing a normal gait, and it is the duty of the surgeon to pick out the particular muscles and joints concerned and redevelop them by focal exercises in order to prevent a temporary compromise from developing into a fixed habit. From these arguments it is obvious that general exercises alone, properly supervised, will usually be sufficient for the deterioration following ordinary sickness, but that in injuries affecting specific parts of the locomotor system a combination of both general and focal exercise is necessary.

An example of the need for deliberate "focusing" in exercise technique is afforded by the quadriceps. This important muscle group is wrongly regarded as a single muscle. In fact, it behaves more like two separate muscles, the vastus internus

4302

being quite selective in its action. Extension of the knee-joint to within about 15 degrees of full movement can be brought about entirely by the rectus femoris, vastus lateralis, and vastus intermedius, under conditions of minimal stress. It is only when the stress is markedly increased, as in single-leg weight-bearing, that the vastus internus enters into this range. That is why a weak vastus internus can be "caught out" in such activities as walking up and down stairs, running, and alternate-leg skipping. On the other hand, the last 15 degrees of extension, even against minimal stresses, cannot be effected *without* the vastus internus. This latter range is so small compared with the rest, however, that a patient may appear to be extending and flexing his knee-joint most energetically and using his quadriceps most effectively, yet never really using his vastus internus at all. This explains why "quadriceps drill" in plaster casts flexed more than 15 degrees at the knee-joint results in selective wasting of the vastus internus. This excessive flexion is quite unnecessary to prevent rotation of the fragments, and all long plasters should fix the knee well within the range of the vastus internus. It also explains why quadriceps drill on a flexed Thomas splint results in the same condition. Where this is necessary, as in supracondylar and lower-third fractures of the femur, exercises should be supplemented by selective faradism and the position of the knee brought to within 15 degrees of full extension as soon as possible. If any surgeon doubts this he should have himself put up in a flexed plaster or on a flexed splint and then try to do quadriceps drill and see if he can use the vastus internus—even when it is normal. The importance of all this is that the vastus internus is the key muscle in producing the last 15 degrees of extension and stabilizing the joint in all positions. If it is inefficient a syndrome is created familiar to all orthopaedic surgeons—the joint that "gives way" under stress or sudden unexpected movement. Of the two components of the muscle, the rectus femoris group can most safely be left to take care of itself because no compensatory mechanism can be devised in its absence—but the vastus internus needs the most focal and specific treatment because it operates over such a small range that a compensatory mechanism can be evolved. Once evolved it may become a fixed habit, and general activity will confirm rather than cure it. Further wasting then occurs, leading to the paradox of progressive disuse atrophy in an active patient. So the term "quadriceps drill" should be abolished and "vastus internus drill" substituted.

It is beyond the scope of this paper to go into questions of how to evolve special exercises for the redevelopment of vastus internus or other particular muscle groups—the object is merely to underline the principle that focal exercise technique is essential in certain conditions and to give the reasoning on which this opinion is based. It is necessary at the present time to make this point for two reasons—first, because it is being represented in certain quarters that general exercises will cure everything; and, secondly, because of the revival of occupational therapy. In this form of exercise therapy focal technique has not received the attention it deserves, and is apt to be disregarded entirely or even condemned. This will be referred to later.

The need for general exercises as a part of any system is self-evident. Here the body as a whole is exercised, and the injured muscles learn to act again as fixators, synergists, and antagonists as well as prime movers. Muscles were never intended by Nature to be individualists, so exercises aimed at their selective redevelopment must always be combined with exercises aimed at co-ordinating them with the rest of the locomotor system—a process often referred to as "re-education."

The Dosage Principle

Exercise therapy has been used in the past in such small and scattered doses that it may truly be said to have been on a homoeopathic basis. Having been "discovered," however, the new danger is that it will be given in poisonous doses. It is necessary, therefore, to point out that weak muscles *can* be poisoned by overdosage with exercise. Two factors have to be considered in this connexion—first, the optimum stress under which a muscle should exercise, and, secondly, the relative duration of exercise periods and rest periods. Generally speaking, the weaker the muscle the less should be the demands made on it, both in stress and in time. At Berry Hill Hall weak muscles are never exercised against more than 25% of their "all out" efficiency, but this proportion is increased to 50% as the muscle strengthens. At the same time the exercise periods are lengthened and the rest periods shortened.

The Principle of Rhythm

All therapeutic exercises should be rhythmic. Contraction must be followed by relaxation, and the relaxation must be complete and long enough to allow normal circulatory conditions to be restored in the muscle before it begins its next contraction. A good instructor teaching his patients will be heard uttering over and over again the incantation: "Contract . . . and rest . . . contract . . . and rest." Mr. J. H. C. Colson, former superintendent at Berry Hill Hall, introduced this principle into resisted pulley-and-weight exercises by incorporating ingenious "relaxation stops" in the pulley circuits (Fig. 2). He also insisted, most rightly, on its observance in occupational therapy. For this reason carpentry—which is mostly a matter of sustained contraction—was never used to any great extent in finger cases, whereas the craft-work known as netting, which involves a regularly alternating contraction and relaxation, was used extensively. There are other reasons why carpentry, the most vaunted of all forms of occupational therapy in official quarters, is also the worst. What is the scientific basis underlying this principle? In a muscle affected by disuse or injury the circulatory and lymphatic systems are impaired. Atrophy, even in non-traumatic cases, is always associated with intramural fibrosis. In a traumatized muscle there are many additional factors producing fibrosis, and fibrosis in muscle always impairs the circulatory condition by causing obstruction to venous and lymphatic drainage. Now, muscle more than any other tissue depends on good circulatory conditions, because the products of contraction (chiefly sarcolactic acid), unless speedily carried away, act as a muscle poison, and fatigue results. So in an atrophied or fibrotic muscle it is essential to give the embarrassed circulation time to clear the breakdown products—and hence exercises should be rhythmic in character as opposed to exercises which call for sustained contractions.

The Principle of Progression

The principle of progression is one of the most important and firmly established features of the Ling system of gymnastics. But its use in remedial exercises, in which it is much more necessary, has been neglected—and the same applies even more so to occupational therapy. It is not sufficient that a muscle should be made to contract—it must contract against gradually increasing stresses, through gradually increasing ranges of movement, and over gradually increasing periods of time. It is not a matter of devising an exercise to make a muscle work; the task of the physiotherapist is to devise a whole series of exercises which provide smooth progression from the stage of extreme weakness to the stage of full use against the stresses of normal work. This progression must be in three dimensions—in range of movement, in power of movement, and in duration under stress—but by far the greatest of these is *power*. Range without power is worse than useless, for in its extreme form we have a flail-joint. Power without range, on the other hand, is compatible with full function in heavy industry. So progression in power is of absolutely vital importance in exercise therapy.

But to consider first the methods of increasing range of movement. Passive movements, at one time widely practised, are now almost universally condemned. Active movements, on the other hand, are universally recommended. But what fundamental differences are there that place them such poles apart? Surely only two factors are involved: first, that the force applied is much greater in passive movement; and, secondly, that this greater force is not under the patient's control. Now there is no reason why the force available should not be increased—in fact, this is desirable. Suppose, for example, that the patient is trying to mobilize a stiff shoulder limited in abduction, and the normal muscles available to produce this movement are wasted and weakened—as they are likely to be. Would any surgeon object if the power of those muscles were suddenly increased to normal or even a little above normal? On the contrary, he would welcome it. So the only objection to passive movement must be that this desirable extra force is provided by an outside agency—and that is, of course, a very legitimate objection. But suppose that by means of a pulley circuit (Fig. 1) the abductors of one arm are reinforced by the adductors of the opposite arm—then the extra force available for breaking down adhesions and stretching contracted tissues is still under the patient's control. This type of exercise has been developed at Berry Hill Hall for practically all the important joints of the body, and has been called "auto-assisted active movement (A.A.A.)." Even the proximal interphalangeal joints of the fingers can be mobilized in this way by strapping the stiff finger above and below the joint to its fellows on either side. The following is an example of the use of the pulley circuit.

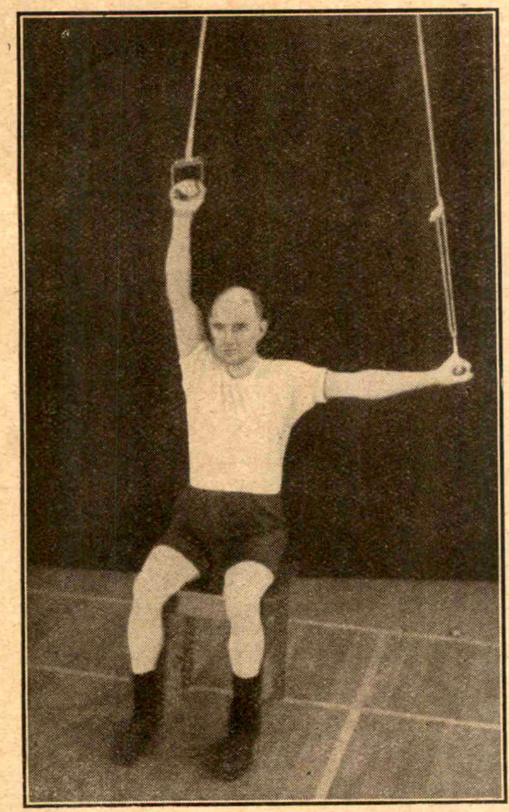

FIG. 1.—Remedial exercise with a pulley circuit for self-assisted active movement.

The patient shown in Fig. 1—a miner aged 50—sustained a severe shoulder injury which resulted in complete stiffness. At the beginning of treatment at Berry Hill Hall he had no shoulder movement at all, and was so weak he couldn't lift a bucket. It took three months' hard work to cure this most difficult case; but it was worth every minute of it, for he has regained full movement and full power, and is now back at his job as a coal-face miner.

Apart from its use in recovering movement, this type of exercise has another indication, and that is to preserve movement that would otherwise be lost through painful inhibition. To take the shoulder once more as an example—it is well known that many stiff painful shoulders result from simple contusion, and the difference in prognosis between a dislocation due to a fall on the hand without damage to the deltoid and one associated with contusion to the deltoid is equally well known. Contusion in certain muscles, of which the deltoid is one, produces severe pain when the muscle contracts under stress. To guard against this the patient elevates his arm by fixing the shoulder-joint and rotating the scapula, thus producing the familiar "reversed rhythm" seen in these cases. Painful inhibition of movement in a contused muscle leads to fibrosis; fibrosis leads to more pain, and so the vicious circle goes on till it ends as a "frozen shoulder." What was originally a painful inhibition becomes a painful contracture. There are two aims of treatment in the early stages of such a condition—to cure the pain and so release the inhibition, and to preserve the normal range of movement during this process, which may be prolonged. The best way to preserve movement in these cases is by the use of auto-assisted active exercises. Another method is by using a weight to assist the movement. This can be done on the same pulley apparatus, the weight being gradually diminished as improvement allows. Once the stress is removed the muscle is able to contract without pain, and normal rhythm and full range are restored. Strictly speaking, this is not an example of progression in range—it is a special use of exercise technique to prevent loss of range; but it embodies some very important general principles.

Progression in power is usually obtained in gymnastics by making the performer do the exercise from different gymnastic positions. In the simplest form of the exercise a position and a technique are adopted which allow the performer to obtain help from accessory muscles. In the various progressions these are cut out by degrees. Another gymnastic method of obtaining progression in power is by using the lever principle in reverse. For instance, in extension of the spine from the prone position, the arms are first kept at the sides, then clasped behind the neck, and finally fully stretched out ahead of the patient. A third method is to start by performing the exercise in "inner range" and gradually progress to "outer range" movement on the theory that all muscles have to act more powerfully in outer range.

But the most scientific way of obtaining progression in power is to add a resistance which can be accurately measured. This is achieved very simply and very effectively by the use of pulley-and-weight apparatus, the principle of which is illustrated in Fig. 2. This type of apparatus is used only for the focal type of exercise, so it is essential to isolate the muscle effectively as a prime mover. The "relaxation stop," mentioned earlier, is a knot or metal runner in the cord arranged in such a way that it engages in the pulley and takes the entire strain of the weight in the resting position of the exercise.

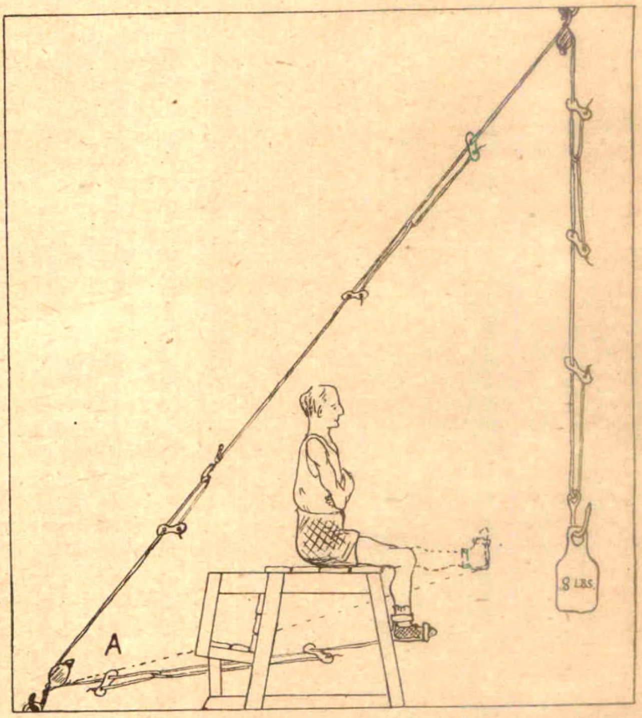

FIG. 2.—The principle of the calibrated resistance exercise (A = relaxation stop).

It is extremely important in using this type of exercise to pay due regard to the dosage principle. Failure to do this has produced chronic sprains, especially in knee cases, and has led several surgeons to issue warnings against the use of resisted exercises altogether for the knee. This is quite wrong, because the principle of progression in power is unchallengeable, and the apparatus evolved to achieve it is beyond criticism. The fault lies in the use of the method without due regard to the dosage and relaxation principles. At Berry Hill Hall no ill effects have been observed when using the technique described earlier in discussing dosage. Another way to produce sprains in knee cases is by failing to redevelop the vastus internus and then making it work against the same resistance as the rectus femoris component. This in its turn is due to failure to recognize the vastus internus as a separate muscle and therefore to use the entirely separate pulley circuit appropriate to its action.

The third type of progression in exercise therapy is progression in time—that is, carrying out the exercise under the same stress for increasing periods. This is very important in rehabilitating industrial workers, because industry demands not only that a workman shall be able to exercise his muscles against certain stresses but that he shall be able to do so continuously for whatever number of hours constitutes a "shift."

Principle of Variation in Form

If exercise therapy is to be carried out for many hours a day it must be disguised in various forms to make it palatable to the patient. Medical gymnastics alone would become boring; the patient would lose interest and initiative, and therefore cease to put his best endeavours behind them. So exercise therapy must be capable of assuming different forms, though in doing so it must conform as nearly as possible to the general principles already laid down. Unfortunately this is not always the case, and in the two chief disguises—occupational therapy and recreational therapy—the art of "sugar-coating" the pill has proved so diverting that the ingredients of the pill itself have been rather overlooked. Another reason why there must be variation in form is that medical gymnastics do not lend themselves to certain conditions. For example, no patient would sit in a gymnasium flexing and extending his fingers for six hours a day, but he will do it in an occupational-therapy department.

It is beyond the scope of this paper to discuss either occupational therapy or recreational therapy, but there are a few points in regard to both that bear on principles. Occupational therapy is used, of course, in two quite different ways—as a mental diversion (with which this paper is not concerned) and as a disguised form of remedial exercise. Employed in the latter sense, it becomes more important than ever to ensure that the proper muscles and joints are used, and that the patient is not simply learning trick movements. This can often be achieved by fixing the compensatory joints in plaster—e.g., in netting by fixing the metacarpo-phalangeal joints in order to make the patient use his proximal interphalangeal joints. Forms of craftwork should be favoured in which the movements are an alternate contraction and relaxation, such as weaving; those involving impaction stresses and sustained contraction should be avoided. Progression in range and power should not be lost sight of, and with ingenuity both can be incorporated into most forms of occupational therapy. For example, looms have been designed at Berry Hill Hall for shoulder, forearm, wrist, knee, and ankle movements, each with its own mechanism for ensuring effective muscle isolation and progression in both range and power.

The chief aim of the surgeon in all this should be not to acquire a detailed knowledge of occupational therapy but to satisfy himself that the essential principles of therapeutic exercise are being satisfied. Very little need be said about recreational therapy. It is a form of general exercise in which some sort of rough progression is possible, as, for example, in progressing from simple sitting games to walking and then running games. Games can never be very specific, nor is it desirable that they should be; their chief role is to redevelop general bodily function in a psychologically stimulating atmosphere, and the principal concern of the surgeon will be to protect his patients against the possible ill effects of their own enthusiasm or that of their fellows.

Summary

The basic principles of exercise therapy have been discussed and the following five requirements laid down:

(1) Exercises must be both focal and general. (2) They must be administered with due regard to correct dosage. This is variable from case to case and at different stages in the same case. (3) They must be rhythmic in character. (4) They must be progressive in range, power, and time. (5) They must be variable in form, the chief forms being gymnastic, occupational, and recreational.

It is considered that a knowledge of these principles is all that is required or can be expected of the surgeon or physician who has to incorporate exercise therapy into his system of treatment. The detailed application and elaboration of principles is the province of the technical assistants in the various forms of exercise therapy.

JAUNDICE FOLLOWING ADMINISTRATION OF HUMAN BLOOD PRODUCTS

BY

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At the present time human blood and its derivatives are being widely used for transfusion purposes. It therefore seems relevant to describe a small series of cases of jaundice which have followed the intravenous administration of plasma or reconstituted dried human serum.

Summary of Literature

Findlay and MacCallum (1937, 1938; with Murgatroyd, 1939) reported the occurrence of 89 cases clinically resembling infective hepatitis among 3,100 persons inoculated against yellow fever from 36 days to 7 months previously. The vaccine consisted of yellow fever virus suspended in human serum, which was obtained at first from patients who had recovered from yellow fever, but latterly from healthy donors without a past history of jaundice. The volume of serum injected in each case never exceeded 0.275 c.cm. These observers clearly demonstrated that the disease was not a form of yellow fever, and suggested that it was due to a hepatotoxic virus in the serum. Soper and Smith (1938) and Fox *et al.* (1942) recorded similar cases in South America.

A widespread outbreak has recently occurred among members of the American Forces inoculated against yellow fever (Memorandum on Yellow Fever Jaundice, 1942). 28,585 cases were reported during the first half of 1942, 62 of which were fatal. The clinical condition, which again resembled "catarrhal jaundice" except for the occurrence of joint pains and urticaria in 20% of cases, developed 40 to 120 days after inoculation. Necropsy showed acute or subacute necrosis of the liver, sometimes associated with nodular hyperplasia. Of particular interest is the complete absence of contact cases.

MacNalty (1937) reported 37 cases of acute infective jaundice, with seven deaths from acute hepatic necrosis, occurring 16 to 100 days after the administration of convalescent measles serum. All the 37 cases were from a group of 82 to 109 persons inoculated with serum of a particular batch. Propert (1938) in describing seven of these cases of infective hepatitis mentioned the occurrence of jaundice in two uninoculated children who two months previously had been in contact with some of the cases. Findlay and MacCallum quote several observers who have reported cases of hepatitis occurring in horses after inoculation against a number of equine diseases. The only common constituent of the inocula was horse serum (Theiler, 1919; Gordon, 1935; Marsh, 1937; Slagsvold, 1938).

Clinical Material

Late in May, 1942, an atypical case of jaundice occurred at an E.M.S. hospital (Case 3). A fortnight later a patient discharged from this same hospital (Case 4) was admitted to an associated hospital with a similar clinical condition. Comparison of the two cases showed that both had received intravenous serum several weeks previously. It was therefore felt that these might be examples of the type of jaundice caused by the administration of serum. An investigation of all cases known to have been transfused with serum or plasma in the past year was begun, and the following results were obtained.

During the period Aug., 1941, to June, 1942, 56 patients at the two associated hospitals are known to have had transfusions of liquid pooled plasma or reconstituted dried human serum. The majority of these were suffering either from peripheral vascular disease (Hayward, 1942) or from disorders associated with low plasma protein concentration. Most of the patients were otherwise in good general health at the time of transfusion and none was acutely ill. Their ages ranged from 15 to 78 years, though most were between 40 and 70. Of the cases which developed jaundice all but one (Case 8) were transfused at the sector hospital. The quantity of fluid transfused varied from 300 c.cm. to 6 litres, usually given in weekly amounts of 800 c.cm. Reactions consisting of pain in the back, vomiting, rigors, and pyrexia were not infrequently noted at the time of administration, but there was no obvious relation between the severity of the reaction and the occurrence of jaundice. The serum, which was obtained from the Medical Research Council, was prepared for use in the following manner:

The bottles of dried serum and of freshly distilled water were warmed to 37° C. in a water-bath. 200 c.cm. of the distilled water was then added to each bottle, which was gently shaken until all the serum had dissolved. The serum was thus reconstituted in normal strength and was administered through a Medical Research Council transfusion outfit.

Of the 56 patients, 50 have been traced, and 9 (18%) of them have since developed jaundice. Six of these cases were under our direct observation at the time of jaundice, but three (Cases 1, 2, and 8) were questioned retrospectively.

Case Reports

Case 1.—Railway signalman aged 59. Intermittent claudication and gangrene of toes due to degenerative vascular disease. Dec. 1 to Dec. 11, 1941: Three transfusions, each of 1,080 c.cm. of plasma. Dec. 23, 1941, to Jan. 9, 1942: Amputation of toes and then of leg under nitrous-oxide–oxygen–ether anaesthesia, followed by removal of dressing with trichlorethylene analgesia (inhalation of only 1 c.cm.). The wound was dressed with sulphanilamide powder. Feb. 7: Discharged to his home, where he had no known contact with any case of jaundice. Early in March, 1942 (approximately 90 to 100 days later): His wife noticed yellowness of sclera. Simultaneous onset of lassitude and anorexia; no rigors or sweating; no abdominal discomfort or vomiting. He was constipated, passing "white" stools and dark urine. No rash, no joint pains, no bruising. His condition remained unchanged for five to six weeks, when his symptoms cleared except for the jaundice, which persisted for a further month. There were no contact cases among his family or friends.

Case 2.—Labourer aged 41. Spondylolisthesis. Feb. 16, 1942: Transfused with 800 c.cm. serum. May 9 (82 days later), malaise. May 10: Developed abdominal discomfort and jaundice with dark urine and clay-coloured stools; diagnosed by his doctor as severe "catarrhal jaundice." June 5: Able to return to work, although the jaundice and abdominal discomfort persisted for a further four or five weeks.

Case 3.—Tool-maker aged 51. Intermittent claudication due to degenerative vascular disease; indolent plaster sore. Jan 29 to March 17, 1942: Six weekly transfusions of serum, each of 800 c.cm. Plaster sore dressed with sulphanilamide powder. May 24 (68 to 115 days later): Generalized erythema and minutely papular rash on trunk and limbs. The rash, which lasted for three days, was not irritant and did not affect the head and neck. May 25: Progressive rise of evening temperature to a maximum of 103.2° F. on May 31, when the patient was noticed to be yellow. June 1: Jaundice deeper; liver palpable three fingerbreadths below the costal margin, and tender. Spleen impalpable. Urine contained bile pigments but not bile salts. Stools pale but not clay-coloured. W.B.C., 5,200 per c.mm. Blood sulphanilamide concentration too low to estimate. Serum van den Bergh reaction: Direct, positive in 2 minutes; indirect, 12 units. No abdominal symptoms. The temperature subsided during the next six days, but the jaundice disappeared more gradually. June 14: W.B.C., 8,200 per c.mm.—polymorphs 4,675, basophils 40, eosinophils 165, lymphocytes 2,910, monocytes 410. June 19: Liver impalpable; urine bile-free. Has remained well since. With the onset of jaundice there was a marked improvement in the rate of healing of his ulcer. Agglutination of *Leptospira icterohaemorrhagiae* negative. Blood Wassermann reaction negative.

Case 4.—Engineer aged 62. Intermittent claudication due to degenerative vascular disease. April 20, 1942: Transfused with 800 c.cm. serum. June 8 (49 days later): Malaise, anorexia, and abdominal discomfort lasting for three days. June 10: Noticed to be jaundiced. June 12: Admitted to hospital. Definitely jaundiced, with enlarged tender liver two fingerbreadths below costal margin. Spleen impalpable; urine contained bile pigments; and the stools were pale. Except for temperature of 100° F. on the first day he remained apyrexial. June 17: W.B.C., 13,400 per c.mm.—polymorphs 9,510, basophils 130, lymphocytes 2,550, monocytes 1,210. Van den Bergh reaction: Direct, positive in 20 seconds; indirect, 6 units. June 22: Passed three loose melaena stools. The depth of jaundice fluctuated but improved. July 19: Discharged with liver just palpable. Aug. 4: Still slightly jaundiced and liver still palpable. Sept. 21: Free from jaundice; liver impalpable.

Case 5.—Cabinet-maker aged 62. Intermittent claudication due to degenerative vascular disease. March 5 to 26, 1942: Four weekly transfusions of serum, each of 800 c.cm. June 16 (82 to 103 days later): Malaise and anorexia for one week. June 22: Epigastric discomfort and dark urine. June 29: Admitted to hospital apyrexial and definitely jaundiced, with a large tender liver two fingerbreadths below costal margin. Spleen impalpable; stools pale; urine contained bile pigments. Tourniquet test positive. July 1: W.B.C., 4,200 per c.mm. Van den Bergh reaction: Direct, positive in 10 seconds; indirect, 10.5 units. July 9: More deeply jaundiced. Liver enlarged to three fingerbreadths and very tender. Spleen just palpable. Depth of jaundice varied, but gradually lessened. Aug. 10: Liver two fingerbreadths and tender. Spleen still palpable. Takata-Ara weak positive. W.B.C., 5,000 per c.mm. Sept. 5: Discharged with slight jaundice and a liver which was just palpable

Case 6.—Publican aged 57. Intermittent claudication due to thrombo-angiitis obliterans. Sept. 8 to Oct. 7, 1941: Four transfusions of serum, each of 800 c.cm. Feb. 12 to April 1, 1942: Four transfusions of serum, each of 800 c.cm. June 27 (87 to 135, or 245 to 274 days later): Became jaundiced. Symptom-free and apyrexial apart from a rise in temperature to 99° F. on one evening. Liver and spleen impalpable; urine contained bile pigments; stools remained normal in colour. W.B.C., 17,000 per c.mm.—polymorphs 8,670, eosinophils 170, basophils 85, lymphocytes 6,205, monocytes 1,870. The patient's jaundice gradually subsided in the next three weeks. Blood Wassermann reaction negative. Agglutination of *L. icterohaemorrhagiae* negative.

Case 7.—Male aged 59; messenger. Diabetes mellitus with gangrene of toes. March 11 to May 7, 1942: Six transfusions, five of 800 c.cm. of serum and one of 1,080 c.cm. of plasma. July 20 (74 to 131 days later): Epigastric discomfort and flatulence for a few days; jaundice with tender enlarged liver three fingerbreadths below costal margin; apyrexial; urine contained bile pigments; stools pale. Aug. 2: Van den Bergh reaction: Direct, positive in 30 seconds; indirect, 7.5 units. Aug. 12: Discharged from hospital feeling well, with only slight jaundice; urine free from bile.

Case 8.—Female aged 45; secretary. Calcinosis circumscripta. May 16, 1941: Transfused with 300 c.cm. of serum July 22 (67 days later): Anorexia, malaise, feverishness, and dark urine; pale stools. Aug. 5: Jaundice confirmed by her own doctor; this persisted for about 6 weeks.

Case 9.—Traveller aged 31. Intermittent claudication due to thrombo-angiitis obliterans. June 2 to 18, 1942: Three transfusions of serum, each of 800 c.cm. Oct. 1: Lumbar sympathectomy performed under nitrous-oxide–oxygen–ether anaesthesia; followed by pyrexia up to 100.8° F. for 24 hours. Oct. 3 (107 to 123 days later) Nausea, which lasted for a few days, and gradually increasing jaundice; liver enlarged; spleen impalpable; urine contained bile pigments; stools, normal in colour, contained no occult blood; apyrexial. Oct. 5: Blood van den Bergh reaction: Direct, immediate positive; indirect, 12.5 units. W.B.C., 8,900 per c.mm.—polymorphs 6,230, eosinophils 180, lymphocytes 2,135, monocytes 355. The jaundice gradually subsided in the next three weeks. Blood Wassermann reaction negative. Agglutination of *L. icterohaemorrhagiae* negative.

Epidemiology

Of these cases all but one (Case 8) were transfused in the sector hospital. There were no cases of infective hepatitis among patients in the wards of this hospital during the significant period. Although three nurses developed infective hepatitis during this period of seven months, they were working elsewhere in the hospital, and at no time had contact with the cases described. There were no cases of jaundice among the medical and nursing staffs of the wards concerned. All the patients who returned to their homes before developing hepatitis denied contact with any case of jaundice. The cases were distributed throughout four wards, and significant contact between them while they were jaundiced occurred in only one instance. Case 6 was in Ward MG1, and not confined to bed during the whole period in which Case 3 was jaundiced. He himself developed jaundice five weeks after the onset of prodromal symptoms in Case 3. There were 32 other patients in the ward at this time; of these only one (Case 9) has developed jaundice, and he only after an interval of three and a half months.

No other cases of jaundice have come to our notice among persons in contact with our patients.

Clinical Picture

The clinical features of these cases are summarized in the accompanying table. The onset of symptoms, which was sudden, occurred 49 to 107 days after the last transfusion. Jaundice, which appeared at the onset of the illness in five cases, was intense in some patients, and often varied in degree from day to day. Malaise, nausea, and epigastric discomfort, which sometimes persisted for some weeks, accompanied the jaundice in seven cases and preceded its onset by a few days in three. In only one case (Case 3) was a rash observed: it preceded the onset of jaundice by eight days. None of our patients complained of joint pains or biliary colic. In all but one of the cases we examined the liver was enlarged and tender; but in only one (Case 5) was the spleen palpable. In no case was ascites demonstrated. There was a positive direct van den Bergh reaction in five cases and unduly pale stools in seven. The severity of the illness, which bore no relation to the volume of fluid transfused, varied from the symptomless jaundice of Case 6 to the severe illness with intestinal haemorrhage of Case 4. On the whole the cases were of moderate severity, and only Case 4 gave rise to anxiety. The duration of the illness varied from 3 to 12 weeks.

Summary of Cases

Case	Age and Sex	Amount of Serum or Plasma (c.cm.)	Symptomless Period in Days	Symptoms and Signs									Pathological Investiga			
				Onset of Jaundice (Day of Disease)	Malaise, Nausea, and Abdominal Discomfort	Rash	Pyrexia	Liver Enlargement in F.B.s	Spleen	Stools	Melaena	Duration in Weeks	Total W.B.C. per c.mm.	Direct van den Bergh	Indirect (units)	W.R.
1	59, M.	3,240 plasma	90–100 approx.	1st	Present several weeks	—				" White "		10				
2	41, M.	800 serum	82	2nd	Present several weeks	—				Clay-coloured		8–9				
3	51, M.	4,800 serum	68–115	8th	—	+	Up to 103° F. 1st fortnight	3 F.B.s. Tender	—	Pale		4	5,200	+	12	—
4	62, M.	800 serum	49	3rd	Present three days	—	100° F. on 1st day	2 F.B s. Tender	—	Clay-coloured at times	+	7½	13,400	+	6	
5	62, M.	3,200 serum	82–103	7th	Present one week	—	—	3 F.B s. Tender	+	Pale		12	4,200	+	10·5	
6	57, M.	3,200 + 3,200 serum	87–135 or 245–274	1st	—	—	99° F. on 1st day	—	—	Normal		3	17,000			—
7	59, M.	4,000 serum + 1,080 plasma	74–131	1st	Present a few days	—	—	3 F.B.s. Tender	–	Pale		3½		+	7·5	
8	45, F.	300 serum	67	1st	Present one week	—				Pale		6				
9	31, M.	2,400 serum	107–123	1st	Present a few days	—	Post-oper. only	3 F.B.s	—	Normal		3	8,900	+	12·5	—

Diagnosis

The clinical picture, though showing considerable variation, most closely resembles that of infective hepatitis as described by Cullinan (1939); it does, however, differ in the following respects:

(1) Our patients belong to a considerably older age group than that usually affected (Newman, 1940; Norton, 1939), although Pickles (1939) states that infective hepatitis is not uncommon among older people. Fox *et al.*, in describing an outbreak of jaundice following yellow fever inoculation, report a significantly higher incidence among the older age groups. (2) The illness was, on the average, of greater severity and more protracted. (3) In only one (Case 6) was there a history of contact with a possible source of infection. (4) No cases of jaundice have been reported among persons in contact with our patients.

We were not led to expect a subacute necrosis due to any of the better-known hepatotoxic chemicals. The absence of relapses in our patients is also against this diagnosis.

The clinical picture of our cases does not resemble spirochaetosis icterohaemorrhagica: there was no albuminuria or marked polymorphonuclear leucocytosis, and the serum from three cases gave negative agglutination reactions.

Discussion

From the clinical and epidemiological evidence it seems unlikely that this is a straightforward outbreak of infective hepatitis. These were the only cases of hepatitis in the hospital
at the time, and the only common causal factor
administration of serum or plasma. It therefore seems
that these fluids are of aetiological significance and
outbreak is similar to those occurring after yellow f
measles inoculation. Our cases differ, however, in
were given relatively large quantities (300 to 6,400 c.c
venously, compared with very small amounts (0.2
intramuscularly. Most of our patients, too, were k
be suffering from arteriosclerosis, and might conceiv
had some liver change, rendering them more susc
hepatotoxic agents. In two of the cases, however,
no evidence of vascular disease.

There are three main possibilities as to the part
the serum in the production of jaundice:

1. Hypersensitivity Reaction.—There was no direct
in favour of this view: our patients did not give
of allergy and showed no eosinophilia. The time re
would appear to be too long for an anaphylactic
reaction.

2. Introduction of a Hepatotoxic Agent.—In son
recorded outbreaks there has been evidence that on
batches of serum have been hepatotoxic. In our se
paratively few of the batch numbers are available, an
two cases (4 and 9) do we know all the numbers c
In these two cases there was one common batch (
which was also administered to Case 7. Serum from
was given to at least two other patients, who did nc
jaundice. Batch 120 KY was derived from a pool o
of serum, a contribution of 250 donors, whom it
possible to trace. It is probable that Case 8 did
serum from this batch, and Case 1 was transfused
plasma. There is therefore no evidence of an ab
confined to one batch of serum. If a hepatotoxic
been introduced it must be one which is commor
dried serum and liquid pooled plasma. It might b
virus contained in the fluid, as suggested by Fir
MacCallum, or some toxic chemical substance such,
plasma protein. In our series there is no evidence
one or other of these hypotheses.

3. Increased Liver Susceptibility.—Certain agents
neoarsphenamine (Stokes, Reudemann, and Lemon,
acriflavine (Murray, 1930), are believed to reduce the
of the liver, rendering it more susceptible to the
infective hepatitis. It is possible that our cases re
outbreak of this disease, with the serum acting as a t
but this seems unlikely in view of the lack of infec
the long symptomless period.

Summary

Nine cases of jaundice are described which develope
weeks after transfusion with serum and plasma, a
resembled the hepatitis following inoculation against y
and measles.

The association of such cases of jaundice with transfusion may easily be overlooked in view of the long symptomless period which intervenes.

We wish to thank various members of the staff of St. Bartholomew's Hospital for permission to publish the cases under their care, and gratefully acknowledge the helpful criticism of Dr. A. E. Gow, Prof. Ronald V. Christie, and Dr. Hugh Barber.

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A NEW AND SIMPLE METHOD FOR SUBCUTANEOUS LIGATURE OF VARICOSE VEINS

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The injection of various solutions into varicose veins often causes their obliteration; but this technique is generally useless when the upper part of the great saphenous vein is varicose: the downward pressure of this long column of blood unfortunately unseals the attempt at thrombosis.

In the past decade surgical opinion has recognized this factor, and operations for high ligature of the vein have become standardized. These are usually, and rightly, combined with injection of the vein's lower reaches. This combined operation is generally very successful. Lately, several surgeons have practised a still simpler technique: the vein is compressed subcutaneously instead of by open operation. I use the word "compressed" advisedly, as will appear later from the text, although these others refer to their methods as ligature. By this technique a curved needle is thrust into the skin at the side of the vein; it passes deep to the vessel and reappears at the other side of it. The two free ends are then tied over a pad of gauze. Below this the varicosities of the lower leg are injected.

I find that there are several marked advantages in these subcutaneous methods, particularly from a military point of view. First, there are a large number of men who obstinately refuse to be "cut about." When it is explained to them that the cure (I carefully avoid the word "operation") entails absolutely no cutting, they then find that they can furnish no adequate reason against being cured. Also, the method, being ambulatory, effects a great saving in hospital beds. With an open operation, even after the patient leaves the ward, he must remain relatively immobile until the wound has healed strongly. The use of the subcutaneous operation should result in raising thousands of soldiers into a higher category.

The method hitherto used is described as subcutaneous ligature. It is certainly subcutaneous, but it is a unilateral compression, not a ligature. A true ligature should evenly compress the vein's entire circumference towards its centre. A much more effective and permanent result is likely to follow from a true ligature. The simple method described below forms a true ligature around the vein. In addition the little operation is complete at one sitting. Patients need not return to the clinic for removal of stitches. Usually I tell them to return, but it is more for my interest than in theirs.

Method

The patient stands and the highest visible part of the internal saphenous vein in the thigh is shown; but it is advisable to keep at least 2 in. below the saphenous opening. A local anaesthetic wheal is raised on each side of the vein. A curved cutting needle is then threaded with catgut. It is plunged into one wheal, passes deep to the vein, and emerges through the skin via the opposite wheal (Fig. 1). This curved needle (Fig. 2) is now removed from the catgut and a straight needle substituted on to the catgut. This straight needle is now thrust back into the skin *via the same minute opening* through which the curved needle has recently emerged. The straight needle passes in front of the vein and emerges through the same minute hole where the curved needle made its original entry (Fig. 3).

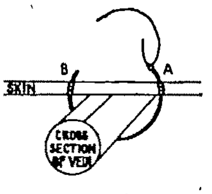

FIG. 1

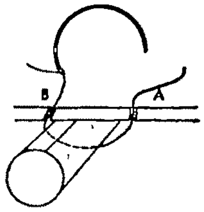

FIG. 2

FIG. 1.—Stage I: Curved needle passes through skin, then deep to vein, to emerge through skin at opposite side. Thus the two skin punctures A and B are made.

FIG. 2.—Stage II: Curved needle has emerged. A straight needle must now be substituted on to the catgut.

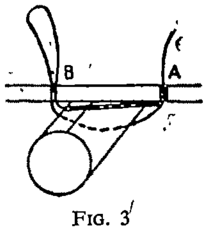

FIG. 3

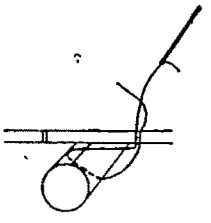

FIG. 4

FIG. 3.—Stage III: Straight needle has re-entered skin via B and is about to emerge via A. Here needle passes in front of vein.

FIG. 4.—Stage IV: Straight needle has emerged and the two original ends of the catgut are ready to be tied together with a reef-knot, forming a true ligature around the vein.

The two ends of the catgut are once more in juxtaposition (Fig. 4); they are tied fairly tightly and cut short; the knot retracts and almost disappears. The little operation is complete It is extremely simple to do; in fact, reading about it demands more effort than actually doing it. The area receives no dressing other than a small piece of bare elastoplast. This is removed in one week, when the catgut knot will have disappeared spontaneously. There will now be a minute puncture and the surrounding skin will have a slightly traumatized appearance, but no further treatment is necessary; in a short time the skin regains its normal appearance and elasticity.

A few days after the original ligation the varicose veins below the knee should receive one or more injections as necessary, but great caution should be observed; only a small quantity of the thrombogenetic fluid should be injected at first (1 c.cm. of 5% sodium morrhuate would be a good initial or test dose). The reason for this cautious and small injection is obvious: with the main internal saphenous vein ligatured the venous current is so slow that dilution or washing away of the chemical hardly occurs; from a minimal dose maximal results are obtained.

For a week after the ligation patients can move about and are quite fit for light duties. After that they rapidly become normal.

Discussion

For the past few months I have carried out this simple procedure on every suitable case that has come under my care, the results being invariably successful. I must admit that as yet I have had no large series of cases. The procedure is so simple that I have already begun to ligate the larger varicosities of the lower leg in preference to their injection, though care is exercised in avoiding flexures.

Many surgeons have objected to any ligation of the saphenous vein short of its junction with the femoral vein. Some have even stressed the necessity for ligating the small tributaries (superficial epigastric, etc.) that flow into the vein at this level. In spite of these theoretical objections there is no doubt that ligation at a low level is effective. Is it permanent? Possibly not, but this slight procedure is so rapid and easy for both surgeon and patient that it is certainly worth doing, even though no lifetime guarantee is attached. In any case, we are living in times when it is probably wise to follow a short-term policy in such matters. If we can bring a man, and more especially a soldier, into a higher category for the duration of the war it is worth while.

Summary

A new and simple method is described for the complete subcutaneous ligature of varicose internal saphenous veins. It has the advantage that the operative treatment is complete at one sitting and that no incision is necessary. The treatment is ambulatory.

POST-OPERATIVE RESPIRATORY COMPLICATIONS IN SERVICE CASES

BY

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S. D. KILNER, M.D., D.M.R.E.

AND

DERRICK J. MARTIN, F.R.C.S.Ed.

Being struck by the high incidence of post-operative respiratory complications in Service cases as compared with those occurring in civilians, and noting that Kaye (1941) and Binning (1940) have described similar experiences, we decided to keep a record of a series of consecutive cases in an attempt to find some causative factor.

A record was kept of the age, operation, premedication, type and amount of anaesthetic, duration of anaesthesia, any unusual incident during anaesthesia, and any post-operative complications in a series of consecutive cases undergoing surgical procedures at an E.M.S. hospital. The patients were all members of H.M. Forces, the great majority of them anaesthetic-resistant subjects in the "pink" of physical condition. Many of them had that type of "dust and tobacco pharyngitis" described by Kaye (1941). The wards were remote from the operating theatre, necessitating a journey in the open air to and from the theatre.

Clinical

The cases developing post-operative respiratory complications all followed a very similar course. The temperature rose on the second, third, or fourth day to a point between 100° and 102° F., with cough and purulent sputum. All had moist sounds in the chest, which were usually most noticeable at the base on the side operated on. The signs were those of a simple bronchitis, and only three had signs of consolidation. If the temperature rose above 101° F. sulphapyridine was given; but the course did not seem to be materially altered by this, for in four days from the onset of symptoms most of them had settled down to normal, the sputum had become very scanty, and what there was of it was colourless and frothy.

All patients were operated on at the earliest opportunity, the majority on the day after admission, so that the risk of their getting any infection in the ward was reduced to a minimum. Most of them were smoking heavily up to the time of operation, and at one time, from February to April, all patients operated on for hernias and appendicitis were forbidden to smoke till after the fourth day. It was not found that stopping smoking after operation had any effect upon the incidence of complications, and non-smokers were affected as well as smokers.

It was soon apparent clinically that the power to cough and to breathe deeply were factors, and we began to institute measures to encourage free movements and deep breathing. For the 24 hours after operation all men operated on for abdominal conditions were given inhalations of carbogen for ten minutes every two hours when awake. This did not make any difference that we could detect. We then began to get all these cases out of bed the day after operation; from the second day they stayed up longer, and were encouraged to walk if they wanted to. This procedure was continued even when the temperature rose, as the men soon found that they were able to cough much more easily when sitting in a chair than when propped up in bed. This routine was adopted after a personal communication from Lawrence Abel. On the first day the patients move out of bed rather unwillingly, on the second day they are quite willing to sit by the fire, and on the third or fourth they begin to walk about the ward and to go to the lavatory of their own free will. This has not lessened the incidence of complications, but it has diminished the time taken for recovery and has possibly been a factor in the avoidance of a real pneumonia. Before we started getting these cases up three men developed consolidation, but since that time we have had only one case, to be described later. When treated in this way the cough made no difference to the man's rate of recovery, for after four days he seemed none the worse, and was transferred to a convalescent home on the eighth day.

[The final end-results of the operations for hernia, which at present seem most satisfactory, will, it is hoped, be the subject of a later communication.—D. J. M.]

Throughout this series a critical attitude has been adopted as to what constitutes a chest complication. Any cough, even without rise of temperature or without sputum, has been recorded. As it was found that some house-surgeons were more critical in their attitude than others, the latter part of the investigation was entrusted to one person who made regular ward rounds, with the post-operative condition of patients as the sole object.

Deaths.—In this series there has been no death solely attributable to anaesthesia, but one case in which the patient died should be noted. He was admitted with a paralytic ileus, and an ileostomy was performed under nitrous-oxide–oxygen–ether anaesthesia. He had a continuous intravenous glucose-saline for eight days. No pulmonary symptoms developed. Twenty days later the ileostomy was resected under nitrous-oxide–oxygen–trilene–ether anaesthesia and the abdomen closed. After the second operation he was gravely ill, and among other symptoms developed a pneumonia which did not resolve, and he died 84 days later. Necropsy showed a number of small lung abscesses and a local peritonitis.

Complications after Various Operations

Out of 2,000 consecutive cases undergoing surgical procedures under anaesthesia, 101 had post-operative temperatures of over 100° F. with cough and sputum, and 46 developed post-operative cough with no rise in temperature. It soon became obvious that the type of operation and not the anaesthetic employed was the essential factor, and the following table shows the incidence of these complications after various types of operation.

TABLE I

Operation	No.	Fever and Cough	Cough	Total	%
Amputation digit	31	0	0	0	0
Amputation limb	10	0	0	0	0
Appendicectomy	98	26	9	35	36
Circumcision	41	0	0	0	0
Cystoscopy	38	0	0	0	0
Débridement	149	1	2	3	2
Haemorrhoidectomy, etc. ..	58	0	0	0	0
Hernial repair	192	61	26	87	45
Laparotomy	17	4	2	6	35
Meniscectomy	57	0	2	2	4
Miscellaneous	194	3	1	4	2
Nephrectomy, etc.	3	1	0	1	33
Orchidectomy, etc.	51	2	2	4	8
Orthopaedic operations ..	114	0	0	0	0
Perforated peptic ulcer .	6	2	1	3	50
Plaster	123	0	0	0	0
Tonsillectomy	113	1	0	1	1
Trendelenburg operation ..	128	0	1	1	1
Minor operations of less than 10 minutes' duration ..	577	0	0	0	0
Total	2,000	101	46	147	7·3

It is interesting to compare the figures for hernia repairs (average duration of anaesthesia, 27.34 minutes) with those for Trendelenburg operations (average duration of anaesthesia, 27.55 minutes). The types and amounts of anaesthetic employed were entirely comparable.

It may be argued that the extra depth of anaesthesia required to obtain the necessary relaxation for abdominal operations is a factor in the causation of respiratory complications. Against this the figures for haemorrhoidectomies should be noted. Twenty-three of the cases quoted were performed under lower-second-plane inhalation anaesthesia; the remainder were done under low spinals.

Intubation.—Out of 192 cases in which endotracheal tubes were passed 12 (6%) developed complications; 9 of them were abdominal operations. This percentage corresponds very closely with that obtained by Campbell and Gordon (1942) in a series of Canadian soldiers.

Complications after Hernia Operations

Incidence with Various Anaesthetics.—As hernia repairs are the largest group with a high "chest" incidence an analysis has been made below of the types of anaesthetic used.

Table II.—*Service Cases*

Anaesthetic	No.	Fever and Cough	Cough	Total	%
Pent.–N_2O–O–ether (plus) ..	29	13	4	17	59
Pent.–N_2O–O–ether (minus)	20	3	2	5	25
Pent.–N_2O–O–vinesthene ..	15	3	1	4	27
Pent.–N_2O–O–trilene ..	44	11	7	18	41
Pent.–N_2O–O	10	3	1	4	40
Continuous pentothal ..	2	1	1	2	100
Cyclopropane	8	3	2	5	62
Spinal	4	2	1	3	75
N_2O–O–ether (plus)	15	8	1	9	60
N_2O–O–vinesthene	7	2	1	3	43
N_2O–O–ethyl chloride ..	1	0	1	1	100
N_2O–O–trilene	13	4	2	6	46
N_2O–O–trilene–ether (plus)	3	1	1	2	67
Closed circuit ether	7	3	0	3	43
Oxford vaporizer–ether ..	10	2	1	3	30
Oxford vaporizer–trilene ..	4	2	0	2	50
Total	192	61	26	87	45

Ether (plus): More than one ounce of ether per half-hour of anaesthesia.
Ether (minus): Less than one ounce of ether per half-hour of anaesthesia.

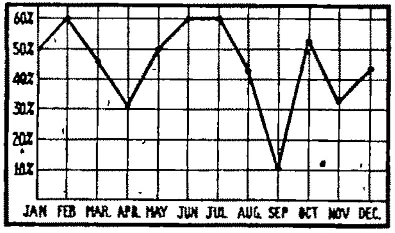
These figures are admittedly much too small to show the real complication incidence of any of the types of anaesthetic, but they do tend to show that there is little real difference between them.

The incidence among hernia repairs on civilians during the same period was as follows.

Table III.—*Civilian Cases*

	No.	Fever and Cough	Cough	Total	%
Men	36	5	3	8	22
Women ..	18	2	1	3	17
Children ..	8	0	0	0	0
Total ..	62	7	4	11	18

Season.—The seasonal incidence of complications following hernia operations showed a peak of 60% in February, falling to 31% in April, rising to a fresh peak in June of 60% and then falling to 11% in September.



Graph showing seasonal incidence of complications after hernia operations.

Bacteriology.—No predominating organism was found in a small series that had their sputa examined. When more than one case from the same operating list developed coughs their sputa showed no evidence of a common infection.

Age.—An analysis of the various age groups showed nothing of interest: 18 to 25, incidence 39%; 25 to 30, incidence 54%; 30 to 35, incidence 46%; 35 to 40, incidence 55%.

Radiological

A small series of cases, mostly hernia repairs, were examined with *x* rays on the day after operation to observe movements of the diaphragm. They were examined lying, with the tube overhead centred over the diaphragm and the screen held below the bed. The movements could usually be seen clearly, but in some cases it was difficult to make out the movements on the left side owing to the heart shadow. It was found that there was a considerable variation in different patients. In some, very little movement of any sort could be detected with normal breathing; in others the movements were quite normal, and comparable to non-operated controls. In a small series of orthopaedic cases the movements were normal. In the majority of cases the movements were symmetrical, but in a few instances one side showed a slightly diminished excursion compared with the other, and this was not necessarily on the operated side. In two cases the right dome and in one the left dome of the diaphragm was raised but showed movements.

In re-examined cases in which there was diminished movement it was found in all instances to have returned to normal on the fourth day after operation. Table IV shows the results.

Table IV

Operation	Movements of Diaphragm		Chest Complications
	Right	Left	
Left ing. hernia	—	— —	None
Left ing. hernia	×	×	None
Right ing. hernia	—	—	Cough, no fever
Bilat. ing. hernia	×	×	Cough and fever
Left ing hernia .. .	×	×	Cough, no fever
Right ing. hernia	—	×	,, ,,
Appendicectomy	— —	—	Cough and fever
Right ing. hernia	× ×	× ×	None
Left ing. hernia	×	×	,,
Right ing. hernia	× ×	× ×	,,
Right ing. hernia	×	×	,,
Left. ing hernia	× ×	×	,,
Right ing hernia	—	—	Cough, no fever
Left ing. hernia	×	—	,, ,,
Right ing. hernia	—	—	,, ,,
Left ing. hernia	— —	— —	Cough and fever
Bilat. ing hernia	× ×	× ×	None

Movements are classified arbitrarily as:
× × Full normal movement; 3/4 in. to 1 in. excursion with deep breathing.
× Decreased movement fair excursion, about 1/2 in. with deep breathing.
— Little movement; some increase with deep breathing.
— — Hardly perceptible movement; not much increased with deep breathing.

The series is admittedly too small, but of the nine cases which developed coughs seven showed definitely diminished movements of the diaphragm, while no coughs developed in four cases which were noted as having full normal excursion. Support is given to the view that diminished ventilation of the lungs is a factor of some importance in the development of chest complications.

Summary and Conclusions

The site of operation is the most important factor. Any operation involving the abdominal wall is more likely to be followed by a cough than one in any other part of the body.

The type of anaesthetic used has little bearing on the incidence of these complications.

Intubation, *per se*, is not a factor.

The incidence is higher in Service cases than in civilians.

There is an increased seasonal incidence in February, June, and July.

Diminished ventilation of the lung is a factor of importance. This is probably the result of pain on breathing. When the pain is past and the patient is able to ventilate his lung freely the complications subside rapidly.

The more serious chest complications can be minimized by starting active movements as early as possible.

We wish to express our thanks to the Regional Hospital Officer for permission to publish this report.

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A certificate of disablement under the Workmen's Compensation Act may now be given by the Examining Surgeon for the district in which the workman lives or to which he has been removed for treatment. Hitherto this certificate could only be obtained from the Examining Surgeon for the district in which the man worked.

CAUSTIC SODA BURNS: THEIR PREVENTION AND TREATMENT

BY

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Caustic soda, widely employed before the war in various manufacturing processes, is finding increased use in many wartime industries. There is a demand for information on the best way to prevent or deal with the injuries that may result to the workers, and this article is an attempt to satisfy that demand. It is based on thirteen years' experience in a works where many tons of caustic soda are manufactured every day. It is also hoped that criticisms and fresh ideas may be forthcoming for the improvement of the methods here described.

These methods have been evolved gradually. Before they were adopted a large number of men were always away from work with caustic soda burns of the skin, which took many weeks or months to heal. These burns had the appearance of black leather inlays in the skin. There are lifelike wax models of such burns in the Home Office Museum, Horseferry Road, Westminster.

Previously, caustic soda burns were treated by the application of bicarbonate of soda—with the intention that it should react with the caustic soda to form carbonate of soda—followed by washing with plain water. The results of this old-established treatment were unsatisfactory. For several days the burns appeared to become deeper each day. The sloughs were allowed to separate spontaneously, and the resulting exposed area of granulations showed no sign of healing for a considerable period and afterwards healed very slowly. On one occasion, to obtain rapid healing, a narrow burn on the forearm was excised with a margin of healthy skin on each side and the wound was sutured. Microscopical sections of the excised burn were prepared. The burn appeared to be a structureless coagulum, the adjacent tissue being crowded with leucocytes. The phenomena observed in inadequately treated caustic soda burns suggested that the coagulum of necrosed tissue held some uncombined caustic soda, which diffused into the deeper tissues for a few days, increasing the depth of the destroyed tissue and perhaps impairing the vitality of adjacent tissue that was not actually necrosed.

Caustic soda burns of the eye formerly were washed out with boric acid solution for two to five minutes at the time they happened. A prolonged period of inflammatory reaction followed, with the formation of granulation tissue over the sclerotic and the inner surfaces of the eyelids. This resulted in symblepharon. Some of the old hands have tough bands of adhesion between the eyelids and the eyeball, limiting the movements of the eye and causing considerable inconvenience. Burns of the cornea were still more serious.

Prevention

The engineer conducting a process involving the use of caustic soda should make it, when possible, a closed process, so that workers cannot come in contact with the substance. If this is impossible, pools of liquid caustic soda on the ground or leaking pipes, tanks, etc., should not be allowed. If, in spite of all precautions by the works management, the worker comes in contact with the caustic soda, the part of the body affected should at once be drenched with a current of neutralizing solution, not by immersion or compresses.

At first sight a weak solution of an acid such as citric acid, acetic acid, or hydrochloric acid appears to be a satisfactory neutralizing medium; but weak acids, if used as irrigants, might react with the tissues as well as with the caustic soda. Ammonium chloride, on the other hand, is a neutral salt that will not react with the tissues but only with the caustic soda with which it makes contact, instantly neutralizing it, with the formation of sodium chloride and the release of ammonia, which is washed away by the bulk of the unchanged irrigating solution. Our adoption of this treatment during the last 12 years has almost brought about the disappearance of caustic soda burns of the skin.

Caustic Soda Burns of the Skin

Throughout the caustic soda plant are placed large vessels (aspirators), each containing 5 gallons of 5% solution of ammonium chloride, in cupboards with open fronts, painted red to attract attention. These vessels are placed also at other points in the works where caustic soda is used. The necks of the vessels by which the solution is introduced are closed by a large rubber stopper. The rubber stopper is penetrated by a thistle-tube, to admit air for the easy withdrawal of the solution. The bulb of the thistle-tube is lightly packed with cotton-wool to prevent caustic soda dust from falling into the solution and destroying its usefulness. There is a rubber bung at the base of the aspirator, penetrated by a large glass tube to which a rubber tube about 6 feet long is attached. A spring clip controls the rubber tube and serves to hang up the latter on a hook when not in use. The clip can be instantly slipped off the tube when necessary, thus releasing a free flow of the solution. If a man gets caustic soda, solid or liquid, on his skin or clothing he runs to the nearest aspirator, unhooks the tube, presses the clip, and releases a deluge of the solution on the part affected. This stops the action of the caustic soda instantly, and in the great majority of cases prevents a burn. The number of caustic soda burns has been very greatly reduced by this method. It has gained the confidence of the men, who appreciate what it does for them. As an indication of this, as much as 12 to 20 gallons may be used on the plant in 24 hours without any caustic burn taking place. It is an advantage that the ammonium chloride solution is perfectly harmless to the tissues and will not injure the eyes (it has a very corrosive action on most metals).

If there has been such delay in the application of the ammonium chloride that destruction of the epidermis has taken place, and there is in fact a burn, the part should be drenched with a current of ammonium chloride solution for 10 to 15 minutes and then with plain water or normal saline for one hour continuously. This treatment will minimize the severity of a burn and prevent it becoming as deep as it otherwise would. It is then treated as a heat burn. Everyone has his own ideas about the treatment of burns; but we have treated them by washing the area with soap and water, removing dead tissue by a gauze swab soaked in alcohol, and then washing with ether. A fourfold pad of plain white sterilized lint soaked in a 2% solution of tannic acid is then applied and secured by a bandage. This pad is left in place, without attempting to separate it, until it is able to fall away by its own weight when the bandage is removed. This takes place in three weeks, more or less.

In the uncommon cases in which a burn has occurred through delay in irrigating with ammonium chloride solution, this has happened because access to the ammonium chloride solution has not been obtained soon enough (30 to 40 seconds), and occasionally a man has been unaware of contact with caustic soda until burning has taken place. In rare cases a man of dull wits has not troubled to go to the solution and has had to be treated for a deep burn of the old type. Deep caustic soda burns of the skin when they occur have lately been treated by obtaining a firm crust by the application of the tannic acid compress and, after this has formed, applying blue paint to the burn and dressing it with gauze soaked in blue paint. Blue paint was introduced by Bonney, and consists of 1 part brilliant green, 1 part crystal violet, 99 parts rectified spirit, and 99 parts water. This lessens the risk of infection in a deep burn.

Caustic Soda Burns of the Eye

The wearing of properly designed and well-fitting goggles should be compulsory, and this will usually prevent caustic soda from reaching the eye; but it seems impossible to ensure that goggles shall be properly worn on every occasion when there is danger. For the treatment of these cases, eyewash-bottles should be available every few yards in any plant where there is possibility that caustic soda in solid or liquid form may reach the eye, and should be placed in little cupboards fixed at a convenient height, with open fronts and painted red to be conspicuous. The bottles, which contain 5% ammonium chloride solution, should be 8-oz. wide-necked ones, the neck closed with a rubber stopper with two holes—one for the air-inlet tube, which is carried to the bottom of the bottle and need only project from the stopper half an inch, and the other for the irrigation tube, which is bent at an obtuse angle outside and penetrates only for about a quarter of an inch beyond the stopper inside the bottle. The eyewash-bottle is used by turning it upside down and flushing the eye by gravity flow. Any attempt to modify the bottle so that it may be used like a wash-bottle in a chemical laboratory, by mouth-blowing, must be forbidden. It may be injurious.

If a man gets caustic soda in the eye, first aid must be given without delay: for this reason every man should be provided with a whistle to summon aid if necessary. Delay may lose an eye. The first-aider must take a wash-bottle from the nearest cupboard and, parting the eyelids with the finger, flush the eye with the contents of the bottle. The patient should then be taken at once to the plant surgery, which should be close to the caustic-soda plant and preferably with a laboratory adjacent, as this will ensure that a man trained in ambulance work is always available. About four specially trained men must be available on every shift, to give treatment in the plant surgery. Two of them must have instructions to leave their job and attend to the injured man immediately. He should be placed flat on his back on a couch, the foot of which is raised slightly. The eye must be irrigated continuously for one hour by the clock, with which the plant surgery must be provided. Irrigation must be performed for the first five minutes with 5% ammonium chloride solution, and for the rest of the hour with boric-saline solution, prepared as described below. During the irrigation care must be taken to pull the lower eyelid down gently so that the irrigation may reach the inferior fornix; and the injured man should be told to roll his eye from side to side so that the conjunctiva of the inner and outer corners of the eye may be reached. The upper eyelid should be gently elevated by the fingers of the first-aider, and the patient told to turn the eyeball downwards periodically so that the conjunctiva of the upper fornix may be reached.

This irrigation of one hour's duration is of supreme importance, and must be started at once. To send a case to hospital without such preliminary irrigation confronts the hospital with damage which is irreparable and which could have been prevented at the time of the accident by the measure described. In practice this treatment has reduced the time of recovery of caustic soda burns of the eye from weeks to days.

If the case is to be attended to by the works doctor he will see the patient every day and will instruct the ambulance-room attendant to irrigate the eye with warm boric-saline for 5 or 10 minutes three or four times a day, afterwards passing a blunt-pointed glass rod loaded with soft boric ointment first of all between the upper eyelid and the eyeball and then between the lower lid and the eyeball. If this is done no case of symblepharon will ever occur. The doctor will use atropine drops, argyrol solution (20%), or hot fomentations where he considers these measures are indicated. We find it advisable to adopt the first two measures in all but the mildest cases. It will be necessary for one man to be responsible for the ammonium chloride irrigators and eyewash-bottles. He must inspect them every day and fill all those that have been used. The works doctor will occasionally examine these vessels to ascertain that this is being done. Pools of caustic soda liquid on the ground and leaking joints will of course not be tolerated by the engineer-in-charge. If they are, the works doctor should have something to say about it.

With us, the tannic acid solution is made up in winchesters of 2.5-litre capacity; the date is written on the label, and any that has not been used is replaced by fresh solution at the end of three months. It is a great advantage, too, that it should be ready for instant use: tablets dissolve slowly. The cost of renewal is negligible. The quantities used are:

Tannic acid	50.0 grammes
Mercuric chloride	1.25 „
Water	2.5 litres

The boric solution is kept in winchesters at double strength in order that it may be diluted with an equal quantity of warm water when it is to be used. One ounce of common salt and half an ounce of boric acid are dissolved in a winchester of distilled water. We have found it convenient to have this solution ready made up in winchesters for immediate use. Saline by itself grows a mould. The addition of the boric acid prevents this happening.

Summary

Cases of contact of caustic soda with the skin are dealt with by immediate irrigation with 5% solution of ammonium chloride; by which means a burn is prevented if the irrigation is done within 30 to 40 seconds of contact.

If delay has resulted in a burn; its severity is very greatly lessened by irrigation with ammonium chloride solution.

Irrigation of the eye with 5% ammonium chloride solution, followed by irrigation with warm boric-saline lotion for one hour, reduces the severity of the eye injury to a very marked degree, so that recovery takes place in one-fifth to one-seventh the time taken with older methods.

Treatment by ammonium chloride solution must always be carried out by irrigation, never by immersion in a static solution or by compresses.

Medical Memoranda

Notes on Treatment of Respirator Dermatitis

Since the publication of Petro's article on respirator dermatitis (*British Medical Journal*, 1942, **1**, 631) 25 cases have been admitted to a certain military hospital. The first 13 cases were treated on lines similar to those laid down in that article—viz., using calamine lotion and liniment, Burow's solution, and various creams such as 1% ichthyol in zinc cream. In no case could the progress be described as satisfactory, and in order to reduce the number of days of hospital treatment other methods were adopted.

The most successful method was what I shall call the saline soak technique. In this series 12 cases were treated; every case was a severe affection, associated with vesiculation, weeping, and crusting. With few exceptions they responded dramatically to the use of normal saline soaks, similar to those for the treatment of burns. Very rapidly the crusts are removed, the weeping ceases, and epithelization occurs without delay.

DETAILS OF TECHNIQUE

A white lint mask covering all affected areas is soaked in normal saline and applied to the face areas and covered by jaconet. It is essential to keep the lint moist throughout; this can be done by pouring on normal saline at frequent intervals. If the lint should become dry it is vital to soak thoroughly before removing. It is advisable to remove the lint from the face four-hourly, and to renew, so as to remove crusts. In some cases the face returned to its normal condition in 24 hours, and in all cases there was a rapid improvement. When the weeping areas have epithelized either zinc cream or 1% ichthyol paste should be applied.

A typical example is illustrated in Pte. A., aged 18, who was admitted to hospital on Dec. 4, 1942, two weeks after he was called up, having worn his respirator for 10 minutes the week previously, and again for 30 minutes three days before admission. The rash appeared 24 hours before he was admitted. He was suffering from a typical respirator dermatitis, affecting the forehead, cheeks, chin, and tip of the nose, all areas being covered with golden crusts. This case was treated with normal saline soaks in the manner described; after 24 hours there was a marked improvement, all crusts having disappeared, leaving a clean raw area. Treatment was stopped after 48 hours and the condition was cured in three days. Not all cases clear so dramatically, and most require a little zinc cream following the saline.

COMMENT

All these cases were moderately severe, affecting the contact areas of the face—viz., frontal, malar, masseteric, mental, and submental areas, with occasional lesions on the nose. Some cases proved more resistant to treatment than that of Pte. A., but comparison with other methods shows a marked advance. Another point of importance in the treatment is the advisability of not performing any patch test with rubber from the face-piece of the patient's own respirator until the skin is settling down or even healed, as a number of cases were aggravated by so doing; and even in one case after the skin was thoroughly healed the patch test caused relapse.

The saline technique seems to be the method of choice, and certainly takes precedence over those mentioned in the article quoted.

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Reviews

DIGESTIVE COMPLAINTS

Digestive Diseases in General Practice. By John H Willard, M D., F A C P. Foreword by George Morris Piersol, M D, F A C P (Pp. 449; illustrated $5 50.) Philadelphia. F A. Davis Company 1942.

The state of the stomach is so largely a mirror of the state of the body and mind as a whole that Dr. Willard does well in this book to insist at the outset that when dealing with patients with digestive complaints it is essential to give adequate time to listen to "the often boringly detailed account" of symptoms, for by letting the patient talk the medical man will often learn much of his whole make-up. This should be followed by specific questions usually needed to clarify the position; the physical examination then takes place under appropriate conditions. All these steps are explained in simple, lucid language without undue insistence on minutiae, and the relevance of the various laboratory techniques is briefly considered. After this general introduction the various digestive diseases are regionally described, with excellent *x*-ray illustrations. Throughout, emphasis is laid on the simulation of organic disease by functional states, and on the aggravation of the former by the latter. The views as to the relation between gastric carcinoma on the one hand and peptic ulcer or gastritis on the other are judicially considered without dogmatism. Indeed, a distinguishing feature of the whole work is avoidance of the two pitfalls of undue dogmatism and inconclusive vagueness. Comparatively recent work such as Crohn's on regional ileitis receives adequate notice, but in general it is the ordinary things met with in everyday practice to which attention is chiefly devoted.

Three things are omitted that we should have liked to see mentioned: the use of the mercury tube for achalasia of the cardia rather than an expanding dilator; Murphy's sign for gall-bladder trouble; and the administration of insulin as well as dextrose in order to increase the glycogen content of the liver in cirrhosis. But these may be matters of opinion. An appendix of laboratory methods and diet tables concludes a really useful and practical book.

FORENSIC BLOOD GROUPING

Medico-Legal Blood Group Determination: Theory, Technique, and Practice. By David Harley, M D, B Sc, F.I C (Pp 119; illustrated. 12s. 6d.) London: William Heinemann Medical Books. 1943.

Although medico-legal blood grouping has not been developed in this country, especially on the paternity side, to anything like its extent in other countries, yet we have produced the first monograph in English on the subject. Dr. David Harley, as he gracefully acknowledges in his dedication, is a pupil of the late Dr. Francis Martley, whose work in serology at St. Mary's Hospital made its department of chemical pathology known and respected throughout the scientific world. This book gives some idea of what the solid, patient work of Dr. Roche Lynch and its author have accomplished in the last twenty years. They have assisted the police in very many cases in which the grouping of blood stains, cigarette stubs, and the like could narrow the field of suspects. Owing to legal handicaps, they have not had the wide experience in disputed paternity cases that a similar department would have had in a Continental country. Nevertheless, Dr. Harley is able to analyse 65 cases of this class in which his department assisted; and what he does not recount is the indispensable part that it has played in evolving a technique which makes the evidence of its exponents unshakable in court, and thus in demonstrating practically to lawyers and legislators the value of blood-grouping evidence in paternity cases. Dr. Harley reprints the Bastardy (Blood Tests) Bill which Lord Merthyr introduced in the House of Lords in 1939, together with the highly favourable report made upon it by the Select Committee.

This volume contains in compact and economical form everything of value in the history, genetics, and serology of forensic blood grouping, and should be of the greatest use to all workers in this field. The sections on the ABO and the MN group systems and their heredity, and the theory of their judicial application, cover familiar ground, but do so with an ordered economy of language which makes reference easy. The technique of collection, testing, and interpretation which Dr. Harley describes has been thoroughly tested by daily use. The great interest of the book lies in its record of actual case-work, which shows strikingly the difficulties and disappointments of this class of investigation: in case after case the results are unhelpful, either through the insufficiency or contamination of the stains which had to be tested, or because the groups of the accused and the victim were the same. Now and again, however, the tests come into their own. A woman was found in a cellar dead from head injuries and strangulation. Blood stains were found on the watchman's jacket and cap, and he was suspected of the crime, but tests showed that these stains could not have come from the deceased woman, and so they did not connect him with the murder. In earlier days they might have been sufficient to hang him. Dr. Harley observes that the defence do not always seem to realize that the tests may exclude but can never identify, and so are far more the concern of the defence than of the prosecution. Their use will increase as lawyers come to know them better; and towards the spreading of this knowledge Dr. Harley's book will contribute greatly.

MAXILLO-FACIAL INJURIES

The Dental Treatment of Maxillo-Facial Injuries. By W Kelsey Fry, M R C S, L.D S, P. Rae Shepherd, Alan C. McLeod, and Gilbert J Parfitt With foreword by Prof F R. Fraser, M.D, F R C.P. (Pp 250; illustrated 16s.) Oxford. Blackwell Scientific Publications, Ltd. 1942.

The authors of this book have had the opportunity of more extensive experience in the treatment of maxillo-facial injuries during the present war than the average dental surgeon of a civilian hospital receives in a life-time. This book, based on their own experience at the East Grinstead unit, describes in detail the methods of treatment which were devised during the last war and which have now been brought up to date in the light of that experience. The work is based on sound common sense and an intimate knowledge of general surgical principles. It is clearly and concisely written and the illustrations and diagrams are really excellent.

The reader may at first feel that the methods of treatment advocated are unnecessarily complicated, but war injuries of the face, with fractures often comminuted and with considerable loss of tissue, are so different from those of civilian practice that great ingenuity is essential to overcome the difficulties of treatment. Much that they describe could be done only at a specialized hospital, but the authors rightly insist that dental surgeons in the Forces must be cognizant with the methods they employ. One of the best chapters in the book, however, is devoted to field and preliminary hospital treatment and the more simple ways of treatment which are often satisfactory.

This book, which is a real contribution to a very specialized branch of war surgery, shows the good team work of the dental surgeons attached to the various maxillo-facial units.

SCHOOL HEALTH IN NEW YORK CITY

Solving School Health Problems The Astoria Demonstration Study. Sponsored by the Department of Health and the Board of Education of New York City By Dorothy B. Nyswander, Ph D. (Pp 377 $2 00 or 11s 6d) New York: The Commonwealth Fund; London: Oxford University Press. 1942

In the light of previous investigations conducted since 1923 an intensive experimental Study of the School Health Service in New York City was launched in 1936 and completed in 1940. A report on the findings of the study by its Director now appears as a publication by the Commonwealth Fund.

The principal scene for the work of the study was the Astoria Health District, which was taken as representative of the city as a whole. Of the eighteen public elementary schools in this area, eight, with a total attendance of 8,000 children, formed the experimental field. Five of the eight schools had children from poor families. When the study began each child was due to receive two routine medical inspections in the course of its school career—the first on entering school and the second before leaving. The study staff made the experiment of abolishing the second routine inspection and concentrating, in its stead, upon the inspection of children of all ages selected as "cases" by their teachers and school nurses jointly. As a result of this change 67% of all children on school registers were brought under medical or nursing care. The conclusion was drawn that "the right children" were thus getting the attention they needed, and the method apparently is now in force in all New York schools.

The inspecting school doctors are on a part-time basis, most being in general practice. Other doctors in private practice provide treatment for referred cases at the parents' expense and, when requested, report to the school authority on the child's condition. Private practitioners may also submit reports on children due to begin school life.

Among the titles of other articles in this interesting report are "Teacher Participation," "Tasks of the School Nurse," "Medical Records," "Visual Acuity," "Loss of Hearing," and "The Care of the Cardiac Child."

Notes on Books

A third edition has now appeared of Miss MINNIE RANDALL'S book *Training for Childbirth from the Mother's Point of View* (J. and A. Churchill; 10s. 6d.). The author is the principal of the school of massage and sister-in-charge of the department of physiotherapy at St. Thomas's Hospital, and the post-natal exercises so well described and illustrated owe their beginning to Dr. J. S. Fairbairn, with whom she worked when he was in charge of the obstetrical and gynaecological departments. On his retirement Dr. Fairbairn urged her to widen the scope of this work to include pre-natal instruction. The aim and design of the exercises have been much extended since that time, and the pre-natal section is now based largely on Dr. Kathleen Vaughan's *Safe Childbirth*, and the exercises conform to the principles laid down by Dr. Vaughan. The section on relaxation is based on the teaching of the Archer Nerve Training Colony at King's Langley. Miss Randall makes full acknowledgment to these and others who have helped in preparing and rearranging the contents of this most useful and admirably illustrated book.

Vitamins and Minerals for Everyone, by ALIDA FRANCES PATTEE (G. P. Putnam's Sons; 10s.), is so simply written that almost any boy or girl of 14 years of age could understand it. Each vitamin and mineral requirement is treated separately and the best-known facts about it are stated in answer to questions—e.g., What does vitamin A do for us? What is vitamin A? How much vitamin A do we need? etc. The use of each vitamin is illustrated by a little story, always with a very happy ending. Useful tables of food values are given, and sample menus which would provide the daily requirements as set forth by the Committee on Food and Nutrition of the National Research Council, May, 1941. The information given is sound, and where evidence of the human being's need is not adequate—e.g., for vitamin E—that is clearly stated. The book is well printed and bound, and the reproductions of photographs of animals given and not given adequate supplies of each vitamin are very good indeed.

First Aid in the Royal Navy (H.M. Stationery Office; 2s.), in addition to covering the usual ambit of first-aid manuals, contains articles on the treatment of poisoning by the agents used in chemical warfare, of such conditions as immersion foot, phosphorus burns, and blast injuries, and on the movement and stowage of casualties. It is convenient in size and well printed and illustrated, and altogether an excellent production. Our chief criticism is that it lacks an index, which, in a first-aid book as full as this, is important as a guide to the appropriate chapter and verse required in an emergency. Efforts towards simplification have perhaps been a little overdone in some directions—e.g., to call the fibula the brooch bone seems rather to be straining at a gnat, while the definition of shock on page 4 reads strangely. Our sympathy is with the author, nevertheless, in the attempt to provide a simple definition of shock, and for the little book as a whole we have nothing but praise.

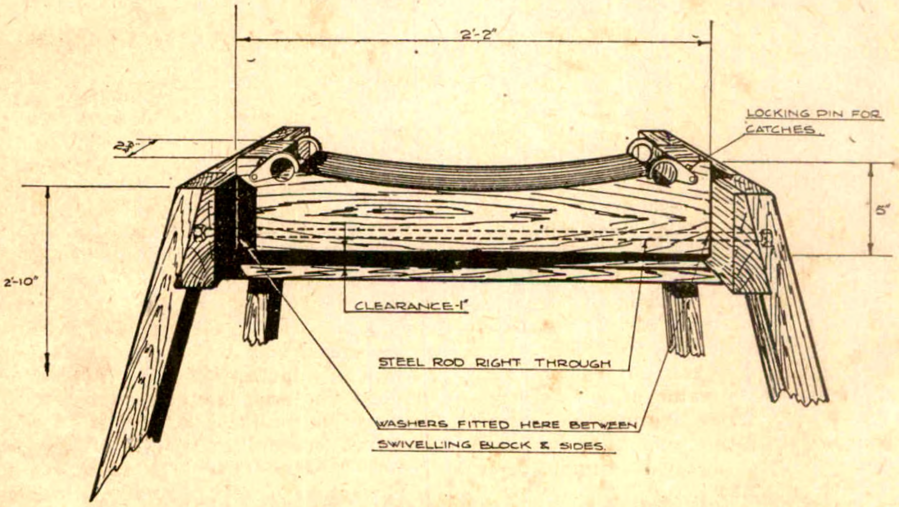
The *Dentists Register* for 1943 has now been published for the Dental Board of the United Kingdom by Constable and Co., price 15s., post free. The total number of names appearing on January 1 of this year is 15,192, being 96 more than the figure for 1942. All the new entries added were of persons registered as graduates or licentiates.

Preparations and Appliances

RESUSCITATION BY ROCKING

Dr. N. HOWARD MUMMERY, ex-chairman, Association of Industrial Medical Officers, writes:

Recent articles in the *Journal* remind us of the debt we owe to Dr. F. C. Eve, who is still actively engaged in investigating the physiological and mechanical problems his method of resuscitation involves. Being familiar with his original and rather cumbersome apparatus, and desirous of using the method for resuscitation at an aircraft factory where test pilots and cadets of an attached flying school are liable to come down in water, I designed a simple modification of the original some six months ago. Dr. Eve himself has tried and approved this and has urged me to publish the details in the hope that rocking resuscitation may become more generally available. Rocking, as Dr. Eve suggests, should be started at once in the rescue boat across the arms of two men facing each other with clasped hands and preferably with a third person grasping the patient's extended legs, and be continued by the Schäfer method during rapid transport to the ambulance centre, where he is placed on the rocking apparatus. While this is being used, at a speed not exceeding 10 cycles per minute with a four-second pause at the end of each stroke, the patient is stripped, rubbed down, blanketed, and other restoratives are applied.



Description of Apparatus

The apparatus consists of a wooden block 2 ft. 2 in. long, 5 in. high, and 2¼ in. thick, which is free to turn on a steel rod, transfixing both its base and the extended side pieces of a broad-based trestle 34 in. high. The upper surface of the block is hollowed to receive the sag of the loaded stretcher, and a semicircular depression near each end receives the poles of the standard A.R.P. steel stretcher. The poles are held in place by metal claws, two on each side, which turn on a short axle passing through the wood block and held in position by locking pins. The metal bands holding the steel mesh of the stretcher to its poles prevent any longitudinal movement of the loaded stretcher. The patient's wrists and ankles are tied to the stretcher handles by clove-hitch bandages.

THE SUPPLY OF WATER TO RABBITS AND GUINEA-PIGS

BY

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The welfare of rabbits and guinea-pigs is an important matter in many pathological laboratories and research institutes.

There is a popular idea that rabbits and guinea-pigs "don't drink"; this is not true, as anyone can demonstrate by offering water to rabbits which have not had an adequate quantity of it in any form. Rabbits in captivity, when supplied with an abundance of fresh green food, may not drink water offered to them as such. Whatever the origin of the idea, it has given rise to a most unfortunate convention that rabbits and guinea-pigs can live on a very dry diet of hay and bran at times when shortage of greenstuff allows only a few leaves for each animal daily; if this is the only source of water the animals must suffer severely from thirst and will drink greedily from a bowl of water. Rabbits may show even less resistance than dogs to experimental anhydraemia (Marriott, 1923).

One is often told that the supply of water in bowls to rabbits and guinea-pigs leads to outbreaks of diarrhoea caused by fouling of the water. This danger may or may not be a real one; in any case the alleged danger does not alter the essential importance of a supply of water, and the remedy is not to deprive the animals of water but to find another way of giving it. A member of our technical staff here, Mr. P. J. Ewers, has taken part with me in some experiments on this matter.

Water can be supplied to rabbits and guinea-pigs in several ways which eliminate contamination. (1) Water, in a bowl of the kind generally used for dogs, which is not easily upset, is placed in each cage when the attendant carries out the daily cleaning and feeding, and is passed on to other cages. This gives, at any rate, a daily opportunity of drinking, and prevents acute shortage of water. (2) Some form of bulb or bottle, such as is used in most laboratories, certainly in most American laboratories, for rats and mice, can be employed if the cages provide a suitable attachment. (3) For poultry and cage-birds various sorts of water-vessel are used in which the risk of fouling of the water is very small—for example, some form of trough hooked to the side of the cage as high up as possible.

To obtain some data on the amount of water required by rabbits we placed two of the animals, weighing 2,650 g. (Rabbit A) and 2,080 g. (Rabbit B), on a quite dry diet of bran and clover hay, and supplied water by placing in the roof of each cage a bulb of water, of the kind holding 160–170 c.cm. which we use for rats.[*] The animals soon learned to drink from the nozzles, and after a few days the larger rabbit, A, would empty the bulb in a day, while the smaller drank rather less. After a week we placed a bowl of water in each cage: Rabbit A was not interested, while Rabbit B drank a little in a leisurely manner. Evidently they were not short of water, and their body weights had not altered. Hence a 2.5-kilo rabbit on a dry diet will take about 160 c.cm. of water, or 65 c.cm. per kilo, a day. This calculation provides approximately 4.5 litres of water for a man weighing 11 st., or 70 kilos; this is about twice the total intake of water in food and drink of an average human adult (Evans, 1941; *Macleod's Physiology*, 1941). This result provides a curious commentary on the doctrine that rabbits "don't drink." Possibly the rabbits which were the subject of this experiment took more water than was absolutely necessary. We find that guinea-pigs also drink freely from the glass bulbs, even when supplied with greenstuff. It is merely a superstition that rabbits and guinea-pigs have some special capacity for doing without water: there seems to be no reason why they should not drink as much clean water as they like.

The supply of greenstuff for animals is scanty at certain seasons, especially in the early spring, and now it is reduced by the increased human consumption and the sale of leaves which were formerly stripped off. A small handful of cabbage leaves, such as might be considered a good allowance for a rabbit, weighs 300 to 350 g. The fresh leaves of various kinds of cabbage contain from 80 to 95% of water. A rabbit which ate 300 g. of cabbage which actually contained 90% of moisture would receive 270 c.cm. of water. This is a liberal supply, and possibly such a rabbit would not drink, in accordance with the conventional doctrine about rabbits. But one must remember that greenstuff by the time it reaches the animals may have undergone considerable desiccation, which is often quite obvious. It seems much better, therefore, not to rely upon the variable water content of a variable supply of greenstuff, but to supply water as such at all times.

Rabbits which receive an ample dry diet and inadequate water probably suffer not only from want of water but from want of food. This is suggested by their poor condition and the scanty contents of the gut found post mortem, and by their behaviour when water is supplied. If one places a bowl of water before such an animal one may see that after a long drink it goes at once to the dry food and eats greedily.

The supply of water to rats and mice is referred to in several books which have appeared recently (Staff of the Jackson Memorial Laboratory, 1941; Griffith and Farris, 1942; Grüneberg, 1943). All three sets of authors take for granted that a constant supply of water is required. However, in some laboratories in this country, at any rate until recently, "moist" food with a variable amount of greenstuff was held to be a sufficient source of water. The dry foods were mixed with water or milk, and appropriate amounts of the mixture were squeezed by hand to a consistency which allowed a portion to be placed in each cage. This system is bad in principle because the supply of water is regulated not by the needs of the animals but by the extent to which the food happens to be squeezed by the attendant. So many ways of giving clean water are now available that the "moist" food system should be considered obsolete.

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[*] Made by Messrs. Howard Rawson and Co. Ltd., Devon Works, Farm Lane, Fulham, S.W.6. The bulbs are readily filled from a brass tube, with narrow side-tubes (made by Messrs. C. Hearson and Co. Ltd., 68, Willow Walk, Bermondsey, S.E.1), attached to the high-pressure water supply. An abundant growth of green algae in the bulbs is of no consequence.

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REHABILITATION CENTRE FOR SCOTTISH MINERS

The rehabilitation centre at Gleneagles Hotel, Perthshire, was recently opened by the Secretary of State for Scotland, Mr. T. Johnston, M.P. A part of the hotel is still used as a hospital, for which purpose it was taken over at the beginning of the war, but accommodation has been found in it also for 200 miners (about 80 of whom are already in residence) recovering from industrial injuries, chiefly fractures. Dr. Macleod, the medical superintendent, is assisted by experts in remedial exercises, massage, and occupational therapy. What was formerly a luxurious sitting-room in the hotel is now a large gymnasium, where physical exercises are undertaken under the guidance of an ex-Army instructor; the most complete devices for physiotherapy have been installed, a swimming-pool and spray baths are in use, the entertainment side is not neglected, and, of course, the men undergoing rehabilitation have access to the beautiful grounds and surrounding country. This fitness centre, as it is called, is the result of a careful study by the Department of Health in conjunction with the Miners' Welfare Commission and the Ministry of Fuel and Power. The average duration of stay is about six weeks. The treatment and the courses are free and the travelling expenses of patients are met by the Miners' Welfare Commission. Mr. Johnston, in opening the centre, said that its prime purpose was to restore the men to their full working capacity as speedily as possible. In no way whatever was the service to be run as a means of relieving insurance companies of compensation claims. The patients are examined carefully both on admission and periodically during their stay, information of their medical history is obtained, and they are graded according to the activity of which they are capable. Their remedial exercises are adapted to their needs, and in the occupational therapy room they are encouraged under skilled supervision to work with their hands in wood, leather, and other crafts.

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LABOUR AND STATE MEDICINE

The Labour Party has issued two pamphlets[1] setting out its post-war policy on national health services and on local government. There is little in the former that is likely to prove unfamiliar to readers of this *Journal*, and in outline the proposals for a national health service are similar to those recently put forward by the Ministry of Health and temporarily withdrawn. Any policy of the Labour Party in relation to health services has an obvious significance for the medical profession in view of the important part that will be played by that party in post-war England. Its views are presumably not without political effect at the present moment. As might be supposed, the Labour Party favours the introduction of a whole-time State salaried service, and all the arguments in the document before us are made to favour this conception. Its desiderata for such a service are that it should be planned as a whole, preventive as well as curative, complete, open to all, efficient and up to date, accessible to the public, equitable for the medical profession, and that it should be such as to preserve confidence between doctor and patient.. The medical service, it declares, should be organized so as to enable the medical profession to "pull its weight effectively in all those tasks of democratic government which affect the nation's health."

While tribute is paid to the family doctor and the "great service he has rendered to the nation's health," and while his position as "friend and adviser as well as general physician" is sympathetically recognized, the pamphlet asserts that there is "only one way" by which existing difficulties can be removed—the employment of doctors as whole-time salaried officers in well-equipped health centres, thus providing for teamwork between doctors, better contact between general practitioners and specialists, and fuller access to all the resources of modern medicine. The family doctor is criticized as being "a sickness man rather than a health man," that he is out of touch with preventive medicine, that he cannot by himself provide a comprehensive service. The Labour Party adopts the same criticisms of the limitations of National Health Insurance practice as have been familiar to the B.M.A. for a number of years now. But it adds the criticism that "the panel system . . . does not provide sufficient guarantee for the efficiency of the doctors employed," and that the general public "lacks the knowledge for appraising the quality of his [the doctor's] service, and his efficiency is not in fact subject to any adequate control." It may be well to recall here the intention of the Medical Act of 1858. This Act was passed for the express purpose of regulating the qualifications of practitioners in medicine and surgery, through a General Council of Medical Education and Registration, which was to maintain and publish a *Medical Register* containing the names of those registered in accordance with the Act. The public was thus able to distinguish the qualified from the unqualified, and had the assurance that the training, knowledge, and technical skill of the former were under the supervision of the statutory body known by the short title of General Medical Council. The G.M.C. of course also exercises a disciplinary control over those guilty of professional misconduct. In addition to these safeguards there is the disciplinary machinery of the National Health Insurance Acts. It is common ground that doctors need to keep their professional knowledge up to date, and that one of the gravest disadvantages of present-day general practice is that most practitioners have neither the time nor the opportunity for postgraduate study; the B.M.A., in its latest report,[2] has suggested that when a national scheme of medical service is organized periodical "refresher" courses should be made compulsory. What additional restriction or compulsion the Labour Party wishes to place upon the individual doctor is not clear. The one specific complaint it makes against him is best given in the words of the pamphlet: "If he has a manner which ingratiates him with his clients, he can retain and even increase his practice, even though his technical competence may be very low." The pamphlet then observes that under the present scheme the doctor cannot speak "freely, bluntly, as a healer, or as a guardian of good health." Does the Labour Party seriously wish to maintain that ingratiating qualities will be absent in a whole-time service in which promotion depends largely upon the opinions of those employing the doctor? And is it not one of the commonest criticisms of local government medical services that the doctor employed in them not only does not speak "freely, bluntly, as a healer," but has in very many cases to submit to a censorship before he is allowed to publish anything at all on professional matters in professional journals?

The central authority in the service, as the Labour Party sees it, can be no other than the Ministry of Health, but a Ministry with extended powers covering all health services at present controlled by other Departments. In that respect the plan is more thorough than the tentative one of the Ministry. For local administration the country would be divided into regions, and in its other pamphlet the Labour Party indicates something of the character of those regions and the responsibility of their authorities. They must not be so large that a sense of common interest in their government will be lost, but they must be large enough to admit of development. One question which might be asked is whether Greater London, with an inner but very large county administration, and beyond it a still larger zone of unplanned and unrationalized urbanization, may be made into one homogeneous whole: the point is left in doubt. Each of the regional authorities would appoint a health committee, which would presumably be the body controlling the doctors. Nothing is said in either pamphlet about medical representation on these committees or about the setting up of separate medical committees. It must be inferred that the general practitioner and the consultant will be servants of the area authority in the same way as the medical officer: in other words, a new branch of the local government service will be created. The regional authority will have powers in respect of hospital and health centres, mental treatment, district and school medical services, the venereal diseases scheme, and nursing-home registration and inspection. Area authorities—an area being a division of the region, probably an amalgamation of urban and rural authorities, based where possible on county boroughs—will have powers in respect of midwives, maternity and child welfare, notification of infectious diseases, and vaccination. Most environmental health services will also remain with the area authorities. Within each region there will be a series of divisional hospitals for the treatment of all kinds of cases (except infectious cases and certain forms of mental disease). These will be general hospitals, each with from 600 to 1,200 beds, and staffed by perhaps fifty doctors. Although special hospitals will be eliminated, these divisional hospitals will have specialized units arranged in such a way as to prevent overlapping of services in any region. Linked up with the regionally organized hospital and specialist services will be divisional and local health centres—four or more local health centres in a divisional area, each centre served by a team of from eight to twelve general practitioners. It is well that those who have the interest of the voluntary hospitals at heart should be aware of the Labour Party's "simple method of achieving the goal of a unified hospital system." Voluntary hospitals will be given financial assistance in respect of cases referred to them by local authorities; the latter thereby become entitled to a share of representation and control on the governing board; the end-result of this will be that "before long the voluntary hospitals will come under the control of the local authorities, and the conditions of service of staff in all the hospitals will become standardized." As to the cost of the scheme, the pamphlet argues that it would cost little or no more than the present system.

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[1] *National Service for Health* and *The Future of Local Government*. Price 2d each. The Labour Party, Transport House, Smith Square, S.W.1.

[2] Memorandum of Evidence by the B.M.A. to the Interdepartmental Committee on Medical Schools, *British Medical Journal*, June 5, 1943, p. 702.

In a very brief glance at the health of the nation the pamphlet rightly stresses the effect upon it of poverty and environment; and the statement of the Minister of Food that the nation in general is better nourished on its war-time diet than in peace is cited as an indictment of pre-war policy: "It means that the good resulting from improved distribution has outweighed the injury resulting from the enforced reduction of the national food supply." While this statement may be true in part, it ignores the possibility that such enforced reduction may in itself be beneficial. The effect of poverty, bad housing, and bad environment generally upon the health of people exposed to these evil influences is widely admitted. The matter is referred to in the Labour Party's pamphlet as the first item under the chapter heading, "Our Existing Medical Service." Are we to understand that there is therefore some connexion between the two, and to believe that a whole-time State medical service is the remedy? Is not the remedy to be found in the re-ordering of society rather than in the re-ordering of the medical profession? That reforms in the organization of medicine are needed, and what general direction these should take, are in the main recognized and agreed upon by medical men themselves. But the assumption that seems so widely prevalent in some lay and some medical circles that the men and women in this country are going to be turned into a healthy race through the instrument of the whole-time State doctor and an all-powerful Ministry of Health is, to say the least of it, facile. The doctors will remain the same men, with perhaps a diminished incentive to work, and their patients will (in some respects of health and sickness) remain the same men and women and children—unless they are guaranteed the basic necessaries of life in terms of food, housing, clothing, and recreation in return for honest work, with the safeguard against interruption of income which is the basis of the Beveridge proposals. It is reasonable, therefore, to suggest to our would-be political masters that the house should be set in order first, and the people in it fed and clothed properly, before calling in the doctor.

INFECTIOUS DISEASES AND SOCIAL CONDITIONS

It has been generally recognized for some years that the health of the community is related to environmental and social conditions. The extent of this relationship, especially in the group of infectious diseases, has been an important problem in public health administration. Farr, using large aggregates, first demonstrated in 1875 that mortality progressively increased with the density of the population per acre. The method used for the compilation of national statistics prevented a more thorough study being made, but during the past thirty years, as more details have become available, this subject has attracted much interest, particularly in relation to the infectious diseases of childhood. The trends of these have altered during the past twenty to thirty years—e.g., the changing age incidence of diphtheria and the decline in the death rate from measles.

An important modification in the presentation of vital statistics was made in 1911, when deaths were no longer allotted to the district in which they occurred but were transferred to the place of usual residence. From that date it became possible to compare the mortality of relatively small areas. Previously this could not be done, because, especially in some London boroughs, the death rate of a district was often seriously overstated by the inclusion of deaths in hospitals and institutions within its boundaries. The more detailed housing statistics, which permitted the construction of an overcrowding index, and the grouping of the various male occupations into five social classes which was introduced in the 1921 census, opened up further lines of investigation. Compulsory notification of certain infectious diseases and the gradual addition to these has brought morbidity as well as mortality within the range of inquiry. The statistics of notifications of infectious diseases are imperfect, because they are tabulated without regard to age and sex. For these details it is necessary to conduct a field investigation or to confine the investigation to areas where the local authorities record sex and age of the notified cases. The data for London have formed the basis of several inquiries, and the latest by G. Payling Wright and H. Payling Wright[1] considers the influence of social conditions upon diphtheria, measles, tuberculosis, and whooping-cough at ages 0–4 during the fifteen years 1924-38. The deaths from these four diseases form a large proportion of the deaths among pre-school children.

These diseases have varying epidemiological characteristics, but in all the principal method of spread is by infected droplets. Measles and whooping-cough are transmitted from child to child. Infection from adults is an important additional factor in the distribution of tuberculosis, and carriers are often responsible for the spread of diphtheria. As is well known, the mean age of infection varies for each of the diseases. The authors found that for diphtheria it was 6.3 years, for measles 4.4, and for whooping-cough 3.6 years. A high correlation was found between the mortality at ages 0–4, for the fifteen years, and the proportion living more than two to a room in 1931: the coefficients were for measles 0.838, whooping-cough 0.729, tuberculosis 0.670, and diphtheria 0.503. The relation between economic conditions as judged by the proportion of lower-paid male occupations was also highly related to mortality; the correlation coefficients were for measles 0.589, whooping-cough 0.452, tuberculosis 0.746, and diphtheria 0.591. The first two diseases are more highly correlated with substandard housing than with the social index, while for the other two the order is reversed. The authors conclude that substandard housing is the most important social factor concerned in the transmission of measles and whooping-cough, and that non-specific factors of resistance affected by poverty have little influence upon the outcome of infection. Not only is the mortality from diphtheria closely associated with overcrowding, but it appears that poverty may lead to a higher death rate in the poorer boroughs by lowering the non-specific resistance to infection. In addition to overcrowding, other conditions associated with poverty influenced the mortality from tuberculosis among young children. It is not yet possible, however, to determine how these operate, though factors such as food, clothing, and heating are concerned in maintaining resistance to tuberculosis. The comparisons which were made with the results obtained by other workers showed, on the whole, good agreement.

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[1] *J. Hyg.*, Camb., 1942 **42**, 451.

TREATMENT OF TUBERCULOUS CAVITIES

The treatment of pulmonary tuberculosis is based on two things: general measures to improve the health and resistance to the disease, and local measures to allow rest, relaxation, or actual compression of the diseased lung. If sound healing is to be achieved cavities must be closed, for their persistence carries with it an 80% chance of death within three years. Until a few years ago direct attack on a cavity was considered a surgical heresy, and those cases in which a cavity was accidentally opened during pneumonolysis were so often fatal that this attitude seemed well founded. The last five years has, however, seen the introduction and application of methods of external cavity drainage which are now sufficiently well tried to allow at any rate a preliminary report.

A substantial Continental and American literature already exists, and Sellors[1] and Maxwell and Kohnstamm[2] have lately recorded their experiences in two excellent articles which should be read by all who wish to know more of the treatment, especially in regard to the many important technical details of management. Although there have been attempts by earlier workers, the name of Monaldi will probably always be associated with the first satisfactory work on the introduction of closed-suction drainage for tuberculous cavities; the world-wide interest in the operation dates from his paper[3] presented in 1938. Two years after this J. V. Cussen described in this *Journal*[4] 3 cases treated by Monaldi's method, observing of it: "That remarkable and rapid improvement may be obtained would appear to be certain." In considering the treatment of a tuberculous cavity it is fundamental to understand the pathology of cavity formation, which up to now has been assumed to be directly due to actual destruction of the lung. Although tissue destruction is responsible for the beginning of a cavity, its growth and persistence are more influenced by mechanical factors—namely, thoracic-wall traction during respiration and inflation by air entrapped distal to an inflamed and partly stenosed bronchus. In other words, a check-valve action is set up, and every inspiration drives air past the valve to distend the small initial cavity of destruction into a large and still larger cavity. The denser tissue in its wall is generally due not to fibrosis, as is often thought, but chiefly to compression of surrounding lung tissue with some inflammation. The standard measures of collapse therapy, such as artificial pneumothorax and thoracoplasty, produce closure of a cavity in a high proportion of cases, but at times they fail or are impracticable. Moreover, the question must arise whether closure of a cavity can be achieved by something less drastic than thoracoplasty. Closed-suction drainage is a method which holds out hope in many difficult cases, chiefly of bilateral disease; but from the results of Sellors and Maxwell it does not seem likely that it will supplant thoracoplasty, though it becomes a valuable adjuvant to the operation by diminishing the size of the cavity and by improving the patient's general condition. Both Sellors and Maxwell conclude that the majority of patients so treated will need a thoracoplasty to obtain permanent healing. The introduction of the special fine catheter is a small operation carrying a virtually negligible risk. Gentle suction-drainage strikingly relieves cough—and this is very important when the cough is exhausting—and, in most cases, the cavity steadily shrinks to a small size or to no more than a tube track. Unfortunately, when the tube is removed the cavity often reappears, presumably by the very process of inflation via a bronchus by which it originally grew. This is not to be wondered at if the primary bronchial check-valve action persists. Thomas and his associates[5] have tried to overcome this difficulty by a most ingenious device—the injection into the cavity of some 10 c.cm. of the patient's own plasma. The object is to obliterate the causal bronchial fistulae, and the results in some of the few cases they report are both interesting and encouraging. Further experiences in this method or of others to produce bronchial closure will be eagerly awaited.

SKIN REACTION TO PHENOBARBITAL

Phenobarbital is one of the most useful hypnotics in general use, and since its introduction to the profession in 1911 has been a stand-by to both the general practitioner and the neurologist. Whereas barbitone (veronal) is a combination of two ethyl radicals with the molecular group which constitutes the residue of urea and is more properly known as diethylbarbituric acid, in phenobarbital one of the ethyl radicals has been displaced by a phenol group; hence the name. In former times phenobarbital was probably even better known under the trade name of luminal. It has been found to be of value in epilepsy, and often has advantages over other barbiturates as an ordinary hypnotic. But it possesses the drawback shared by all the members of this series in its liability to produce toxic rashes in susceptible subjects. Phenobarbital is a powerful narcotic poison and is even more toxic than barbitone, but it is not in the cases of acute poisoning that these toxic rashes occur. Very often they are seen when only a single small dose of the drug has been taken, and they are characterized by urticarial lesions of widespread distribution and by intense pruritus. They are usually recognized without much difficulty, and disappear quickly when the drug is no longer administered. Rarer and more serious are the eruptions which make their appearance only after phenobarbital has been given daily during a period of some weeks, with, at first at all events, no apparent ill effects. But when the skin is involved these cases can be severe and even fatal. The eruptions are characterized by exudation and exfoliation with ulceration of the mucous surfaces. Moss and Long[6] have reported two cases of this type: one in a woman who had taken about three dozen pills amounting in all to 1.53 g. of phenobarbital prescribed for the relief of menopausal symptoms, while the other was a negress who in the course of treatment for secondary syphilis took 30 mg. of phenobarbital four times daily for some forty days on account of insomnia and nervousness—her total dose was 4.8 g. Both these patients showed considerable fever, swollen lips, great redness of the conjunctivae, and copious sticky oral and pharyngeal exudate. The cutaneous eruption was generalized: in many places the lesions were crusted, and some of them haemorrhagic. Pruritus was intense. Both patients were extremely ill and appeared to be in great danger. But soothing applications and administration of large amounts of fluid—a treatment not at all easy to carry out owing to the dysphagia produced by the state of the mouth and pharynx and the copious exudation from the mucous membranes—led to complete recovery. At the end of three months no trace was left of the severe ordeal experienced. It is worth while to notice that in neither case were there any of the symptoms of narcotic poisoning such as commonly occur after single massive doses of the drug. This is the rule in such cases. Patients who have taken a single massive dose show no cutaneous symptoms, while those who suffer from the cumulative effect of a series of doses show no nervous symptoms. Moss and Long draw attention to the strong resemblance between these cases and certain others labelled "atypical erythema exudativum multiforme," of unknown cause. They suggest that phenobarbital (or perhaps some allied barbiturate) may well have been the real cause in many of these. A history of drug ingestion is often difficult to obtain, and it is still more difficult to ascertain the name of the drug used.

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[1] *Tubercle*, 1942, **23**, 239.
[2] *Brit. J. Tuberc.*, 1943, **37**, 24.
[3] *Ann. Ist "Carlo Forlanini,"* 1938, **18**, 665.
[4] *British Medical Journal*, 1941, **1**, 115.
[5] *Brit. J. Tuberc.*, 1943, **37**, 44.
[6] *Arch. Derm. Syph.*, Chicago, **48**, 386.

THE DETERMINATION OF BLOOD GROUPS

Blood transfusion disasters may be caused by faulty grouping. Owing largely to the apparent simplicity of making the tests the standard of accuracy of blood-grouping results is not as high as it might be. It is most unfortunate that, without any immediately obvious difficulty arising, blood-grouping tests are often left, after a few minutes' instruction by a teacher far from experienced, to a person quite unused to laboratory methods. Accurate grouping is not simple, and if errors are to be avoided certain technical principles must be understood and adhered to. There are three essentials: a sound and well-controlled technique; good and reliable reagents; and, last but not least, an experienced worker. The appearance of an M.R.C. War Memorandum[1] on "The Determination of Blood Groups," describing these principles and essentials, is most welcome. Three methods of grouping which in trained hands have given satisfactory results are described, and their relative merits are discussed. It is recommended that one or other should be used by all workers without the introduction of personal modifications. Of these three it is said that where possible the tube method should be employed; if this is impracticable a tile method in which the red cells are used in weak suspension is advisable; and that a tile method in which undiluted blood is added to grouping serum is not advised unless the worker has very considerable experience of this particular procedure. The importance of directly matching the donor's cells against the recipient's serum is stressed. Sources of grouping errors are analysed, and the properties and storage of testing sera are detailed. It really is worth an effort to store fluid sera frozen solid, and where this cannot be done dried grouping serum is recommended. The most important statement in this 19-page document stands on page 4: "It is certain that if the serum were regularly examined for agglutinins, as well as the cells for agglutinogens, most blood-grouping errors both technical and clerical would be prevented." No worker seriously seeking accuracy can ignore this, for it seems impossible to group any considerable number of people by any technique that examines only the agglutinogen content of the red cells without mistakes arising. A section on the subgroups of A, which most workers find so baffling, should help towards a clearer understanding of this admittedly confused aspect of the blood groups. There is an excellent and most useful note on the recently discovered Rh factor. The memorandum sets out in a comparatively small space a large amount of essential information which anybody who has blood-grouping tests to make should study and digest.

A COUNTY BOROUGH IN THE FRONT LINE

The county borough of West Ham, with a population (pre-war) of 300,000, was the first part of the metropolitan area to feel the fury of large-scale air raids. On a September afternoon in 1940 two of its poorest districts, Canning Town and Silvertown, were attacked by incendiaries, and the glow of the fires so lighted guided the bombers which came later the same night. Casualties were astonishingly few, but hundreds were rendered homeless, and an immense emergency problem was created in a matter of hours. *War Over West Ham*[1] is an investigation of the reactions of such a calamity upon the people, the local government, and the social services, and Miss Idle has done her work with Fabian thoroughness. West Ham, though burdened by early slum development, is a progressive borough. To take its health services alone, it has five municipal and six voluntary maternity and child welfare clinics and four school clinics. Only half the county boroughs in England pay midwives' fees in necessitous cases, but West Ham is one of them. Fewer than half provide artificial sunlight treatment or special schools for mental defectives, but again the number includes West Ham. The organization and experience behind these and other services were of great value when the test of the emergency came. Nevertheless, Miss Idle is critical of the borough council, apparently on the ground that the average age of its members is about 60, an indictment—if it is one—which might be brought against many local and national bodies. In A.R.P., she says, the council moved slowly, did not grasp significant factors, was fearful of being by-passed, was obsessed with municipal prestige. Even when it provided the services it had no notion of advertising their availability. She wants young men and women, not people past their prime, in the administration of such a borough. Some of her criticisms are eloquent with the wisdom which comes after the event, and it seems probable that the council might construct a rather different narrative of what happened. Before the authority is censured it ought in fairness to be remembered that it was the first to have to deal with such a situation, and that even though there were delays and unsatisfactory co-ordination in some respects, many services, including the medical ones, made without difficulty fundamental readjustments to meet the emergency.

Of the large numbers of men who have qualified for the medical profession in Northern Ireland since 1938, three out of every four have volunteered for the medical branches of the fighting Services. Almost all of them enlisted immediately on completing their statutory six months' residence in a hospital. So many members of the medical staffs of the Ulster voluntary hospitals have joined up that it has been possible to carry on the work only by bringing back from retirement former senior members of the staffs.

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[1] M R C War Memorandum, No. 9. H M S.O. 1943. (4d. net)

[1] *War Over West Ham A Study of Community Adjustment.* A report prepared for the Fabian Society and the Ethical Union by E Doreen Idle. Faber and Faber. (6s)

Reports of Societies

NUTRITIONAL PROBLEMS OF INFANCY

In wartime the "susceptible" classes—expectant mothers and infants—need special nutritional care. The Nutrition Society's recent meetings are therefore of special interest. A symposium on nutrition in pregnancy has already been held, and on May 22 there was a conference on nutrition in infancy. A discussion on milk will take place on July 5.

One of the virtues of these meetings of the Nutrition Society is that they bring home to those who attend them just how little accurate information on nutrition is really available: this was obvious at the recent meeting on nutrition in infancy. Many speakers stressed that the baby has no way of telling us how it feels and what it would like. As Dr. H. E. Magee in the afternoon session put it, the baby's response to all discomfort is to "howl." Dr. HELEN MACKAY quoted the work of Dr. Clara Davis in America, who had let 12 babies choose their own foods. Many of the things they ate and did not eat would have probably horrified either the nutritional expert or, the baby specialist—or both. The consumption of ten eggs at a sitting or the failure to take any milk at all for some months were examples of their selection. But all the babies appeared in a state of optimum nutrition at the end of the experiment.

Some Useful Pointers

Dr. Mackay said that in feeding babies three things had to be borne in mind: (1) the tolerance of babies to food; (2) the importance of gradualness—the education of the child to take many kinds of foods if they were given gradually; (3) the importance of early supplements, as babies kept on a milk diet for one year were often retarded. Comparing the recommendations of the American Committee on Food and Nutrition on the requirements of various nutrients in infancy, Dr. Mackay showed that they were higher than those usually adopted in this country. She believed that the American Committee must in some cases have been thinking of artificially fed babies.

Taking various nutrients one by one she made the following points. In breast-fed babies only 10% of the calories came from protein. Milk was the sole source of the baby's protein, whereas some of the fat and carbohydrate might come from elsewhere. The casein of cow's milk was not as good as the lactalbumin of human milk, but the milk of most animals had a higher protein content than human milk because the young of these animals grew more rapidly than humans. As human milk was relatively low in protein it was, probable that in rapidly growing babies (e.g., prematures) the protein of human milk was insufficient. In some places it was customary to give protein to such babies, but not to any great extent in this country. Dr. Mackay was doubtful of the value of such a procedure.

The infant's requirement for calcium was important, but it was difficult to give minimum requirements because they were variable. For example, in a full-term foetus the long bones had a considerable amount of cancellous tissue, and it had been suggested that a baby could draw on some of this calcium. The difficulty of preventing rickets in some premature babies suggested that this might be a fact, as the premature baby would have such a small amount of cancellous tissue to constitute a calcium reserve.

Vitamin D varied considerably in the diet of infants. Babies which were put out of doors regularly throughout winter rarely developed rickets, for, hard to believe though it was, even winter light in this country had some protective action. Premature babies in particular needed vitamin D very early in their lives. Dr. Mackay recommended a routine dose of vitamin D for all babies, which would protect against rickets under all circumstances. One point of special interest made by the speaker was that the vitamin D of concentrated preparations was relatively poorly utilized. Of the other vitamins, little was known of the requirements of vitamin A or of the B complex. The American Committee on Food and Nutrition had recommended 30 mg. per day of vitamin C, although this was probably more than was needed. The fact that vitamin C appeared to be associated with the metabolism of certain amino-acids, particularly in premature infants, suggested that it would be wise to ensure an adequate supply of it.

Most babies had a low level of haemoglobin (which was cured by iron) at the end of the first year. It seemed desirable, therefore, to provide babies with medicinal iron and foods rich in iron in the latter half of the first twelve months of life.

It was important for an infant to have plenty of water and to ensure that it received sufficient *quantity* of food. The latter was sometimes overlooked, as many of the symptoms of hunger often went unrecognized.

Many speakers contributed to the discussion of this paper, but space cannot be given to their contributions, valuable though they were. We should mention, however, some interesting figures given by Dr. S. K. KON of the National Institute for Research in Dairying on the vitamin content of human milk. His figures were obtained from 1,000 samples: vitamin A, 700–850 I.U. per pint (there is little variation in this figure); vitamin C, 12 mg. per pint in winter, 24 mg. per pint in summer; vitamin B_1, 0.07 mg. per pint; riboflavin, 0.13 mg. per pint—this was low compared with cow's milk, which has six times as much.

Wing Cmdr. R. W. B. ELLIS's discussion of the methods of assessment of underfeeding, rickets, and scurvy was extremely helpful and stimulating to all present. Dr. ALAN MONCRIEFF opened his paper with a few unequivocal comments on the misuse of the term "marasmus." He contended that the best way to cut into the vicious circle malnutrition–infection–malnutrition was primarily to treat the infection. He emphasized the point, also made by other speakers, that the bogy of overdosage with vitamin D really was a bogy. One case of his of vitamin-resistant rickets had been treated with half a million international units of vitamin D daily for 6 weeks with no effect on the rickets or on calcification in other parts of the body. He stressed the fact that preparations of cod-liver oil and malt which rarely contained more than 10% of cod-liver oil could not be regarded as either a preventive or a cure of rickets.

Administrative Aspects

The morning session had been devoted to a consideration of the scientific aspects of infant nutrition; the afternoon session, to a consideration of administrative problems.

Dr. J. C. SPENCE made a plea for the provision of separate departments for maternal and child welfare, because each was such a big subject in itself. In the subsequent discussion this was regarded as being perhaps not desirable, because from the standpoint of nutrition the two were indissolubly linked. Dr. Spence believed that some better way must be found of giving technical advice to mothers. He believed that advertisements for patent foods should be controlled.

Dr. H. E. MAGEE, in a thoughtful paper on the public health aspects of infant nutrition, claimed that we should strive towards the ideal of optimum nutrition. He believed that the national milk and vitamin schemes were one of the most important public health measures which had been taken, and he hoped they would be continued. The war had provided us with a unique opportunity to test out nutritional theories, and they had come through with flying colours. Mr. F. LE GROS CLARK, secretary of the Children's Nutrition Council, supported Dr. Magee's comments on the milk and vitamin schemes, and pointed out that they constituted an important precedent, as for the first time food was being distributed according to biological requirements regardless of income.

One matter stood out through the whole of the conference—agreement on the importance of breast-feeding.

The chair at both morning and afternoon meetings was taken by Prof. L. G. PARSONS, professor of children's diseases, University of Birmingham.

At the annual general meeting which preceded the afternoon session Sir John Orr, Dr. L. J. Harris, and Mr. A. L. Bacharach were re-elected chairman, hon. secretary, and hon. treasurer respectively of the society, and Dr. S. K. Kon was elected hon. editor of the Proceedings of the society. In the election for membership of the committee there were five candidates, and Mr. F. Le Gros Clark, Prof. S. J. Cowell, Dr. A. P. Meiklejohn, and Dr. Lucy Wills gained the vacant places.

Correspondence

The Cult of Negative Health

SIR,—In opening the debate in the House of Lords on May 5 Lord Geddes stated that the physical condition of evacuees was better than that of city dwellers in his youth, but that both adults and older children were to a surprising extent lacking in independence and convinced that they were not well. He noted a similar contrast between the conscripts of this war and the young men who served in 1914 and in the Boer War. He further stated that the children, at any rate, had improved greatly through living in the country.

These observations are of great interest, but I think we shall have to look beyond the Government official and the medical profession for the explanation of this cult of negative health. Moreover, since an improvement in physical health appears to have occurred side by side with a deterioration in mental health (which loss of independence and belief in ill-health surely indicate), it would be reasonable to look not to the defences of the body but to the sphere of mental life. I would like to make the suggestion that this belief in ill-health may to a large extent be due to the fact that, in the case of the town dweller, the environment does not *demand* the use of more than a portion of his interests, abilities, and energies.

Biologically speaking, we are animals. Animals could not survive in the struggle for existence unless they learned to satisfy their needs in the most efficient way. In common with animals we have an innate tendency to get what we want with the least possible expenditure of energy. Habit-formation—learning to do things without thinking—is only a part of this economy of effort. The tendency to provide for our requirements by the easiest and quickest means can and does influence a high proportion of all our behaviour. The newly born infant uses practically all its psychic and physical energy in the maintenance of life and in growth. It lives to a very large extent in an inner and sensory world, and is intensely aware of bodily sensations. This condition, though probably unpleasant, is biologically necessary. In physical illness, energy and interest are withdrawn from the outside world. The sick person retreats into himself, and becomes, in this respect, like a baby again. He is acutely conscious of physical sensations and is using all his energies in combating the disease. This turning inwards is again of obvious value. In normal health, however, there is a surplus of psychic and physical energy over and above that required to maintain bodily functioning and growth. Whether this excess promotes or lessens physical and mental health depends upon the way in which it is utilized.

Here is the problem. In most people the tendency to economy of effort has, on the whole, a greater influence on conduct than has the amount of energy and interest actually at their disposal. Unlike children, relatively few adults will tackle a difficult intellectual or practical task just for the pleasure of doing so. The zest of the struggle, the triumph of achieving success in the face of obstacles, the enjoyable release of energy and creative ability can be observed in any normal and healthy 4-year-old, but is all too soon forgotten, and many people go through life with practically no knowledge either of their powers or of the satisfaction to be gained by using them.

Any emotional or physical drive, capacity, or ability which is constructively used brings about an increase in physical and mental well-being. Lack of use is, from the psycho-biological point of view, not a passive but an active state. The surplus energies and drives are *there*—but they are invested in the individual himself. He returns to a state appropriate to physical illness or to infancy, becomes morbidly aware of bodily functioning, and feels ill and helpless. Even this, unfortunately, is not the end of the story, since there are many clinical, pathological, and *x*-ray proofs that the over-investment of energy within the organism sooner or later causes organic dysfunction and "real" illness. The human organism is, then, like the U.S.A. after the last war; sick of a surplus of gold which it could not use.

The country housewife is, I believe, inherently no wiser than the townswoman. The former would be only too pleased to have labour-saving devices, ready-made entertainment, and a fried-fish shop round the corner. If she is more resourceful, ingenious, and competent it is because she has *had* to "make do." She has found Necessity a benevolent if stern goddess; she has achieved mental health in spite of herself and not because she has realized the value of her manifold and often harassing duties. I therefore find some of the trends of post-war planning very disquieting. I am no more in favour of slum housing conditions than I am of monotonous routine work in home and factory, but the constant emphasis on making life easier is distinctly ominous. Broadly speaking, if we plan a post-war world to give us more leisure and less practical problems in our daily life we shall, I believe, plan for mental ill-health.

We are to-day living more simply, working harder, and experiencing greater deprivations than at any time in recent years. We are learning to make and grow what we cannot buy—and, during the war, the national health has improved. Can we maintain this improvement? It is my belief that we shall not do so unless we so plan that the vastly increased output of energy and ability necessitated by war conditions is no less imperatively demanded of us in times of peace.—I am, etc.,

The Tavistock Clinic, London, N.W.3 R. E. LUCAS, M.B.

Medicine and Politics

SIR,—Any trained scientific observer who reads the article under the above title in your issue of May 29 (p. 673) will be forced to the conclusion that its author must have been a politician when very young and had a really bad fright!

A good many doctors with whom I have discussed the matter have confirmed my own experience, that when a practitioner is returned to Parliament for the first time he is greatly surprised at the distrust of the medical profession among the members generally. At first he feels a little hurt, because he knows that he belongs to the most self-sacrificing and public-spirited of professions; but his disquiet is usually short-lived, for he soon discovers that the distrust of the profession is solely the result of ignorance. Should a politician take the trouble to read Dr. Geoffrey Bourne's article he would, I have little doubt, go through exactly the same mental process and reach a corresponding conclusion.

For politicians are very much like other people—no better and no worse. Very few go into politics for purely selfish reasons. They become politicians because they want things done, just as Dr. Bourne is concerning himself with medical politics because he wants something done (or is it something not done?). Most politicians believe that what they are wanting done is for the good of the nation; but some take a more limited view, and are mainly concerned with the welfare of the class to which they belong. But even these believe that what they are trying to do is in the national interest, because they regard their class as of the greatest importance to the nation, and I have no doubt that Dr. Bourne looks upon the doctors in exactly the same light.

It is because politics is only a means to an end and not an end in itself that people of every sort and kind, and with the most varied outlook, find themselves compelled to become politicians. It is absurd, therefore, to generalize about politicians, and consequently such statements as "intellectual activities are not encouraged by politicians" are the most arrant nonsense.

When Dr. Bourne tells us that "history proves that scientific freedom and research are of vastly greater importance to humanity than is administrator" he is on much firmer ground. The administration must undoubtedly take second place, but the value of his work is real; indeed it can be truly said that, in a complicated civilization like our own, the results of scientific research cannot be applied without him. Few of us who are practising medicine can lay claim to the discovery of more than a few of the methods of diagnosis and treatment we use daily; nor is it always possible for us to apply these in accordance with the methods of an exact science. We are compelled, therefore, to act as administrators or politicians, doing the best we can for our patients in all the circumstances of the case. And thus we demonstrate in our daily life that the scientist and the administrator can work successfully together.—I am, etc.,

Northwood, Middlesex SOMERVILLE HASTINGS.

SIR,—In the summing-up of his article on "Medicine and Politics" in the *Journal* of May 29 Dr. Geoffrey Bourne makes a number of points with which most people will agree. The body of the article, however, which is chiefly concerned with a plea for the protection of medical scientific research from political administration, calls for some comment.

Let us suppose that a system of State medicine were introduced. Quite apart from the consideration of whether it might improve the application of existing medical knowledge to the people as a whole, the situation would arise in which ill-health would at once become a *direct* burden on the national income. Even the most ignorant of administrators would be anxious, to put it least charitably, to minimize this burden. In this case the medical profession would have all the cards to play, for the advances in the control and cure and prevention of disease made by medical science are striking enough to convince any chairman, councillor, M.P., or trade unionist—once the facts have been properly presented. (The accusation of ignorance levelled by the medical profession against laymen, though often deserved, is nevertheless largely the profession's fault—for when has it seriously attempted to dispel this ignorance?)

It would be surprising indeed if medical science was not given at least quantitative encouragement under State medicine. As for the quality and freedom of medical science, would the existing places of research be closed and their workers dismissed? Obviously not, nor would those who at present direct or influence research cease to do so. Dr. Bourne, if he expects that State medicine will come, should surely lay less emphasis on safeguards and more on the positive contributions which medical science will make as facilities for it are increased. For freedom must justify itself, and be justified of those who claim it.

It is quite likely (though not certain) that under a State medical system facilities would be more readily available for working on the more common but difficult diseases such as rheumatism, rather than on rare and "interesting" diseases—that is, there would be, in an important sense, a restriction on "freedom" in medical science. Provided that the restriction were relative only it might well be entirely beneficial to the progress of medicine, and, since fundamental processes are not confined to particular diseases, it need not impair the growth of fundamental knowledge.

It is true enough that at present the volume of research done in voluntary hospitals is greater than that in their municipal sisters. Some of the big teaching hospitals have a good tradition in the matter, they have built-in facilities, and they are attached to universities. Where there are whole-time research workers, however, these are usually paid not by the hospitals but by the universities or by the great research foundations. There is no intrinsic reason why such persons should not be attached to county or municipal hospitals. That research is even now carried out quite extensively in these places can be seen by anyone who looks through the sources of papers in the medical press. I myself belong to a county hospital service which has its own active medical society, and its own entirely democratic research committee whose sole aim is to encourage and facilitate research. We can stand up to administrators, for there is fundamentally no conflict of interest.—I am, etc.,

J. H. HUMPHREY.

SIR,—Dr. Geoffrey Bourne claims that medical research is restricted, if not actively discouraged, in the municipal services. This is certainly not true of tuberculosis. The output of original work from State-controlled antituberculosis services, both in this country and in the U.S.A., far surpasses in quantity and is not inferior in quality to that issuing from voluntary institutions. This research is not, indeed, promoted in most instances by the administrators of the service, but is the spontaneous product of doctors' curiosity, set down and worked out in their leisure time. So is the majority of research in general medicine, as reference to contemporary journals will show.

Certain problems do call for high-powered teams with special training and equipment; but investigation in the field is still, and I hope always will be, the part of clinicians with their eyes open, the sum of whose observations can, if so desired, be collected and statistically correlated. Only large organizations can provide the large figures often necessary, and I should like Dr. Bourne to cite any instance where lay members of a local authority have obstructed a reasonable project of this nature. Certainly the Middlesex County Research Committee, which has as its field the county's two million residents, met at its inception no discouragement from its authority, and has so far retained completely that intellectual freedom so valued by Dr. Bourne, tempered by a scrupulous accuracy that he would do well to emulate.—I am, etc.,

BRIAN C. THOMPSON, M.D.

State Subsidy for Medical Education

SIR,—In the letters in the *Journal* concerning a State Medical Service there is one point which your correspondents appear to have overlooked—namely, subsidization of medical education by the State. Immediately after the war, and in any case later, if an unacceptable service is forced on the profession there will be a shortage of doctors. The authorities would no doubt meet this by subsidizing medical education, which in a decade would flood the medical profession with a crowd of docile but undesirable members. A similar method was used after the last war to replenish the ranks of the teaching profession, with, in the opinion of many, unfortunate results. So soon as entry into the profession is made easy, and so soon as one forgets that to be a doctor is "a way of living" and not merely a safe job with a fixed salary, then so soon will medical standards deteriorate.

One other point. One notes repeatedly in correspondence and debates the assertion that State service does not paralyse individual effort, and examples are quoted of outstanding achievements by medical officers in the Forces and in the Colonial medical services; but are not these exceptions? No mention is made of the more usual case of the medical man tied down to an uninteresting routine who, by the time he realizes that he must get out or remain an official for life, finds that his medical talents have passed away and that he is no longer fitted for civilian practice.—I am, etc.,

Knighton. G. H. H. BOOTH.

Selection of Medical Students

SIR,—In the B.M.A. memorandum on medical teaching (June 5, p. 702) I notice that it is recommended that prospective medical students should be interviewed by a small committee to determine if they are suitable "human material" from which to make future doctors. Is this process of selection to be restricted to the medical faculty, or is it logical that it should be extended to law, engineering, science, etc.? If so, where is the freedom of the individual to be found? At present the Ministry of Labour "directs" persons to a "suitable" occupation. Is this the sort of thing we are still to be subjected to after the war? It would seem that the committee's recommendations may extend further than was realized.—I am, etc.,

Rhyl. J. C. L. DAY.

The Raw Milk Danger

SIR,—Papers and correspondence recently have brought to the fore again those two vitally important factors in child health—viz., breast-feeding and the boiling of cows' milk. They can hardly be too often stressed, and though the great majority of the profession are convinced of their desirability, do we insist on them in our own local concerns, or voice our convictions sufficiently loudly?

I am not here concerned with our shortcomings in encouraging natural feeding, but to ask how our consciences stand in regard to milk. That supplied in schools is not compulsorily boiled to start with. Surely we should insist that this is done, except in the few areas where a pasteurized supply is available. And how about hospitals? Is it the rule for all milk to be boiled? No.

Eventually we hope pasteurization will be universal, but until then a lot might be done by school officers and hospital residents if they would just inquire into the state of affairs and protest firmly if they find raw unboiled milk being supplied to the children. The G.P., too, might do more propaganda about this than he does; in fact he sometimes even discourages boiling. What is the conscientious mother to do when her *Nursery World* persistently exhorts her to boil the milk and her doctor says it doesn't matter?

I think one of the reasons for the general lack of realization as to cause and effect in bovine tuberculosis is the doctor's attitude to an established case, say, of glands in the neck. He seldom inquires about the milk supply, but murmurs something to the effect that "there's a lot of this about; children don't get enough butter and fresh fruit these days," unwittingly giving the impression that dietary deficiencies can *cause* the disease. Or maybe he does not like to assert the medium of the infection for fear of upsetting the parents, who may feel he is accusing them of negligence.

Until we make a plain statement (and act accordingly) that every child with bovine tuberculosis has at some time drunk raw milk and that *this* has caused the disease we shall not be doing all that we might to prevent this wholly preventable illness.—I am, etc.,

Stourbridge. JOYCE MCCARTHY.

Aspirin and Gastric Haemorrhage

SIR,—Under "Any Questions?" in the *Journal* of June 5 (p. 714) a question as to whether aspirin can give rise to gastric haemorrhage is answered in the affirmative, and reference is made to the "convincing" evidence brought forward by Douthwaite, Douthwaite and Lintott, and Hurst and Lintott in 1938 and 1939. In the same number (p. 689) Dr. Avery Jones analyses 171 cases of haematemesis and/or melaena recently under his care. Of these, 22 were diagnosed as acute ulcer, 2 as acute gastritis, and in 34 the diagnosis remained uncertain; together these made up 35% of the whole series.

From my experience in hospital and private practice since Lintott and I wrote our paper in 1939, I would expect to obtain a history pointing to aspirin as the direct cause of the haemorrhage in at least one-half of the 58 cases in which chronic ulcer, carcinoma, and cirrhosis of the liver could be excluded. The association is never recognized by the patient himself and is discovered only after a careful cross-examination. It is then found that in a period when the patient is completely free from indigestion he has swallowed one, or more commonly two, three, or more aspirin tablets, either whole or broken into a few fragments, generally with water, occasionally alone, and always on an empty stomach, in order to relieve headache, "rheumatism," or some other pain or discomfort; and that the haemorrhage followed within a few hours. In many cases he has never taken aspirin before or not for many months or even years, and never more than one tablet at a time and then perhaps only after meals. In several instances earlier attacks of haemorrhage could be traced to the same sequence of events—headache, aspirin, haemorrhage. Other proprietary tablets, such as veganin, which contain aspirin, are of course equally dangerous. I have also seen a few patients with chronic gastric or duodenal ulcer in whom the history pointed to the probability that a recent haemorrhage without the usual preliminary digestive symptoms was caused by aspirin.

I believe that the risk of haemorrhage after taking aspirin would be negligible if it were always taken in powdered form and after meals, with 10 gr. as the maximum dose. If all manufacturers of aspirin were to print instructions to this effect on the bottle labels the incidence of haematemesis and melaena in the absence of chronic ulcer would probably be reduced by about 50% and the total incidence by 15 to 20%.—I am, etc.,

Oxford ARTHUR HURST.

Shortened Puerperium

SIR,—Dr. Flew made an admirable reply (June 5, p. 707) to Dr. Denys Smith (May 22, p. 644), who wishes to shorten the puerperium by way of solving the problem of shortage of maternity beds. I should like to support Dr. Flew from many years' experience in maternity and child welfare clinics. Dr. Denys Smith asserts that the majority of working-class mothers who leave the maternity hospitals on the tenth day are "fit and well." I wish he could see some of them a few days afterwards! It is a typical and common experience of mine to be consulted by such a nursing mother when her baby is two or three weeks old, complaining that "my breast milk began to go when I first got about again." She looks pale and anaemic, is obviously debilitated, and I find on inquiry that the lochia are present still and sometimes profuse.

In pre-war days, when the services of a municipal home-help could be procured, it was sometimes possible to get such a patient to bed again in her own home for a few days with excellent results. The lochia would cease, breast-feeding would be re-established, and afterwards she was able to resume her household duties and nurse her baby. Ten days only in hospital is too short a time for the mother who has to return to her home and household duties, with little or no domestic help, if "the normal but considerable processes of involution and repair are to take place," as Dr. Flew says. This applies equally nowadays to many an upper- and middle-class mother leaving the haven of the nursing home for a house or flat—with only fortuitous domestic help.—I am, etc.,

London, W 14. MARY KIDD.

SIR,—I feel I cannot accept Dr. Neal Smith's advice to shorten the puerperium. No definite evidence is offered to show that some cases of prolapse and backache are not due to early rising after labour and quick return to full activity. His reason for keeping mothers in bed at all appears to be on account of heaviness of the breasts until the fifth day. If this is the case, why should mothers stay in nursing homes for as long as a fortnight?

Some reasons for rest in a reclining position for longer than five days after labour occur to me. Throughout the animal kingdom the period following reproduction is one of rest. The stretched pelvic joints, ligaments, and muscles need time for repair, and can hardly be expected to support a heavy uterus while the mother tries to resume an active life. The time taken for this repair must vary with the individual and the type of labour. From my own experience of three puerperia and from questions put to other mothers I have noted that the unsupported feeling about the pelvis takes longer to pass off than any feeling of weakness in other parts of the body, in spite of exercises.

The distended venous system of the lower limbs and pelvis also needs time for shrinkage. To throw extra strain on it by the premature assumption of the erect attitude encourages the formation of thrombosis and emboli, as well as subinvolution of the uterus. The replacement of fluid lost as sweat and blood during labour needs adequate time to allow for satisfactory lactation. Taking the patient out of bed is likely to pool blood in the lower part of the body and so decrease the flow to the breasts. Mild exercises for the arms and upper trunk would seem to be more useful.

Surely in these enlightened days no mother is left lying flat on her back for a fortnight unless she is suffering from some complication which merits such treatment. Most are doing simple exercises by the third day. The cause of mothers rushing to find "supports" is often the feeling of pelvic discomfort described coupled with sagging abdominal muscles and a desire to return to a pre-pregnancy figure. Added to this she finds much encouragement from those around her to get a good corset. Much trouble could be avoided if mothers were plainly told that the feeling will pass off (provided examination shows all is normal). They should carry on with simple exercises, light work, and simple corsets. Rest periods are necessary, and feeding sessions help to provide these. Lifting heavier children until strength is regained should be avoided. Massage with supervision of exercises is helpful if it can be arranged.

I think Dr. Neal Smith is rather unfair to the "well-to-do" mother. She knows she can rest only while she is away from home with the present shortage of domestic staff. She is in a worse position than her poorer sister, who has a smaller house and does not bother so much about appearances, and who does not have to face the difficulties of a professional man's wife, for instance. The poorer mother leading a more communal type of life can more readily call in relatives or neighbours to help, while in larger families the older children look after the younger.

In many cases there is no need for skilled attention after about the tenth day, but mothers should be allowed time to resume their full activity gradually and to be encouraged to continue breast-feeding. There is an urgent need for a really efficient domestic service with priority for mothers, or for special "convalescent" homes. The former scheme which has been envisaged is likely to prove more acceptable, in my opinion.—I am, etc.,

Winchester. MYRTLE M. HUTCHINS.

Advice on Sterility

SIR,—Whilst appreciating Dr. R. H. P. Hick's annoyance about the growth of clinic services (June 5, p. 707) I believe that in this instance the complaint is without foundation.

The contraception clinics at present run by the Family Planning Association can in no way cut across the work of the family practitioner. No patient is seen whose family income exceeds £5 weekly, and before the war very many were wives of unemployed men for whom even the appliances had to be gratuitously provided. Such patients frequently have no doctor of their own, and in these times of "call-up" and evacuation the links are still further severed. It will be among the friends and relatives of such working-class patients that the work on involuntary sterility will in all probability extend.

It is relevant to add that in many cases the family practitioner does not appear to be the most helpful person to approach in such matters. Considerable postgraduate experience is required for the competent fitting of contraceptive appliances, and, with the rapid advancement in the study of sterility, the scope of purely consulting-room advice is inevitably diminishing. There are many women who badly want a pregnancy but who cannot bring themselves to ask their family doctor for advice which they feel to be of such an intimate nature. This is wholly irrational, but undoubtedly true. Although, fortunately, there are practitioners whose skill and interest in such work are second to none, I think Dr. Hick could hardly fail to agree that the majority of heavily worked practitioners are *not* anxious to be consulted regarding problems of a sexual nature. It is a very common experience at clinics to find that patients who have been in the greatest need of intimate advice have received either evasive replies or totally inadequate help from their own doctors. It can hardly be doubted that the family practitioner who is unembarrassed by such inquiries, and willing and competent to deal with them, will *always* be the first to receive his patients' confidence; and, for the rest, the growth of the specializing clinic will be invaluable.—I am, etc.,

London. JOAN MALLESON.

Adder Bite

SIR,—Last year the treatment of adder bite received some prominence in your columns. Clearly the use of specific anti-venom is the ideal treatment, and it is impossible to draw conclusions from a single instance, but the following case seems sufficiently dramatic to justify a further trial if the proper antidote is not immediately available.

A nursing sister aged about 25 was bitten on the instep by an adder at 5 o'clock one afternoon. She was put to bed as soon as possible and hot fomentations were applied at the site of puncture. I saw her at 11 the next morning. By this time the leg was grossly swollen from ankle to knee, with considerable bluish discoloration. The patient stated that the swelling was rapidly spreading and that the leg was throbbing painfully. I advised the application of kaolin poultices and injected 5 c.cm. of heparin intravenously. Within a few hours of the injection the pain had vanished and the swelling had begun to subside. After forty-eight hours the leg was back to normal and the patient allowed up. For two or three weeks the leg was swollen by the end of the day, but apart from that she had no further trouble.

The only other case of adder bite of which I have personal knowledge had acute symptoms for a much longer period and took longer to clear up. This seems to have been the experience of other practitioners with whom I have discussed the matter.

While occupying your valuable space, may I strongly endorse Dr. Bensted-Smith's letter entitled "Houses to Live In," published in the *Journal* of May 8. As a West Country rural practitioner I agree with every word he says.—I am, etc.,

T. M. DAVIE, F/O,
B.M., B.Ch.

Phage for Dysentery

SIR,—In the *Journal* of Dec. 5 (p. 673) is an account of a paper by Col. Fairley on the treatment of bacillary dysentery, and in another recent issue there was a communication from Sir Philip Manson-Bahr on the same subject. Neither of these very experienced physicians even mentioned bacteriophage, and this to me was a very surprising omission.

I will not burden you with statistics, but after 23 years' practice in Alexandria I regard a good bacteriophage as being usually as specific in the case of adults suffering from bacillary dysentery as is antitoxin in diphtheria. I refer to the type of dysentery met with in Alexandria and its neighbourhood, as it is only in this area that I have used bacteriophage. I have no reason to think that the treatment would be less effective with bacillary dysentery elsewhere in the Near and Middle East or even in any part of the world. There is no doubt that for some reason unknown to me bacteriophage often fails in the case of infants and very young children.

As in most illnesses, from a perforated gastric ulcer to a common cold, it is essential to begin treatment without delay. After the lapse of some days, as pointed out by Dr. Compton, one is not dealing with an uncomplicated dysentery but with ulcers grossly contaminated by a very heavy secondary infection with which bacteriophage cannot deal. In my practice I usually get the cases within a few hours of the onset, and it is no exaggeration to say that bacteriophage cures the great majority within 24 hours, often within 6 to 12 hours. Before I began to use bacteriophage I usually paid some 10 visits to each dysentery patient. Now, as a rule, not more than 2 visits are necessary—a considerable annual financial loss to me! I have generally used the bacte-intesti-phage made by the Laboratoire de Bactériophage in Paris under the control of d'Hérelle. But other efficient phages are now available. One ampoule is given every 3 hours, and nothing else allowed by mouth except water. After 1 to 3 doses all pain and diarrhoea have usually ceased and the stools are faeculent and becoming firm. Occasionally 6 to 10 doses are needed. This is the usual story; but it must be acknowledged that even with adults there are a few complete failures where bacteriophage is entirely without effect. I do not think there are more than 5% of such failures. I had one such recently which responded dramatically to sulphaguanidine.

The R.A.M.C. appears to have abandoned the use of bacteriophage. I understand that it was tried on infants and young children in a families' hospital and on patients in a base hospital. I have mentioned above that with infants and small children the results are frequently disappointing; in the base hospital the patients presumably did not start the treatment until a considerable time after the onset of the disease. These facts would account for an unfavourable report on the treatment.

I am entirely in agreement with Dr. Compton that if each regimental M.O. had a supply of good bacteriophage and administered it immediately at the first symptoms of dysentery or enteritis it would very seldom be necessary to evacuate the patient to the base or even to a field hospital.—I am, etc.,

Alexandria. E. N. RUSSELL.

Slow Union of Fractures

SIR,—In a leading article on the slow union of fractures (May 29, p. 669) you state that "there is little evidence that the biological conditions are any different from those of thirty years ago." Yet Sir Robert Jones made the same complaint in 1916 and I answered from the medical and dietetic point of view, and the letter was published in the *Journal*. I pointed out that the same complaint was alleged by the surgeon-in-charge of the Northern Army in the American Civil War—Stimson—so this complaint is as old as the hills.

Biochemists have satisfied themselves that the fault is not in the cells or blood, for the quotient of calcium, iron, and phosphorus is, according to them, normal. Yet I pointed out then that clinically I have commonly seen excessive callus retract and become compact bone after a few weeks' treatment with syrup. ferri phos. co.—Parrish's food—and so take it off structures upon which it was pressing. I have also seen ununited fractures with weak callus become as strong as the proverbial iron when the patient is given this remedy. Furthermore, bruised bone will heal after many months of pain if the same medicine is given.

The only conclusion I can come to is that it is a nervous influence resulting from shock in the less well conditioned subjects, the nerve centres in the spinal cord corresponding to the seat of injury being depressed, and it is the giving of this old remedy that restores the nervous tone. I cannot think of any biological action, such as enzyme formation stimulating the osteoplasts, being the wanting factor, but the fact remains that in general practice I have had success by this method. For example, I had a case of extracapsular fracture of the femur with weak callus which had failed to respond for nine months in hospital, but in which hard callus formed in five weeks; again, a case of fracture of the patella, without capsule, in a woman aged 60, which united in five weeks with free movement. These and many other similar cases of lesser degrees of injury have made such an impression on my mind that I think such a simple remedy might well be given a trial again.—I am, etc.,

London, S.E.1. R. LARKIN.

Mass Radiography and Incidence of Pulmonary Tuberculosis

SIR,—The cogent and timely observation of a practical radiologist of the standing of Dr. J. F. Brailsford on "the grossness of lesion necessary . . . to give radiographic evidence of departure from the normal" (May 22, p. 646) will be warmly welcomed by experienced clinicians who have made an unbiased study of tuberculosis diagnosis in this country during the last thirty years. Equally true is his inference that any radiographic scheme which does not include early cases without radiographic lesion fails to help the tuberculosis service.

To radiograph the whole population and report on 500 films a week, Dr. Brailsford calculates the need for 1,000 units with full staff and 6,000 medical officers. For weekly transport 330,000 buses will be required on an estimate of Dr. N. P. Henderson. This radiologist (Jan. 16, p. 81) wrote that it would take 80 years to examine Greater London at a speed of 100,000 cases a year with one of the present static machines. Dr. Brailsford's demonstration of the immensity of the problem of administration is well appreciated by those of us who are medical members of local authorities. Lay members may be carried away by their own enthusiasm and by the propaganda and the promised Ministry of Health grant, estimated at about £250,000 for 250 machines, and, in select cases, with dependants' allowance. Therein lies the danger of aiding "wishful thinking" by propagating the idea in the minds of the people that at long last tuberculosis will be eradicated.

Fl. Lieut. Evans, in his survey of mass radiography of 75,000 Air Force personnel (May 8, p. 565), detects an incidence of 234 active cases of tuberculosis—i.e., 0.3%—and 387—i.e., 0.5%—inactive cases. In a communication on "Tuberculosis in Recruits" (*Journal*, Aug. 16, 1941) I estimated that of 2,500 examined by me in a year 2% may be considered tuberculous by the average dispensary *x*-ray diagnosis. It is evident, therefore, that the finding of 0.3% active, or 0.8% if the inactive are included, among those passed fit by the medical boards is no criterion of the efficacy of mass radiography, but may be due to the lack of expert clinical machinery at examining medical boards. Evans had the further advantage of continued clinical investigation under compulsory conditions.

Regarding his inactive 0.5% calcified or fibrosed cases, these will be a greater problem for the clinicians to classify and control, especially when it will be remembered that among Australian recruits Cooper found by mass radiography 23% inactive tubercle as against 2.07% by Galbraith. It is difficult to reconcile Evans's figure of 0.8% incidence among fit personnel with the figure of only 112 out of 1,869 recruits—i.e., 6%—referred to the Welsh Memorial Board by the medical boards in Wales (June 21, 1941). In a Yorkshire centre covering a period of three years this percentage was even less, being 4.9%—i.e., 31 out of 457 referred recruits. Full-size *x*-ray films will presumably have been used.

One regrets that the only figure mentioned in the M.R.C. report on "Tuberculosis in Wartime" in the mass radiography section was the 1% tuberculous persons found at a Mitcham radio works, and no attempt was made to marshal all published figures.

I have previously called attention to the fact that although radiography has been increasingly used the diagnosis of tuberculosis has lowered from 51.2% in 1926 to 35.6% in 1938. One reads from the M.R.C. report that 65% of those discharged in the latter year were admitted to tuberculosis institutions as intermediate or advanced cases in England and Wales. The experience of doctors, who are referring increasing numbers of symptomatic cases to tuberculosis clinics, is that a large percentage are either considered negative or inactive since *x*-ray examination has become a routine measure with a decrease in early cases of the type Dr. Brailsford has noted.

His last point—that we have more cases than either accommodation or staff—is equally unchallengeable. Surely if the Ministry of Health by intensive propaganda secures an added 1% or 2% by mass radiography at a comparatively high cost there must be a parallel policy of encouraging local authorities to increase their accommodation and attract staff who will not forsake clinical experience for administrative salaries; otherwise it would seem a case of putting the cart before the horse.

There is much criticism of the efficiency of the doctor in a machine age. With a tendency for the profession to rely more on auxiliary diagnostic methods, clinical instinct and acumen acquired by experience and inspired by the old teaching methods are, unhappily, fast disappearing.—I am, etc.,

Leeds. Z. P. FERNANDEZ.

Treatment of Malaria

SIR,—Quinine, mepacrine, and pamaquin can be combined in numberless ways in the treatment of subtertian infection, but of all methods treatment with quinine alone is probably the least satisfactory. In the *Journal* of April 17 (p. 476) I described a standardized treatment used in my wards at the Seamen's Hospital. The only objection to this scheme is the prodigal use of quinine.

Recently I have treated 11 cases of subtertian infection by two daily intramuscular injections of quinine for 4 days, followed by mepacrine 0.1 g. t.d.s. for 7 days, and, after a short interval, by pamaquin 0.01 g. t.d.s. for 3 days. This course appears to be satisfactory and produces defervescence of fever within a maximum of 72 hours. The amount of quinine used is minimal. The preparation of quinine used is solvochin, which has the great advantage of being almost painless. While the shortage of quinine lasts it is essential that the drug should be given in the most effective and economical way and that synthetic products should be used wherever possible.—I am, etc.,

London, W.1. ALEC WINGFIELD.

Dose of Atebrin in Malaria

SIR,—In all recent articles and discussions on the treatment of malaria with atebrin the dosage has always been given as 0.1 g. three times a day. After using atebrin in many cases it became apparent to me that it had one big disadvantage compared with quinine, and that was that it did not control the pyrexia so quickly.

As, when injection treatment was necessary, one gave 0.3 g. I decided to try larger initial doses by the mouth. I tried it on myself at first and later on others, and have since treated many hundreds of cases with the dosage as follows: first dose, 0.3 g. to be given if possible in the interval between paroxysms—I instruct the patient to take this dose as soon as the sweating stage of a paroxysm is finished; second dose, 0.3 g. given six hours after the first; second and third days, 0.2 g. morning and evening; fourth to sixth day (inclusive), 0.1 g. three times a day. With this dosage the pyrexia is rapidly brought under control, and I have never seen any toxic effects result from it. The total dosage is higher than that originally advocated, as there is evidence that relapses are less common with the higher dosage.

Dr. J. Bryant quite independently came to the same conclusions, and used a similar high dosage, and he reported on this method in an article which was published in the *East Africa Medical Journal*; but it seems to me advantageous that this method should be given wider publicity.—I am, etc.,

R. W. STEPHENSON,
Senior Medical Inspector, Sudan Medical Service.

Vaccination in India

SIR,—I have just seen Dr. C. Killick Millard's letter (Dec. 5, 1942, p. 678). While sympathizing with him on being dubbed an "antivaccinationist," I feel it should be pointed out how dangerous are his statements in his last paragraph, especially in connexion with "universal vaccination" in India. India is "still attempting to do so," but one has only to see the teeming millions of this country to realize the immensity of the problem. Moreover, the position is severely complicated by the rapid deterioration of vaccine lymph under the conditions of heat prevailing in this country. Recently, during the course of a severe epidemic here, I have personally had a dozen cases in a batch of men who were "vaccinated" (under Service conditions) two months previously. Obviously the lymph was useless. On the other hand, a group of Europeans who have lived here for years, and have been vaccinated many times without effect, have recently "taken" with a supply of fresh lymph only a day or so old. Obviously such factors must be taken into account when making statements about the failure of universal vaccination.—I am, etc.,

Jeypore, Upper Assam. JOHN A. LEWIS.

Sir Arthur Newsholme and Russian Medicine

SIR,—In your obituary of Sir Arthur Newsholme (May 29) reference is made to *Red Medicine*, written in collaboration with the late J. A. Kingsbury after a visit to the Soviet Union in 1933. It is stated: "His own impressions of Russia at that time were very mixed. He saw it with some misgiving 'going bald-headed' into a completely socialized medicine, a policy and action towards which nearly every Western country was advancing but by slow degrees."

This summary does scant justice to Newsholme, who provided many of us with our first introduction to the achievements and potentialities of Soviet medicine. Actual quotations give a clearer idea of the general viewpoint expressed in this book. In the preface (p. vii) the authors write: "Soviet Russia has decided that the health of the individual is the concern of society as a whole. Indeed, the Soviet Union is the one nation in the world which has undertaken to set up and operate a complete organization designed to provide preventive and curative medical care for every man, woman, and child within its borders." In the introduction (p. 4) they state that they were forced to the conclusion that "a marvellous reformed and extended medical service had been organized in Russia, the methods and procedures of which the rest of the world would do well to study." And in their concluding observations on the socialization of medicine (p. 309) Newsholme and Kingsbury state that in the U.S.S.R. this "has removed the doctor almost entirely from the field of monetary competition, and has thus abolished a chief source of inadequate medical service. It has made a gratuitous (that is, State-paid) medical service of an astonishingly complete character promptly available for the vast majority of urban populations, a service which is being rapidly extended to rural Russia; and it has given the whole of this service an admirable turn in the direction of social as well as medical preventive measures."—I am, etc.,

P. D'ARCY HART.

Feeding the World's Population

SIR,—It is deplorable that the delegates to the United Nations conference on food and the influential persons who have contributed articles or speeches regarding its aims seem ignorant of the Malthusian difficulty. The world's inhabitants still have a birth rate of 30 or more per 1,000 a year, due mainly to those in Asia, Russia, the Balkan States, and Africa. To have enough for all, they would therefore need to increase their food supply at a rate of at least 20 per 1,000 a year. Can they possibly increase their food supply twice as fast as hitherto? If they could, and did, they would double their numbers about every thirty-five years. However, Sir John Orr has gone far beyond the foregoing Malthusian view by stating that the "world supply of food would have to be increased by about 150 or 200% to maintain the world population in health"—meaning, presumably, even merely its present 2,000 or so millions.—I am, etc.,

Binfield, Berks. B. DUNLOP.

Arsenical Encephalopathy

SIR,—The two articles on arsenical encephalopathy (May 29, pp. 661 and 663) were especially interesting to me in that of the five cases reported four were treated by twice-weekly injections of arsenic and bismuth. This method, of which I was the sole advocate in this country for several years, has now become widely used because of the unfailing serological cure which is effected in primary and secondary syphilis. Cases 1 and 2 in the first article were actually treated for syphilis by me. Case 1 was regarded as of sero-positive primary syphilis, since a penile ulcer was present, but no *Spirochaeta pallida* were found on three examinations by the dark-ground method. The blood Wassermann, originally reported as doubtful, became positive later, and treatment was instituted for sero-positive primary syphilis, despite the inference in the article that this was a case of late latent syphilis.

Another interesting point was the insistence by the authors on the symmetry of the lesions found in the brain. This could be explained if one leans to a belief that syphilis plays some part in the pathology. The lesions of secondary syphilis are characteristically symmetrical, and as most of the victims of this catastrophe are in the 18–22 age group the probability is that the disease is in its early secondary stage. It is an interesting parallel that Milian's erythema and the manifestation of arsenical encephalopathy both occur about the ninth day of treatment.

The apparent increased incidence of this complication would be alarming were it not realized that in the series of cases quoted the hospital authorities concerned were aware that the patient was undergoing arsenical treatment. This is a coincidence that must in the ordinary course of events be unusual, since most patients prefer to keep the knowledge of their infection to themselves. There must have been many cases of coma resulting in rapid death where, in the absence of any history, the possibility of arsenical encephalopathy has never been considered. Unfortunately there is usually no search for signs of acupuncture in the antecubital area in the receiving room.

Those who have been interested in the relative toxicities of mapharside and neo-arsphenamine will not fail to note that in the Liverpool series, quoted by Dr. Glyn-Hughes and his collaborators, three out of the four cases were treated by neo-arsphenamine. For two and a half years in all the Liverpool clinics mapharside has been substituted for neo-arsphenamine in the twice-weekly injection routine for early syphilis, and there has been no evidence to suggest that it is more encephalotoxic than neo-arsphenamine.—I am, etc.,

Liverpool. A. O. F. ROSS.

Obituary

ARCHIBALD SIMPSON, M.B., F.R.C.S.ED.

Mr. Archibald Simpson, one of the best-known practitioners in Shropshire, died suddenly on June 5 at the age of 60. He had practised in Shrewsbury for 32 years and held the following appointments: honorary surgeon, Royal Salop Infirmary; consulting general surgeon, Robert Jones and Agnes Hunt Orthopaedic Hospital; officer-in-charge, Ante-natal Clinic, Shrewsbury; medical officer, Shropshire Technical College of Domestic Science. A native of Edinburgh, Mr. Simpson graduated M.B., B.Ch. in 1905; five years later he acquired the F.R.C.S.Ed. He held house appointments at the Royal Maternity Hospital, Edinburgh, the Darlington Hospital, and the Royal Hospital for Sick Children and Women at Bristol. In the last war he served over-seas in the R.A.M.C., holding the rank of captain.

In the passing of Mr Simpson (writes a colleague) Shropshire loses an outstanding personality. In spite of the natural reserve of the Scot his essential kindliness in practical directions could not be concealed. Most thorough in his attention to patients, he proved himself a real friend and counsellor in serious trouble. His patients showed great attachment to him and confidence in his professional skill and stimulating personality. A man of fine physique, he took an active interest in sport during his brief leisure hours. He was generally admired as an excellent shot; he also distinguished himself as a horticulturist. He is survived by his wife and by his only child, an officer in the Royal Artillery now unfortunately a prisoner of war in Singapore.

A. G. McKENDRICK, D.Sc.ABERD., M.B.GLASG., F.R.C.P.ED.

Lieut.-Col. Anderson Gray McKendrick, late superintendent of the Laboratories of the Royal College of Physicians of Edinburgh and a former director of the Pasteur Institute of India, Kasauli, died on May 30 in Inverness-shire. He studied medicine at the University of Glasgow, graduating M.B., Ch.B. in 1900; he was elected F.R.C.P.Ed. in 1924, and received the degree of D.Sc. from Aberdeen University in 1927. He was a Fellow of the Royal Society of Edinburgh, and the Royal

College of Physicians awarded him the Cullen Prize in 1934. At the Annual Meeting of the B.M.A. in Edinburgh in 1928 he was vice-president of the Section of Tropical Diseases.

The sudden death of Anderson McKendrick (writes W. F. H.) creates a sorrowful blank for his many friends. He was well beloved, and truly one who could bring sage counsel to anyone in difficulty. That was a role which, I feel, he performed for many men. It explains the success of his administration of the Edinburgh Laboratory, of which he was the superintendent for twenty years. He had obtained first place in the Indian Medical Service examination. After a short term of military duty, which included active service on the Somaliland Expedition, he became committed to a scientific career as one of the original members of the Research Department of the Government of India. Most of his work in India was connected with the treatment and investigation of rabies. That led in later years to his appointment to be the League of Nations' statistician for this disease. McKendrick's life is one of those shining examples of a man partially broken down in health continuing to do fine work of a high order. He became director of the Royal College of Physicians' Research Laboratory in Edinburgh and occupied that post for twenty years, a longer period than any of his predecessors: German Sims Woodhead, Noël Paton, and James Ritchie. His research work was of pioneer type—the mathematical, statistical investigation of epidemics, if one can really restrict it to a single subject. But it is even more to McKendrick in his daily life that one gives admiration than to his outstanding ability. His was an upright, broadly religious life, openly avowed. He was a man to be trusted and a guide to both older and younger men. His administration of his laboratory, which should have continued for the duration of the war, had to be discontinued for health reasons, and his few happy active retirement years have not been long enough to see the end of the present world struggle.

OLAF SCHEEL, M.D.OSLO

News has reached London of the recent death, in Oslo, of Dr. Olaf Scheel. Until his retirement in 1940 Scheel was chief physician to the IXth (Medical) Department of the Ullevaal Municipal Hospital, Oslo, which became so well known through the researches on tuberculosis in nurses published from 1928 onwards by Heimbeck, at that time first assistant physician to Scheel's department.

Dr. A. L. JACOBS writes:

Scheel's name is not well known in this country, but it was in his department and under his inspiration that these researches were initiated. Although he generously remained in the background, he made a contribution of first importance to this work, which has had such effect in modifying our views of tuberculosis in young adults. The Oslo workers' discovery of the frequency of primary infection in adult life, and of its close association with the more destructive and fatal forms of the disease, at once stimulated workers in other countries to carry out similar investigations, most of which have amply confirmed the Oslo findings. The practical and factual approach of the Norwegian workers acted like a cold breath of fresh air in the torrid atmosphere of theorizing and speculation which has so clouded our understanding of the pathogenesis of tuberculosis. Anyone who knew Scheel well would at once recognize his part in this salutary influence, for he was a man to whom an ounce of fact was worth a ton of theory.

In Scandinavia Scheel was well known for his emphasis on the importance of environmental conditions, and especially the standard of life, upon tuberculosis mortality. He was also one of the first to initiate the investigations upon university students which have been so widely taken up, and he and Heimbeck introduced B.C.G. vaccination by the intradermal method among students and nurses found to be tuberculin-negative. The results of these researches, notable for their careful statistical control, form a weighty body of evidence of the protective value of the vaccine in young adults, and have led to the use of the B.C.G. vaccine by many other workers in Scandinavia, the U.S.A., and the U.S.S.R. The Prophit Tuberculosis Survey, at present being carried out by the Royal College of Physicians, is modelled on the earlier Oslo investigations.

Scheel had little contact with British medicine, and published only one brief paper in a British journal (*Lancet*, 1937, 1, 922). He was, however, a fine French scholar, very well known among French chest physicians, and published much work in the French journals. At the International Tuberculosis Conference at Lisbon in 1937 he opened a discussion on primary tuberculous infection in adolescence. The last years of his life must have been sadly clouded by the invasion of his country and of France, which cut him off from most of his foreign friends and brought him much personal sorrow. To one who worked in his department and experienced his generous help and inexhaustible hospitality the news of his death brings a sharp sense of loss. There can be little doubt that his name will become better known among tuberculosis physicians in this country when the impact of his work upon tuberculosis theory is fully felt.

Universities and Colleges

UNIVERSITY OF OXFORD

Sir Farquhar Buzzard, Bt., D.M., lately Regius Professor of Medicine and Student of Christ Church, has been elected to an Honorary Studentship at that college.

UNIVERSITY OF GLASGOW

The King, on the recommendation of the Secretary of State for Scotland, has approved the appointment of Prof. James Hendry, M.B., F.R.F.P.S., F.R.C.O.G., of the Muirhead Chair of Obstetrics and Gynaecology, to be Regius Professor of Midwifery, to fill the vacancy caused by the forthcoming retirement of Prof. S. J. Cameron.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

Centenary of the Fellowship

In celebration of the Centenary of the Fellowship the President and Council of the Royal College of Surgeons will hold a reception from 8 to 10 p.m. on the evening of Wednesday, July 21, in the Great Hall of Lincoln's Inn (by kind permission of the Treasurer and Masters of the Bench of the Honourable Society of Lincoln's Inn). Some of the newly elected Honorary Fellows will be admitted on the occasion. Owing to the paper restrictions invitations will not be issued to the Fellows of the College, *but those desiring to attend should apply for tickets to the Secretary of the College.* Applications will be dealt with in order as they are received. Day dress or uniform —academical costume if convenient.

At 3 p.m. on July 21 there will be a general meeting of Fellows of the Royal College of Surgeons of England, when various important questions will be under discussion. The agenda of the meeting will be issued at a later date.

At a meeting of the Council held on June 10, with Sir Alfred Webb-Johnson, President, in the chair, Prof. G. Grey Turner was reappointed representative of the College on the Council of King's College, Newcastle-upon-Tyne. The President announced the appointment of Air Commodore P. C. Livingston as Moynihan Lecturer for 1943. It was decided to recognize for the duration of the war the posts of resident surgical officer and house-surgeon at the Connaught Hospital, Walthamstow, for the six-months surgical practice required of candidates for the Final Fellowship Examination.

Diplomas of Fellowship were granted to the following candidates:

A. F. Clift, H. S. Joseph, T. P. N. Jenkins, A. Cavendish, S. Mottershead, K. H. S. Dalliwall, E. R. Davies, C. Brun, R. B. Zachary, R. H. Percival, D. Ranger, H. L. McMullen, E. L. Farquharson, I. A. Page.

Diplomas of Membership were granted to I. M. MacArthur and R. J. T. Woodland.

Diplomas in Anaesthetics were granted, jointly with the Royal College of Physicians of London, to the following candidates:

A. Beck, Una M. Campbell, Maeve Cronin, H. W. L. Dale, D. E. Dunnill, J. C. Easson, G. E. H. Enderby, C. W. Fleischmann, A. J. Fraser-Simson, Evelyn W. Glennie, D. C. Howard, P. T. Merlin, S. E. Osborne, Christine M. Rendell, Helen M. Rossiter, B. A. Sellick, G. H. T. Stovin, H. Q. O. Wheeler.

ROYAL COLLEGE OF PHYSICIANS OF IRELAND

At a meeting of the College, held on June 4, the following were admitted *as Fellows:* Reginald Hall, M.D., T. M. Kavanagh, M.D., Brendan O'Brien, M.B.; *as Members:* Maude F. P. Bigger, M.B., A. H. Isaacson, M.B., F. F. McKee, L.R.C.P.&S.I., G. S. Prince, M.B.

The Services

The Efficiency Decoration of the Territorial Army has been conferred upon Col. W. R. Ward, late R.A.M.C.(T.A.); Lieut.-Col. (acting Brig.) G. J. V. Crosby; Lieut.-Cols. (temp. Cols.) J. H. Donnelly, D. Mackie, M.C., R. Rutherford; Majors (temp. Lieut.-Cols.) R. O. Brooks, M. S. Good, G. L. Montgomery, E. A. L. Murphy, R. S. Taylor, J. M. F. Whitby; Majors P. Hayes, F. J. L. Lang, R. Pollok, R. V. Powell, all R.A.M.C.

CASUALTIES IN THE MEDICAL SERVICES

Wounded.—Capt. A. R. P. Ellis, R.A.M.C., Capt. M. W. Harvey, R.A.M.C., War Subs. Capt. C. W. Warner, R.A.M.C.

Died of Wounds.—War Subs. Capt. A. Mackler, R.A.M.C.

Medical Notes in Parliament

"In the Discard"

Dr. Summerskill on June 10 asked the Minister of Health on what facts he based his opinion that the implementation of Assumption B by the introduction of a salaried medical service was now in the discard. She further asked how Mr. Brown proposed to obtain the views of the doctors in the Services and those not members of any organization on the future of medical practice, and how he proposed to obtain the views of the people on a State Medical Service and on the extension of the present system of medical practice, respectively, before he issued a White Paper. Mr. Brown said he had repeatedly tried to make it clear that the recently resumed discussions with the Representative Committee of medical men and women were to be regarded as only a preliminary and non-committal exchange of ideas; that he hoped as the next step to publish the Government's appreciation of the main issues involved; and that this publication would afford everyone—including those in the Forces—a full opportunity for open and public discussion before final decisions were taken.

Dr. Summerskill asked why the British Medical Association quoted the Minister as saying that the salaried medical service was in discard. Mr. Brown replied that he was not responsible for what the B.M.A. said. The needs of the people were the primary issue, and there were many other bodies beside doctors to be consulted. More than one Government statement had made clear that what was sought was not a State service but a comprehensive medical service, based on co-operation between the medical profession, the State, and the local authorities. Sir Henry Morris-Jones asked whether Mr. Brown knew that the medical profession repudiated the idea of becoming full-time civil servants. Mr. Brown did not reply.

Compulsory Notification of Venereal Disease

On May 20 Dr. Summerskill asked whether the Minister of Health, in view of the fact that only 1 man and 27 women had been treated under Regulation 33B, would consider the introduction of compulsory notification in order effectively to reduce the incidence of venereal disease. Mr. Brown said he would not take this course. The numbers mentioned by Dr. Summerskill related to persons so far reported from more than one quarter as alleged sources of infection. The figures were not in themselves a true criterion of the efficacy of the Regulation, which, it was already evident, was indirectly doing much to help in getting infected persons to undertake voluntary treatment.

Alien Doctors after the War

Mr. Ernest Brown told Mr. Hannah on May 20 that he could not make any statement as to the policy of the Government for the future of alien doctors allowed to practise under restrictions in this country "for the duration" and anxious, if possible, to continue to serve here or in the Colonies. The arrangements under which certain doctors were temporarily registered under the Medical Acts by virtue of foreign qualifications would cease with the lapse of the Emergency Powers under which they were made.

Nutrition and Child Mortality in Belgium

Answering a question on May 26, Mr. Dingle Foot said that the food shortage in Belgium was felt severely by the child population, but his information did not confirm that, taking the country as a whole, these conditions caused any striking increase in child as distinct from infant mortality. According to statistics recently published in Belgium, there was last year a fall in the death rate of infants under 1 year. The figures for deaths per 1,000 live births were, in 1939, 73; in 1940, 89; in 1941, 85; and in 1942, 78. Medical supplies in the strict sense of the term were and always had been allowed to pass through the blockade.

The Assistant Nurse in Scotland

Mr. T. Johnston, on May 27, moved the second reading of the Nurses (Scotland) Bill. He explained that it varied from the Bill recently passed for England in proposing that assistant nurses should not be recognized in perpetuity, but for five years. This Bill provided that after five years from the commencement of the Act no course of training begun under rules made in the section dealing with assistant nurses should qualify any person for admission to the roll. Another divergency from the English Bill was in Clause 14, which gave power to the General Nursing Council to give a remission, for appropriate cases, in the period of training of nurses who were studying, or proposed to study, for the full certificate under the 1919 Act. If a girl had gone through a year's or two years' preliminary training she should have some remission in the period of training if she intended to sit for her examination again. The Government was not interfering with the standards of examination. Under the principal Act these regulations of the General Nursing Council in Scotland would have to be discussed with the General Nursing Council in England. Every attempt was being made to secure reciprocity. He was not wedded to the precise words of Clause 14. Mr. Johnston went on to say that Scotland had adequate beds and first-class hospitals, but was short of nurses. For tuberculosis they could make arrangements in some emergency hospitals if they had an adequate supply of nurses. They were discussing with certain voluntary hospitals how to affiliate for training purposes some of the splendid emergency hospitals and to rotate through two or more of these hospitals student nurses in course of training. Mr. Mathers welcomed the Bill, but said the College of Nursing had definite grounds for apprehension about Clause 14.

Mr. Westwood, replying for the Government, said there was no intention to reduce the status, training, or qualifications of the nursing profession. Nursing personnel would be required for the extended medical, hospital, and public health services which the Government was now planning. The Scottish Office proposed to draw the attention of education committees to the increased shortage of nurses, and to ask them afresh to interest girls at secondary schools in pre-nursing courses. If this Bill became an Act the Department would urge local authorities to provide pre-nursing courses and continuation classes, and also to ask for further pre-nursing courses at central institutions. Negotiations were being carried through with the hospital authorities for providing facilities to give the proper training to those who were recommended. The Department had had negotiations with the voluntary hospitals.

The Bill was read a second time.

War Casualties

Mr. Attlee on June 1 stated, in reply to Mr. Molson, that the casualties suffered by all ranks of the British Empire Forces during the first three years of war, excluding deaths from natural causes, totalled 514,993. Of these, 92,089 were killed, 226,719 missing, 88,294 wounded, and 107,891 prisoners of war.

Skin Diseases in the Army

Sir James Grigg, replying to Mr. Bellenger on June 1, said he was aware that war conditions tended to increase the incidence of all skin diseases, including dermatitis and impetigo. The steps taken to reduce these diseases included the provision of facilities for ablution and the washing of clothes, the circulation of up-to-date information to all medical officers, medical inspections, and improved facilities for treatment. This included, when necessary, treatment by specialists.

Mr. Bellenger suggested that officers, generally speaking, did not suffer from these complaints, and asked if that was not sufficient indication that there was something from which the men specially suffered—for instance, dirty blankets—which required the attention of the medical authorities in the Army. Sir James Grigg said he thought that was extremely unlikely. He denied that there was something special and unsuitable in the conditions of other ranks which made them particularly liable to these diseases in the Army.

Mr. Rhys Davies contended that dermatitis was increasing among these men when they were in civilian employment before they were passed into the Services. Was it not possible to ask the medical boards to look for these diseases? Sir James Grigg said he would look into that point. His information was that dermatitis was becoming increasingly prevalent in civilian life.

Non-pulmonary Tuberculosis under Government's Scheme

On June 1 Mr. McNeil asked the Secretary of State for Scotland why, in his recently announced scheme of relief for tuberculous patients and their dependants, he had excluded all patients other than those suffering from pulmonary tuberculosis. Mr. Westwood replied that the purpose of the allowances scheme was to encourage people suffering from pulmonary tuberculosis to seek early treatment, not only in their own interest but, since the disease was infectious, in the interests of their families and the general community. The scheme did not extend to persons suffering from non-pulmonary tuberculosis, because the disease in this form was not infectious and did not constitute such a danger to the general public health. Mr. McNeil asked if the danger to other people and not the necessity to treat the sufferer was the main reason for this scheme. Mr. Westwood replied that the main reason was the report of a committee set up by the Medical Research Council, at the instigation of the Government, which recommended these allowances for pulmonary tuberculosis cases and made no recommendation so far as non-pulmonary cases were concerned.

University Grants Committee's Funds.—Mr. MANDER asked the Minister of Health on May 18 whether it was proposed to add to the membership and funds of the University Grants Committee in view of the plans for increased teaching in voluntary hospitals. Mr. ERNEST BROWN replied that it was too early to express any view upon this, pending the report of the Committee on Medical Schools now sitting under the chairmanship of Sir William Goodenough

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* during the week measles notifications fell by 982, whooping-cough by 213, and dysentery by 30, but those for scarlet fever, diphtheria, and acute pneumonia rose by 257, 93, and 88 respectively.

In Staffordshire the notifications of diphtheria and whooping-cough went up by 21 and 32 respectively—the only increases of note in these diseases for the whole country.

Scarlet fever rose sharply in Yorks West Riding 75, Lancashire 46, and Staffordshire 43. Whooping-cough declined, principally in Lancashire by 74, Warwickshire by 63, and Yorks West Riding by 53.

The lower incidence of measles was almost general throughout the country, and particularly in Glamorganshire by 224 cases, Staffordshire by 130, Essex by 118, and Northamptonshire by 101. Norfolk, with an increase of 131, was the outstanding exception to the general trend.

Dysentery was less prevalent in most areas, but in Denbighshire, Wrexham M.B., there were 11 cases. The other chief centres of infection were Lancashire, 27 cases, and London, 13.

In *Scotland* there were 18 more cases of diphtheria, but decreases were reported for whooping-cough 60, measles 52, and dysentery 23.

Diphtheria

The Chief Medical Officer of the Ministry of Health stated at a recent Press conference that 3½ million children had been immunized under the free scheme organized by local authorities, and many had been dealt with by private practitioners. The total proportion immunized was at least 50% of the child population aged 0–15. In an attempt to raise the proportion to at least 75% another campaign is to be launched, which will receive the support of all general practitioners. The death rate from diphtheria at ages under 15 in 1942 was 192 per million population, and was 14% lower than the lowest previous value. The rates for 1939–41 were 228, 266, and 280. Compared with the average of the previous ten years the number of deaths in 1942 was 1,000 fewer, and the notifications were 13,000 fewer.

Registrar-General's Quarterly Returns for Scotland

The vital statistics for Scotland for the first quarter of 1943 show very favourable figures. The birth rate of 18.9 per 1,000 was the highest recorded for a first quarter since 1932, and 101 above the average of the March quarters of 1938–42. Infant mortality was 75 per 1,000 live births: this was 21 below the average of the five preceding first quarters, and was the lowest recorded for the first quarter of any year. The previous lowest rate was 80 in 1938. The number of stillbirths was equivalent to a rate of 39 per 1,000 total births. Maternal mortality was 4.3 per 1,000 live births, or 0.7 below the five-year average for this quarter.

The general death rate was 14.4 per 1,000, being 2.6 below the average of the five preceding first quarters. On only two occasions has a lower death rate been recorded for a first quarter—i.e., 14.3 in 1943 and 14.2 in 1938. The death rate from all forms of tuberculosis was 82 per 100,000 and that from respiratory tuberculosis 63. Both these rates are 4 below the five-year average. The number of deaths from the principal epidemic diseases was 22 more than in the first quarter of 1942, but the rate of 35 per 100,000 was considerably below the average of 88 recorded for the first quarters of 1938–42. Deaths from diphtheria and cerebrospinal fever were 40 and 31 fewer than in the first quarter of 1942, but those from measles, whooping-cough, and influenza were 19, 29, and 48 more.

The boom in marriages after the outbreak of war is declining. The marriage rate during the quarter was 7.5 per 1,000. This is 2.8 below the rate for the corresponding quarter of 1942 and is the lowest wartime marriage rate recorded for any quarter, but is 1.1 above the average for the five pre-war years, 1935–9.

The Week Ending June 5

The notifications of infectious diseases in England and Wales during the week under review included: cerebrospinal fever 79, diphtheria 630, dysentery 125, measles 7,668, acute pneumonia 768, scarlet fever 1,921, whooping-cough 2,144, typhoid 4, paratyphoid 6.

No. 21

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended May 29.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London). (b) London (administrative county). (c) The 16 principal towns in Scotland. (d) The 13 principal towns in Eire. (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever	80	6	21	1	1	146	6	48	3	5
Deaths		2	—				1	2		
Diphtheria	712	46	180	73	30	636	29	161	44	27
Deaths	24	1	2	—	—	16	—	4	1	3
Dysentery	116	13	50	—	—	110	8	50	—	—
Deaths	—	—		—	—	—	—	—	—	—
Encephalitis lethargica, acute	1	—	—	—	—	4	—	1	1	—
Deaths	—	—				—	—			
Erysipelas			49	10	2			54	8	5
Deaths		—					—			
Infective enteritis or diarrhoea under 2 years				19					28	
Deaths	33	8	7	9	6	37	5	8	7	4
Measles	7,395	429	509	27	40	7,195	807	990	66	374
Deaths	6	—	—	—	—	9	3	7	1	—
Ophthalmia neonatorum	88	3	16	1	—	92	10	11	1	1
Deaths										
Paratyphoid fever ..	10	—	—	—		5	—	4		
Deaths	—	—	—		—	—	—	—		—
Pneumonia, influenzal*	760	41	12	3	5	861	29	8	6	5
Deaths (from influenza)	13	2	2	—	—	12	—	1	1	—
Pneumonia, primary ..			211	23				291	42	
Deaths		—		11	12		—		11	15
Polio-encephalitis, acute	1	—				1	—			
Deaths		—					—			
Poliomyelitis, acute ..	3	—	—	3	—	5	—	—	—	—
Deaths		—	—				—	—		
Puerperal fever ..		5	16				1	20		
Deaths		1					—			
Puerperal pyrexia† ..	158	16	14	3	3	153	9	31	2	3
Deaths										
Relapsing fever ..	—	—			—	—	—			
Deaths										
Scarlet fever	1,997	167	268	38	51	1,091	48	200	36	13
Deaths	3	—	—	1	—	1	—	—	—	—
Small-pox	—	—	—		—	—	—	—		—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	5	1	6	8	2	4	1	3	8	—
Deaths‡	1	—	—	—	—				—	—
Typhus fever	—	—	—	—	—	—	—	—	1	—
Deaths			—	—	—			—	—	—
Whooping-cough ..	2,233	115	227	43	41	1,103	113	103	52	5
Deaths	9	2	4	—	1	8	1	2	2	—
Deaths (0–1 year) ..	336	40	65	27	26	299	38	57	33	25
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	4,202	590	569	210	133	3,859	541	574	193	140
Annual death rate (per 1,000 persons living)			12·8	13·8	§			12·9	12·9	§
Live births	6,767	870	927	401	314	5,835	687	954	411	300
Annual rate per 1,000 persons living ..			18·9	26·4	§			19·7	27·4	§
Stillbirths	201	22	33			206	20	40		
Rate per 1,000 total births (including stillborn)			34					40		

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* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales, Eire, and Northern Ireland.

‡ Includes paratyphoid fever for England and Wales and London (administrative county).

§ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

Medical News

The names of four Canadian medical men were omitted from the list of Birthday Medical Honours published last week at p. 734. Dr. James B. Collip, F.R.S., F.R.C.P., Professor of Biochemistry in McGill University, Montreal, and President of the Royal Society of Canada, was awarded the C.B.E. (Civil); Dr. William J. P. MacMillan of Charlottetown, Prince Edward Island, the O.B.E. (Civil); and Dr. William K. Colbeck of Welland, Ontario, and Dr. Paul C. Laporte of Edmundston, New Brunswick, the M.B.E. (Civil).

Mr. R. Watson-Jones has accepted the invitation of the London Hospital to join the honorary staff as director of the new accident and orthopaedic department which it is proposed to set up. Mr. Watson-Jones will take up his new post on Oct. 1.

A meeting of the London Association of the Medical Women's Federation will be held in the Lounge of B.M.A. House on Wednesday, June 23, at 8 p.m. for a discussion on "State Nurseries: Their Possibilities and Problems." The speakers will be Dr. G. I. Brodie, Mrs. Enthoven, Dr. Marjorie Back, and Dr. Katherine Hirst.

At a meeting of the Middlesex County Medical Society to be held at Grange Park School Clinic, Lansbury Drive, Hayes, on Wednesday, June 23, at 3.30 p.m., there will be a visit to a day nursery followed by a demonstration by the children. Dr. Back will speak on day nurseries, summarizing county experiences. Dr. Wright will describe work done at the school clinic, and the film on modern control of scabies will be shown. Visitors, especially members of the American and Canadian Forces, will be welcome.

National Baby Week, July 1 to 7, is the week in the year when the National Baby Welfare Council (24, Gordon Square, W.C.1) asks particularly that public attention should be focused on the nation's babies.

On the afternoon of Thursday, July 8, the President of the Royal Institute of Public Health and Hygiene will present the Harben Medal to Sir Henry Dale and the Smith Award to Dr. James Fenton.

A national conference on maternity and child welfare, arranged by the National Association of Maternity and Child Welfare Centres and for the Prevention of Infant Mortality on behalf of the National Council for Maternity and Child Welfare, will be held at Friends House, Euston Road, N.W., on July 8 and 9, under the chairmanship of Dr. Stella Churchill. A clinical course for medical practitioners is being arranged by the Maternity and Child Welfare Group of the Society of Medical Officers of Health on the morning and afternoon of Saturday, July 10. Particulars may be had from Miss M. R. Lovelock, 117, Piccadilly, W.1.

Scabies in the County of London becomes compulsorily notifiable from Aug. 1 next. While the existing regulations have done much to counteract the spread of the disease in most parts of the country, it has become evident that in the metropolitan area compulsory notification would help to bring it under effective control and to remedy the conditions which conduce to it.

The New York Academy of Medicine, in co-operation with the State Department of Health, the City Department of Health, and six of the leading voluntary organizations in the fields of maternal welfare and child health, celebrated on February 19 the hundredth anniversary of the publication by Oliver Wendell Holmes of his paper entitled "The Contagiousness of Puerperal Fever."

Early diagnosis and treatment of congenital syphilis were the subjects of two resolutions adopted at a meeting on May 24 of the executive committee of the National Association of Maternity and Child Welfare Centres. In the opinion of the committee the physical and social disadvantages to a child with congenital syphilis are such that everything practicable should be done to diagnose the condition at the earliest possible time, including the routine application of the Wassermann, Kahn, or other tests to the mother's blood during pregnancy, in order that effective treatment may be given. Secondly, the Ministry of Health should give practical effect to this by propaganda, and by stimulating welfare authorities, voluntary hospitals, and clinics.

Drs. F. T. Ingham and R. M. B. Lowis have been officially reported interned, Singapore, and Dr. R. B. MacGregor, Malayan Medical Service, is a prisoner in Japanese hands at Changi Camp, Singapore. Prof. D. E. C. Mekie, F.R.C.S.Ed., has been interned in Changi Camp, Singapore. Dr. Ian Mackintosh of Kuala Lumpur has been officially reported a prisoner of war in Japanese hands. Dr. W. R. Duff of Taiping, F.M.S., is officially reported interned in Changi Camp, Singapore. Dr. C. A. Gibson-Hill has been reported interned in Singapore. Dr. W. J. Tyson, Colonial Medical Service, Drs. F. V. Jacques, R. G. S. MacGregor, and R. A. Macnab have been officially reported interned at Singapore.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

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ANY QUESTIONS?

Keeping A.P.T. Cool and Upright

Q.—*Why is it necessary to keep bottles containing A.P.T. for diphtheria immunization (1) upright, and (2) in a cool place? What is the definition of cool? It is not easy to carry such bottles on one's rounds and comply with either instruction, and even the surgery does not provide a place which is always cool.*

A.—1. Rubber used for caps and stoppers is a mixture, and different samples of rubber may be of widely different composition. Some rubbers react rapidly with the antiseptic (usually merthiolate) in A.P.T. Though the immunizing value of the A.P.T. may thereafter be but little reduced, the antiseptic is partly or wholly neutralized—with the obvious risk of bacterial growth in the A P.T. if contaminated during re-use. All rubbers react rapidly at a tropical temperature, slowly in an English climate. It is therefore prudent to reduce contact between the rubber and the fluid to a minimum: hence the manufacturer's advice to store the bottle upright. In most doctors' bags carried during visits it should not be difficult to arrange the bottle in an upright position. If this is not possible, the risk of reaction in the English climate is very small, and A.P.T. issued by responsible manufacturers in rubber-sealed bottles would probably be safe for at least a year. Any reaction would show itself by brownish-black discoloration of the under surface of the stopper or of the fluid. If such discoloration becomes visible through the glass wall, the doctor would be wise to return the bottle at once to the supplier.

2. Almost all sera, prophylactics, and vaccines deteriorate at high temperatures. Since A.P.T. goes to all parts of the world, the advice to keep it in a cool place is obviously cogent for tropical stations. At about 65° F., the temperature of an average room in England, deterioration is very slow. If the bottle is not exposed to real heat —e.g., near a fire or on the floor of a car immediately over the engine on a hot day—A.P.T. will be of satisfactory immunizing power for at least a year and probably two.

Site for Intramuscular Injection

Q.—*The most common site chosen for intramuscular injection seems to be the gluteal region, in spite of certain difficulties and dangers associated with injection into this area. The deltoid and pectoral regions seem to present fewer difficulties. Is there any good reason why more use is not made of these accessible areas?*

A.—Both regions mentioned may be used for intramuscular injection, the main disadvantages being the small bulk of muscle, the inconvenience of persistent soreness in this situation, and the danger of damaging the circumflex nerve. The erector spinae muscle has also been used. The tendency nowadays, however, particularly in the case of the sodium salts of the sulphonamide drugs, is to choose the antero-lateral aspect of the thigh (vastus externus) as the least dangerous site for intramuscular injection.

Analysis of a Hair Preparation

Q.—*A patient of mine is suffering from chronic agranulocytosis, of which I am trying to find the cause. Among other things she has been using a proprietary application for the hair. Have I any power to compel the manufacturers to tell me the ingredients of this preparation?*

A.—The doctor cannot, unfortunately, compel the manufacturers to disclose the composition of the application. He can ask them to give him that assistance *ex gratia*, but they would be likely to refuse, partly because they would be unwilling to disclose a trade secret, and partly because they would wish to avoid giving information which might be used against them in an action for damages. The doctor could not, without the patient's special authority, promise that she would not sue them, and she would be reluctant to waive a right which she might possibly need. If she were bringing an action against them, the court might conceivably grant her leave to administer an interrogatory concerning the composition of the substance; and if the substance is "recommended as a medicine" its composition ought to be disclosed on the bottle (Pharmacy and Medicines Act, 1941, 5, 11). These two possibilities, however, do not help the doctor; but he should not find it difficult to get an analyst's report.

Hypopituitarism, Hypogonadism, Anaemia

Q.—*I have a patient about whom I would welcome suggestions. A man of 50 who has been a farm labourer all his life, he is well covered, but has a parchment-like skin, is childish, and shows signs of infantilism (high voice, small genitals, no beard, and no pubic hair). His intelligence appears to be normal. He has an anaemia (Hb 42%) of an aplastic type unresponsive to massive iron therapy. I am about to embark on liver therapy unscientifically to "stimulate" his marrow. I have never heard of a similar syndrome and would welcome some information.*

A.—Cases of the type described are not excessively infrequent and are often difficult to classify or treat. A group of cases of hypopituitarism associated with achlorhydria and anaemia has been reported by Snapper, Groén, Hunter, and Witts,[1] and two more cases by Witts.[2] In these patients the sequence of events was thought to be pituitary insufficiency → atrophic gastritis → dyshaemopoietic anaemia. The anaemia was of either the hypochromic or the megalocytic type, and responded to iron or liver accordingly. Anaemia with hypogonadism may also occur in dystrophia myotonica and late coeliac disease, but neither of these diagnoses seems likely in the case presented. The most probable diagnosis is anaemia of the aplastic or hypoplastic type directly due to the endocrine defect. Cases of this type are mentioned by Bomford and Rhoads in their important paper on refractory anaemia[3] and have been seen by the writer. Here the sequence is probably pituitary disease → hypogonadism → aplasia of the marrow. Treatment with testosterone propionate, 25 mg. intramuscularly thrice weekly, is well worth trying. If this fails, the patient will probably get along with a large transfusion (1,500 to 2,000 c.cm. packed red cells) at fairly long intervals.

REFERENCES

[1] *Quart. J. Med.*, 1937, 6, 195.
[2] *Lancet*, 1942, 2, 307.
[3] *Quart. J. Med.*, 1941, 10 175

Treatment of Leucodermia

Q.—*Is there any recent advance in the treatment of leucodermia which holds out reasonable prospect of a cure?*

Q.—*I would be grateful for the following information: (a) The aetiology of vitiligo (leucodermia). (b) Is there any modern successful treatment of this condition? (c) Can the condition be inherited? I have a patient aged 24 years suffering from the disease. He feels that a holiday in the sun improves it temporarily, but only on his return home, and not at the time of the vacation. Is this likely? Finally, is suprarenal extract of any avail, and, if so, in what dosage?*

A.—The aetiology of leucodermia remains obscure, so that no rational treatment is known. Recently clinical improvement has been claimed after local treatment with Grenz rays, and this form of irradiation is worth a trial. Otherwise the areas might be rubbed with oil of bergamot and exposed to sunlight, or, for cosmetic purposes, painted with permanganate or with walnut juice. Oil of bergamot sensitizes the skin to sunlight, and some success is claimed for the intradermal injection of gold salts, which presumably act in the same way. This method of treatment lends some support to the view that leucodermia is a local functional disorder of pigmentation which may be corrected by certain stimuli. The effect of a stimulus may not be immediately apparent, and so the benefit of sunshine in vitiligo is usually a late phenomenon. Endocrine preparations of the suprarenal, pituitary, and ovary have all been tried with little result, but as the new fractions are isolated and become available they may be tried experimentally. No guide as to dosage can be given. Rarely leucodermia occurs in several generations, but the majority of cases have no family history of the affection.

Horner's Syndrome after Birth

Q.—*A child was born with blue asphyxia. The cord was tight round the neck, and the result was paralysis of the cervical sympathetic (slight ptosis, myosis, and enophthalmos). The child is now one year old with slight improvement. What is the prognosis? Is there any treatment?*

A.—There is no treatment for a Horner's syndrome of slight ptosis, myosis, and enophthalmos. The condition does not cause any disability, and the asymmetry is likely to become less marked as time goes on. The enophthalmos is more apparent than real, and is really only suggested by the smaller palpebral fissure. As the child gets older there will be compensatory action by the third nerve innervating the levator palpebrae superioris, and also by the frontalis muscle; the ptosis, which is easily overcome by voluntary power, will hardly be noticed. The myosis is unlikely to change much.

Management of Sterile Partners

Q.—*A young healthy woman with a healthy husband married two years ago. She has for economic reasons avoided or prevented pregnancy. She and her husband now wish to have a child, but without success. What is the best advice on treatment to give them?*

A.—The partners in this case should not be considered infertile until two years after they have abandoned the practice of contraception. Until such a time has elapsed no special investigations are necessary. A clinical examination of both husband and wife should be carried out, and if lesions such as underdeveloped testes, retroversion, etc., are excluded they should be reassured. They should be advised against overwork, anxiety, and either too frequent or infrequent coitus. It should be explained to them that the optimum time for conception is the eighth to the eighteenth days of the cycle, and that during this period coitus should be practised every two or three days. A vaginal douche of 1% sodium bicarbonate fifteen to thirty minutes before coitus often facilitates conception, either by softening the cervical mucous plug or by altering the *p*H of the vagina. If after two years there is still no sign of conception, then the case should be investigated fully. It is of the utmost importance that good general health on the part of either the husband or wife should not be accepted as indicative of adequate function on the part of their sex organs.

The semen of the husband, collected preferably by masturbation into a clean dry glass container, should be sent to a pathologist experienced in spermacytology. Undue delay in transit should be avoided if possible, and during transit the specimen should be kept at atmospheric temperature or colder. Heat is to be avoided. A simple examination of a hanging-drop preparation is not sufficient, and a knowledge of semen volume and of sperm density and morphology is necessary to assess male fertility. Huhner's test is useful in some cases. This consists in removing specimens from the cervical canal and from the vagina shortly after coitus, to study the effect of the vaginal environment on the spermatozoa and to see whether the spermatozoa are able to penetrate the cervical plug.

Investigation of the woman requires the services of a gynaecologist, and will involve dilatation of the cervix, endometrial biopsy to determine ovarian function, a tubal patency test either by air or CO_2 insufflation, or uterosalpingography, or both. Estimation of the *p*H of the vagina and cervix may help, but the latter is difficult. The treatment will necessarily depend on the results of investigations, but if the findings are all normal it is to be expected that the dilatation of the cervix and the insufflation will of themselves prove of great therapeutic value. This they do by ensuring better drainage of the cervix, thus preventing the mucous plug from becoming so inspissated as to form an impenetrable barrier to spermatozoa.

LETTERS, NOTES, ETC.

Sterility and Contraception

Mr. V. B. GREEN-ARMYTAGE writes: At first sight it would seem remarkable that the president of the Family Planning Association should advocate the study of sterility in clinics hitherto used for birth control. But maybe this worthy change of heart is not really so paradoxical, for it is gradually being recognized by the public and profession alike that scientific proof now exists for the statement that not less than one-third of the recipients of chemical and mechanical means of contraception in the early months or years of matrimony are eventually and consequentially the complainants of primary sterility. For these the prognosis is by no means so rosy whatever the degree of skill or advice obtainable.

Contaminated Injection

Dr. MALCOLM ALLAN (medical officer of health, Willenhall, Staffordshire) writes: Referring to your annotation in the *Journal* (May 15, p. 608) on the above subject, I found two 25-c.cm. bottles of diphtheria toxoid, alum-precipitated (preservative: ortho-chloromercuri-phenol 1:10,000), which contained a few c.cm. of prophylactic and had not been used for six months. When turned upside down fluid escaped through the rubber caps, and the bottles had been stored in a dusty centrally heated room. I sent both bottles to the laboratory, and the report was in each case: Direct film, no organisms seen; cultures, no growth aerobically or anaerobically.

Tetanus

Dr. E. FISHER (West Wyalong, New South Wales) writes: Referring to Dr. Leslie Cole's paper on tetanus (Nov. 7, 1942, p. 550) I would like to mention that in three cases of tetanus which I have treated the earliest symptom complained of was a feeling of tightness in the upper part of the chest, and tenderness on pressure over the tendons of origin of the sternocleidomastoid muscles. In one instance the patient said he felt as though he had a band around his chest.

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IMMUNITY TO TUBERCULOSIS*

BY

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At the outset we should recognize the immensity of the subject and all its ramifications. We may divide it into natural immunity and acquired immunity, or, more correctly termed, natural resistance and acquired resistance. But, considering natural resistance first, we would need to discuss the influence of race, heredity, sex, and age, and even of different organs and tissues; the difference in resistance, if any, to the human and bovine types of bacillus; and, lastly, the mechanism by which natural resistance is effected. The mechanism of acquired resistance, if indeed it is different, offers an equally important problem, as does the hypersensitivity of the tissues which follows infection. How little do we know about the good influence of various environmental conditions on acquired resistance, and perhaps on natural resistance; and, on the other hand, about the bad influence exerted by malnutrition, intercurrent diseases, childbirth, and certain occupations. And this by no means exhausts the list. What part does resistance play in the development of phthisis as seen in the adult? How far do resistance and hypersensitivity determine the protean characters of tuberculous lesions, the varied clinical manifestations of the disease, and its puzzling epidemiological characteristics? And, finally, there are many problems involved in prophylactic immunization.

There is certainly, as yet, no consensus of opinion on the actual cellular or humoral mechanisms of either natural or acquired resistance among those intimately engaged in such research work. But it is possible to indicate the present trend of opinion on the roles of natural and acquired resistance in the evolution of tuberculosis in man, on the connexion between natural and acquired resistance, and on the relations between the latter and hypersensitivity.

Natural Resistance

Natural resistance has been defined as the inherent ability of the body to restrain the growth and bring about the death of the tubercle bacillus on *first* contact with it. It must have been evident for a long time that such inherent ability is present to a very different degree in different species of animals: rats, for instance, are highly resistant to tuberculosis, as are sheep, goats, and horses. But even in regard to man, "constitution" has since early times been considered to be very important in the development of tuberculosis. The discovery of the tubercle bacillus led to a swing of the pendulum, but the soil soon loomed on the horizon beside the seed. The relative roles of soil and seed in relation to the various manifestations of the disease were not, however, clearly discerned. The discovery of the Koch phenomenon in the guinea-pig gave reality to the concept of acquired resistance; and, translated to man, this concept of acquired resistance following infection has for many years been regarded as all-important in connexion with those tuberculous manifestations that develop some time after the primary infection. Thus, while natural resistance might influence the course of the primary infection, the development of later lesions would be determined by acquired resistance. Acquired resistance would act by killing the bacilli freshly introduced into the body at the site of entrance, generally the lung; or, at least, by limiting the effects of the bacilli to the neighbourhood of this site. Moreover, acquired resistance, as demonstrated in the Koch phenomenon, appeared to act through hypersensitivity of the tissues, which developed at the same time. This hypersensitivity was identified with acquired resistance, and the changed state of the body following primary infection was called "allergy," this term including both resistance and hypersensitivity. Hypersensitivity was also held responsible for liquefaction of the so-called reinfection lesions, with resulting cavitation and bronchial spread. But we meet with difficulties at once. Does natural resistance cease to act and acquired resistance take over? If so, at what stage in the development of primary lesions or afterwards does this occur? Or does natural resistance continue to act? In which case, is acquired resistance merely a reinforcement of natural resistance, or does quite a different mechanism operate with the two? And finally, while we might assume that the principle of the Koch phenomenon is valid for reinfection in man from the outside, does it operate against bacilli derived from incompletely healed lesions in the body? We may recall that in syphilis it does not. What part is played by dosage of virus? There is evidence that no natural or acquired resistance will stand up to really immense numbers of tubercle bacilli. But, all other factors being equal, will natural resistance prove more effective than acquired resistance against large numbers of bacilli? All these questions cannot be answered yet, but observations in man during the past 25 years and further animal investigations have thrown some light on the relations between natural and acquired resistance, and on the role of inheritance in resistance.

Racial Resistance

During the last war it was noted that natives from African communities in which tuberculosis is unknown developed rapidly fatal tuberculosis when they came to Europe. This tuberculosis assumed the so-called childhood or primary type—that is, in addition to the lung lesion, extensive glandular involvement and generalization were found. The facile explanation was accepted that this was due to the fact that these natives had not been infected in childhood and had not therefore developed ired resistance. We might, of course, have asked ourselves: if this was indeed the reason, why did not all infected European children die from generalized tuberculosis? However, further observations soon exploded this theory. First there was the work in South Africa among natives on the Rand (Publn. S. Afr. Inst. med. Res., 1932). Although 70% of the natives reacted positively to a very small dose of tuberculin on arrival at the mines they often succumbed to tuberculosis characterized by massive caseation of the tracheo-bronchial glands and extensive caseation of the abdominal glands, liver, and spleen. Yet in 50% of these cases calcified primary lesions were found. Moreover, the disease pursued the same rapidly fatal course whether the reaction to tuberculin was positive or negative on arrival at the mines. On the other hand, it was noted that if the natives stayed in their kraals the disease often remained quiescent. The explanation was offered that the rapidly fatal tuberculosis was due to overwork, undernourishment, and unaccustomed conditions in the mines. But this clearly could not explain it all, since not merely the outcome of the disease but its type was so different from what we see among civilized communities.

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Then there are the findings in negroes in the U.S.A. The mortality rate among them is three to four times that among the white population. Moreover, Pinner and Kasper (1932), in comparing the pathological characters of tuberculosis in the negro and the white man, found that the primary type of tuberculosis with caseation of the hilar glands was present in nearly one-half of the negro adults. Yet Opie (1924) had shown that the incidence of calcified lesions among negroes is only slightly less than among white men. Here, too, environmental conditions were blamed for the rapidly fatal course of the disease; but, as already indicated when speaking of South African natives, environment could not account for the different type of tuberculosis; and, indeed, comparisons of negro and white populations, when the living conditions of the whites were certainly no better than those of the negroes, showed the same difference. Thus, although the role of environment cannot be entirely ruled out in these comparisons, there can be little doubt that a racial difference in resistance to tuberculosis exists, and that in negroes this difference shows itself by their inability to develop acquired resistance which would alter the character of reinfection lesions. In other words, if a negro overcomes his first infection he behaves to a later introduction of tubercle bacilli into the body as if it were a first infection. Thus the ability to develop and to maintain acquired resistance can form an integral part of what we call natural resistance.

In this connexion it is of interest to mention some observations of Lurie (1928). It is well known that rabbits are susceptible to the bovine bacillus and resistant to the human bacillus. Yet Lurie found that not only do human tubercle bacilli multiply readily in the rabbit but in the first week after inoculation they grow even more rapidly than the bovine organisms. Whereas, however, the human bacilli are soon destroyed by acquired resistance and the animal recovers, the bovine bacilli continue to multiply in the lung and kidneys until the rabbit succumbs to the disease. Therefore, what appears on the surface as the native resistance of the rabbit to the human type of tubercle bacillus really results from a specific resistance acquired during the progress of the infection; for at first no effective opposition to the multiplication of this organism exists. But it may well be asked, Why is this resistance not acquired against the bovine type of bacillus?

Individual Resistance

We have seen that there is evidence for a racial difference in resistance to tuberculosis. It is widely recognized that there are also differences in resistance among individuals of the same race, even among the highly sensitive guinea-pigs. Thus it is not rare to find among tuberculous negroes the typical phthisis of white people. All investigations relating to individual resistance and inheritance are exceptionally difficult, however, because it is impossible to rule out environmental differences. Even the similarities as regards tuberculosis among the identical twins studied by Diehl and von Verschuer (1933, 1937) might be explained by the fact that such twins are more likely than non-identical twins to have an identical environment. Recent experimental work of Lurie (1941) is highly significant in this connexion. He studied the tuberculosis resulting from various modes of infection in generation after generation of six rabbit families inbred by brother–sister or parent–offspring mating and maintained under uniform environmental conditions. The six families fell into three groups—uniformly highly resistant, uniformly highly susceptible, and others intermediate in resistance. The resistance was found to be a function of genetic constitution which by itself determined whether under given conditions of natural respiratory contagion rabbits acquired (*a*) rapidly progressive primary generalized tuberculosis; (*b*) localized chronic ulcerative pulmonary tuberculosis, corresponding to bronchogenic tuberculosis, the common type seen in the human adult; or (*c*) a disease of a character intermediate between these two extremes. It is significant, however, that the resistance even of the most resistant strains could be overwhelmed by large doses of bacilli.

Apart from indicating the hereditary character of susceptibility to tuberculosis, these investigations appear to show that so-called natural resistance as well as acquired resistance may influence the type of lesion formed on first contact with tuberculosis; and thus they lead to the deduction that acquired resistance is but a reinforcement of natural resistance. Some authors in America (Israel *et al.*, 1941), no doubt influenced by these results, have postulated that apparent differences in the clinical manifestations of primary tuberculosis noted between adults in America and those in Scandinavian countries were due to a genetically higher resistance in North Americans. But, in the first place, it has not been established that the so-called different clinical manifestations of primary tuberculosis are really associated with a different pathological picture of primary tuberculosis: the pleural effusions or the apical infiltrations considered "primary" manifestations by the American workers did not occur soon enough after a change in tuberculin reaction to exclude the possibility that they developed after an insignificant but true primary complex. And, secondly, it seems very doubtful if we are justified in applying results obtained in rabbits by mating of an intimacy unknown among civilized human beings to the interpretation of factors influencing tuberculosis in man. Nevertheless, summarizing all that I have said, we may perhaps, on a broad biological basis, consider that resistance to tuberculosis might show itself in the following degrees. The lowest degree of natural resistance will not, on first contact with the bacillus, prevent an extensive primary complex with rapid generalization and death. A higher degree of natural resistance will lead to a primary complex with perhaps some dissemination, and recovery, but no acquired resistance, will follow; so that, as is the case with negroes and South African natives, described above, a fresh infection under bad environmental conditions will again result in a primary complex, this time with generalization and death. A still higher degree of natural resistance will cause a primary complex, recovery from which will give acquired resistance; and therefore any subsequent reinfection will not produce a primary complex but a parenchymatous lesion which tends to liquefy, cavitate, and spread by the bronchi. People still more naturally resistant might conceivably react to a first infection by developing the latter type of lesion at once, as postulated by some American workers. This concept, which, I emphasize, must for the present be considered as largely theoretical, involves one important assumption: that acquired resistance is the same as natural resistance, which it enforces, and that presumably when either natural resistance or a combination of natural plus acquired resistance reaches a certain level, hypersensitivity appears, causing liquefaction and cavitation. One supporting fact to be mentioned is that it is not extremely rare to meet with liquefaction of a primary pulmonary focus.

Allergy

This brings me to the phenomenon of hypersensitivity. The term "allergy," as originally coined, was applied to the difference between the body's response to a second or later dose of antigen (the tubercle bacillus or its products) and its response to the *first* introduction of the antigen. The term has been identified with hypersensitivity as shown in the Koch phenomenon and the tuberculin test. Resistance gained from a primary infection was considered to be due to this hypersensitivity, or at least to run parallel with it and be inseparable from it. These views have been greatly altered as a result of the work of Rice Rich (1936) and his associates. As he puts it: "For many years it has been generally believed that the state of hypersensitivity is the chief mechanism of acquired immunity, the accentuated allergic inflammation having been regarded as the means by which the growth and spread of the bacilli are inhibited. The dangerous and destructive effects of hypersensitive reactions have always been very clearly recognized; but they were believed to be necessary evils that had unfortunately to be borne if one were to possess any acquired resistance at all." Rich, in experiments which are well known, succeeded in separating resistance from hypersensitivity. It has been shown that acquired resistance could be established without concomitant development of hypersensitivity; thus Pagel (1937) states that by treating animals with heat-killed tubercle bacilli he has produced immunity without hypersensitivity; and that (Pagel, 1936) such animals developed bronchogenic tuberculosis (the type comparable to phthisis in the adult) after virulent infection. It has also been shown that acquired resistance of a resistant hypersensitive animal could be transferred passively to a normal animal without concomitant transfer of hypersensitivity; and, finally, that when the hypersensitivity of a resistant animal was abolished by desensitization resistance remained intact. Nevertheless, it is probable that allergic inflammation enforces resistance by bringing to the site of reinfection, more quickly and in more concentrated form, factors that tend to fix the bacilli *in situ* and promote their destruction. It is generally agreed that allergy largely results from stimulation of the tissues by an antigenic component of the tubercle bacillus. Whereas, however, some believe that this component is different from that responsible for the production of resistance, others, like Pagel (1939), consider that hypersensitivity develops when antigen is in excess of antibody, and that this leads to tissue destruction with liberation of antibodies; while resistance due to surplus of antibodies causes no destruction of tissues. At all events, even if allergy is not an essential factor in the mechanism of resistance it appears to have a deep influence on the development of the disease in man.

Mention of the dissociation of resistance and hypersensitivity brings me to the tuberculin test. Allergy or hypersensitivity to the tubercle bacillus should not be identified with tuberculin hypersensitivity. The latter phenomenon appears to be quite unconnected with resistance, and its exact mechanism is still obscure, although our knowledge has advanced as a result of the work of Seibert and her associates. The tuberculin reaction does not represent anaphylactic sensitization to foreign protein, for in the latter phenomenon there is interaction of demonstrable antibodies with antigen, and sensitization of the cell cannot be demonstrated. The tuberculin reaction, on the other hand, is the result of sensitization of the cell itself, and antibodies cannot be demonstrated. The active principle responsible for the skin reaction is apparently protein in nature, and the origin of tuberculin hypersensitivity is connected with the tuberculous lesion; thus hypersensitivity tends to increase with extension of the lesion and to disappear with complete healing. It has even been shown that it is more marked in proximity to the lesion than in the body generally.

In view of what has just been said it is perhaps not surprising that tuberculin tests, both in clinical and in epidemiological work, sometimes give unexpected results. Those who condemn the test on these grounds should at least make sure that they use the purest material available—at present P.P.D.—prepared under rigid standards, and employ similar standards in carrying out and reading the test. Even when all this is done we may still find unexplained variations in the degree of hypersensitivity, or its absence, in persons who have certainly been infected. This should, however, spur us on to further work in order to elucidate this important phenomenon. For it seems clear that it is on the understanding of resistance and related phenomena that the future of tuberculosis control rests.

Mechanism of Resistance

I cannot conclude without referring to the intimate mechanism of resistance to tuberculosis, although I realize that I shall be entering, inadequately equipped, territory much explored yet little charted. Briefly what we have to ask is, What is the fate of the tubercle bacilli, and what part is played in this fate by cellular and by humoral factors? ; and we must ask these questions in regard both to natural and to acquired resistance. According to Pagel (1940, 1942) the fate of bacilli in natural resistance is represented by what happens to them when injected intradermally into the mouse. First the bacilli lose their envelope, being converted from basophilic into eosinophilic organisms; then they become granular and gradually disappear. Or they may remain indefinitely at the site of inoculation without multiplying. The fate of bacilli with acquired resistance, as represented in the Koch phenomenon, is quite different. They disappear rapidly—within a few days or even hours; a few small granules are all that remain. Tubercles form quickly—in from two to four days. The bacillus is now treated as a foreign body that cannot be absorbed, and the tubercles act as a barrier shutting off the bacilli from the rest of the body and the circulation.

Next we come to the thorny and still unsettled question of the relative importance of cellular and humoral factors. Pagel considers that the role of the cells is unimportant, if indeed they play any part at all, in connexion with both natural and acquired resistance. On the other hand, according to Lurie, a very important part is played by the mononuclear phagocytes. Pagel maintains, however, that earlier experiments by Lurie himself contradict this conclusion. At the same time, it must be emphasized that no bactericidal power has been demonstrated in the serum of animals either naturally resistant or made so as a result of infection.

There is one final point I cannot resist making. When I was consulting the Society's *Proceedings* I came across a discussion in 1925 on the control of tuberculosis and the milk supply. I read there the same emphatic evidence that is brought forward to-day by those who appreciate the seriousness of the problem, and, on the other hand, the same arguments against the pasteurization and boiling of milk, and the same expression of difficulties associated with eradicating the disease in cattle. It was more than disheartening to conclude that apparently little, if anything, had been done about it all since then. But I also heard one tuberculosis authority maintain, among others, that he was definitely convinced of the importance of partial immunization against pulmonary tuberculosis as a result of the ingestion of small numbers of bovine tubercle bacilli in milk, and, moreover, that he regarded this as one of the causes underlying the favourable alteration in clinical type and in death rate from human tuberculosis noted in recent years. I do hope that, in view of the present discussions on the safety of the milk supply, this view is no longer held by any responsible member of our professions, and that such travesty of one aspect of immunity will not be allowed to hinder an effective campaign for the eradication of tuberculosis in cattle.

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Dr. Charles B. Huggins, professor of surgery at the University of Chicago, has been awarded a prize of $2,000 given by Dr. Charles L. Mayer and administered by the National Science Fund of the National Academy of Sciences. The prize was offered for the most outstanding contribution made during 1942 to present-day knowledge of factors affecting the growth of animal cells, with particular reference to human cancer. The advisory committee decided that this award should go to Dr. Huggins for his studies of the human prostate, with special relation to the cancers taking origin from this gland. A second Charles L. Mayer prize of $2,000 for an outstanding study made in the same field in 1943 will be given, and entries and recommendations for this award should reach the office of the National Science Fund, 515, Madison Avenue, New York City, by Jan. 15, 1944. The advisory committee is interested primarily in fundamental studies on the factors influencing growth of animal cells rather than applications to any particular aspect of normal or abnormal growth.

MILD DEPRESSIVE PSYCHOSIS

BY

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In a recent paper upon the health of the doctor, Hope Gosse (1942) gave a table showing the relative frequency of various conditions which had been the cause of sickness of more than seven days' duration in a large group of doctors. The diagnosis "anxiety state" appeared fifth on this list, being more frequent, for example, than appendicitis, peptic ulcer, or cardiovascular disease. Gosse did not claim that this was especially a doctor's disease, so that similar findings might be expected from many other groups of people. The context of his table suggests that the term "anxiety state" was used to cover a wide range of psychiatric conditions not amounting to insanity. His findings agree with the clinical observations of others that functional nervous disorders of this type account for a very large annual wastage through sickness. Indeed, the incidence may be even higher than that stated, since it is notorious that physical diagnostic labels tend to be used in preference to psychological ones wherever possible.

Among the cases thus loosely designated would undoubtedly be found a number of different types. The Cassel Hospital, which was founded to provide treatment for such functional nervous disorders, can furnish from its records evidence of what these types are and which of them are preponderant. A study of these records shows that the majority of cases are grouped under three diagnostic headings. In 1938, for example, out of 137 total admissions there were 45 cases of depression, 35 of anxiety neurosis, and 22 of hysteria. Under all other diagnostic headings together there were 35 cases. Depression was thus the commonest, and it was also the most painful and, owing to suicidal risk, the most dangerous condition requiring hospital treatment.

Lewis (1938) has defined a depression as follows: "Any person who is unhappy and ill with his unhappiness may properly be said to be in a state of depression." In this phrase he has caught the essence of the condition—the symptoms presented by the patient are dependent upon the disorder of mood, which is fundamental. It may be misleading in one sense, however, in that the patient does not invariably complain of his unhappiness but often only of the symptoms consequent upon it. A depression may be said to be psychotic in character, and hence to belong to the group under discussion, when it occurs in the absence of any discoverable psychological trauma, becomes disproportionate to the trauma, or persists unduly when the trauma has ceased to operate.

The treatment of the common functional nervous disorders, including mild psychotic depression, was admirably laid down by T. A. Ross (1937). He dealt most fully with the anxiety neurosis and the hysterical reaction, and his methods still form the basis of the most successful and widely used therapy. Towards depression, however, he was more cautious in his attitude, holding that treatment could increase the comfort of the patient but could not radically affect the course of the illness. Lewis (1934), at the conclusion of his masterly historical review of the subject, expressed similar views:

> "There has been very little written in this review as to therapeutics. Notable as have been the changes in the general care of the insane, there is little to be said about the particular treatment of depressive states. To hinder suicide, to prevent irritation, and to provide for nutrition, sleep, or rest and in due course occupation and interests have long been the objects of judicious treatment, conscious that of the factors potent to heal time is more important than any kind of interference so far attempted."

The position to-day is widely different. The introduction of shock therapy for the treatment of depression has produced a revolution in psychiatric therapy which is still not sufficiently appreciated. In most cases this treatment is capable of cutting short the attack within the space of three or four weeks. It is of outstanding value in the mild non-certifiable types of depression which are so often encountered in clinical practice and in the case material of the Cassel Hospital. Remission rates for all types of depression quoted by various authors—e.g., Hemphill (1942) and Sands and Sargant (1942)—are very high. It must of course be remembered that these cases usually recover spontaneously in the end, but the time and misery saved by effective treatment are very great.

This being so, the early recognition of the mild depressive reaction becomes of the utmost importance, more especially since it appears to be true that the earlier the treatment is begun the more rapidly the remission occurs. Clinical experience in this hospital has led us to the conclusion that in very many cases recognition comes, if at all, much too late. We have therefore felt it advisable to set forth a description of the mild depressive reaction as it has come to our observation, in the hope that it may assist others to detect it.

Survey of 100 Consecutive Cases

It may at first sight appear to be a curious procedure to present a picture of an illness including only so-called mild examples. Our justification is that we have found that these are precisely the cases which present the greatest difficulty and occur with the greatest frequency in general practice. The personality is well preserved, delusions are absent, and the practitioner who has learned to recognize severe examples of the manic-depressive psychosis may fail altogether to recognize these cases for what they really are. It is as if the physician who has observed a severe streptococcal bronchopneumonia should fail to appreciate that a streptococcal sore throat is also a respiratory infection which may require similar treatment. All of our cases were mild ones in the sense that they were not certifiable or acutely suicidal, and they were able to live in the relatively open environment of the Cassel Hospital. In the sense of degree of incapacity produced by the illness they were not in most cases mild at all.

Our survey covers 100 consecutive cases of mild psychotic depression admitted to this hospital between 1939 and 1942. Our aim has been to present so far as is possible a review of the typical history, symptomatology, and characteristic features of the illness in order to facilitate its recognition by the busy practitioner who has little time for psychiatric niceties.

Diagnosis on Admission

It may be of interest to record the diagnoses with which these patients were sent to hospital. The majority were referred by general practitioners or non-psychiatric consultants, a minority by psychiatrists. A diagnosis of depression was made in 25% of cases; 32% were classed as anxiety neurosis, 14% as neurasthenia or psychasthenia; in 15% no diagnosis was proffered. In the other 13% a heterogeneous series of diagnoses were made, including hysteria 4%, schizophrenia 3%, phobia, obsessional neurosis, etc.

Had we any right to assume that in these cases our diagnosis was the correct one? There can be no hard-and-fast criteria in psychiatry, no infallible signs to guide one to the proper diagnosis. On the other hand we had several advantages over our colleagues who referred the cases to us: we were able to study them for a considerable period in detail, we had them under observation for 24 hours of the day, and we received daily reports from a trained nursing staff. Moreover, when there was doubt about the diagnosis the ultimate grouping depended upon the combined opinion of at least three psychiatrists. We believe that, given the same opportunity for observation, our fellow psychiatrists would have reached the same conclusion as ourselves in nearly every case. The problem of differential diagnosis will be discussed later.

Sex, Age, Occupation

Of our patients 56 were males, 44 were females. There is no evidence from these figures of any sex predisposition, a fact which is confirmed by others (e.g., Rennie, 1942). Age distribution is shown in Table I. There is no special occupational bias: employment covers the whole range of occupation usually met with at the hospital. It is, however, noteworthy that with few exceptions all these patients were usefully employed before their illness and were often living particularly full and productive lives. This fact would be less often observed in a similar group of anxiety neuroses or hysterical reactions. Ross has emphasized this point.

TABLE I.—*100 Cases of Depression. Age on Admission and at First Attack*

Age	On Admission			First Attack		
	Males	Females	Total	Males	Females	Total
Under 20 ..	2	1	3	13	5	18
20–29 ..	4	9	13	11	15	26
30–39 ..	12	11	23	14	9	23
40–49 ..	11	12	23	6	11	17
50–59 ..	19	7	26	8	3	11
60 ..	8	4	12	4	1	5
Totals ..	56	44	100	56	44	100

Symptomatology

In Table II are shown the leading complaints of our patients at the time of admission. It will be noted that only 58% actually complained of feeling depressed. Almost all of them subsequently admitted such feelings in response to definite leading questions, but we are here concerned with the spontaneous observations of the patients themselves. Physical symptoms figured among the leading complaints in 78% of cases. There was a variety of such complaints, ranging from insomnia, fatigue, headache, loss of appetite, constipation, palpitation, to all kinds of strange feelings—i.e., tension in the spine, peculiar feelings in the skin, tightness in the head, etc. Only 10 of these patients presented a single physical symptom; in all other cases complaints were made of a number of physical symptoms.

TABLE II.—*100 Cases of Depression. Frequency of Occurrence of Leading Symptoms*

	Males	Females	Total
Physical symptoms	40	38	78
Depression	38	20	58
Fear, anxiety, agitation	30	17	47
Feeling of inadequacy	26	19	45
Feeling of guilt or unworthiness ..	9	10	19
Perplexity or unreality	—	10	10
Suicidal thoughts	4	4	8

Next in frequency came a group of complaints of "fear," "anxiety," "agitation," etc. The most common fear was of becoming insane; other fears were of death, of cancer, of meeting people, etc. Nearly half of the patients complained of a feeling of inadequacy, expressed in various ways—e.g., incompetence, the mind not working as it formerly did, inability to carry on with duties properly, etc. Feelings of guilt and unworthiness—of not being good enough for one's family, of having committed terrible mistakes, etc.—occurred in 19%. Feelings of unreality or perplexity were found in 10%: it is interesting to observe that these patients were all women. Suicidal thoughts were mentioned in only 8% of cases, but, as with the complaint of depression, many more had experienced such ideas than mentioned them at the first interview.

Absence of hallucinations, delusions, etc., is to be explained by the nature of the group of cases we are here studying.

Previous Personality

A study of the previous personality of our patients reveals some interesting observations. Though the descriptions were recorded by a number of different observers working largely independently, three groups of cases emerge quite clearly. The first and largest contains 44 patients, all of whom were described in terms stating or implying overconscientiousness and a tendency to perfectionism in all their actions. Of these, 12 were also possessed of great drive, and were as a rule definite leaders in their own sphere; 7 were also described as timid and fearful, and these were on the whole overwhelmed by their own conscientiousness. The second group contains 13 patients whose normal personality was gloomy and pessimistic; in addition they were more or less hypochondriacal. In contrast to these two groups was a third, totalling 11 cases, in which the personality was described as cheerful, "outgoing," and either placid or active. It is worth noting at this point that out of a total of 9 manic attacks in the life-histories of the whole series 7 (each single attacks) occurred in this small group. These were in fact evidently the true manic-depressives, whose physique and temperament have been described by Kretschmer (1936). Unfortunately we have not sufficiently reliable data on the physique of these patients.

The rest of our series was a heterogeneous one including 8 whose previous personality was frankly inadequate, 5 unstable psychopaths, 2 paranoiacs, and 17 in whom no special features were noted.

Precipitating Factors

Precipitating factors, mainly of psychological but to a small extent of physical or mixed origin, were found in 82% of cases. These figures correspond closely with Rennie's observations. Psychological factors were represented by conditions or events which would place a special strain upon the individual. In Table III distinction has been drawn between acute psychological stress or trauma—in our cases mainly the death of a parent or marriage partner—and chronic psychological stress, which seems to play a more important part, being present in 62 cases. The commonest sources of such stress were business and professional worries and marital difficulties.

TABLE III.—*100 Cases of Depression. Precipitating Factors*

Chronic stress* alone	38
Plus acute stress	10
Plus physical disease	14
Acute stress alone	11
Plus physical disease	4
Physical disease alone	5
Total with precipitating factors	82
„ without known precipitating factors	18
Total	100

* "Stress" = psychological stress.

Physical disease, either alone or in connexion with acute or chronic psychological stress, appeared in 23 cases. Of these 7 had focal sepsis in teeth, tonsils, or sinuses, 9 had had influenza, and two presented degenerative cardiovascular disease. There were no examples of frank endocrine disorder, though involutional factors were thought to be present in 5 cases.

The war as a source of chronic stress (i.e., aggravation of business or personal worries, anxiety and loss of sleep due to air raids) played an indirect part in 26 cases. In 2 cases it appeared to be directly responsible through the patients' personal experience of an air-raid disaster.

History of Previous Attacks of Depression

Out of the 100 cases 51 had had one or more previous attacks of depression before their admission to hospital. The figures are necessarily approximate, since one often had to rely upon the descriptions given by patients or their relatives. The age at onset of all first attacks is shown in the second part of Table I. The peak occurs in the 20–29 age group. A surprisingly large number of first attacks happened at or before the age of 20. With one doubtful exception all these occurred after puberty. Of the 61 patients over the age of 40 admitted to hospital 33 had had previous attacks. This figure corresponds closely with clinical experience, and it may be said with confidence that of all patients over 40 seen in an attack of depression at least half may be expected to have had one or more previous attacks.

Family History

Findings concerning family history are shown in Table IV. They are based upon 83 cases, since in 17 no record of the family history was found. Records concerned first- and second-degree relatives, with the addition of data about first cousins

TABLE IV.—*100 Cases of Depression. Analysis of Family Histories*

Recorded histories	83
With abnormality	62
Without „	21

Disorder	Total Cases Recorded in 87 Histories	Rate per 100 Family Histories
Depression	13	15·7
Suicide	14	16·9
In mental hospital	18	21·7
Neurotic, unstable, etc.	44	53·0

in two cases. For convenience the number of abnormal individuals per 100 family histories is presented in column 2 of the table. It will be observed that the number of relatives who have had a serious attack of depression, had been in a mental hospital, or had committed suicide is such as to give a combined rate of 54.3 per 100 family histories. This figure may convey some idea of the degree of taint in the family histories of cases of depression and of the frequency with which positive findings may be anticipated.

Differential Diagnosis

We are now in a position to build up the picture of a typical case of mild depression as it may be met with in clinical practice. Among the commonest positive features are the following:

The patient may be of either sex and any age past puberty. In three-quarters of the cases one of the leading complaints will be of physical symptoms, nearly always multitudinous and often rather unusual. In approximately half the cases there will be a complaint of depression, anxiety, or feelings of inadequacy, often of all these things. In half the cases the patient will have been of a conscientious perfectionist nature—very often before his illness a successful individual, though occasionally overwhelmed by his own conscientiousness. Three-quarters of the cases will show definite precipitating factors of a psychological kind. Chronic stress will be found much more frequently than acute disaster. About a quarter of the cases will present physical precipitating factors; among these, sepsis and influenza are worthy of note. Half the patients over 40 years of age will have had a similar attack in the past. The family histories will frequently include one or more relatives who have had an attack of depression, have been in a mental hospital, or have committed suicide.

In addition to these positive findings there are certain others which are very characteristic of the depressive attack but less easy to present in statistical form. There is often a tendency towards a diurnal rhythm: the patient is worse in the morning and better in the afternoon or evening. Insomnia is common; the patient can usually get off to sleep promptly, but awakes very early. Loss of weight, amenorrhoea, and lack of sexual feeling are also frequent. The weight curve is usually a reliable guide to the progress of the attack. Lastly, the depressed patient tends to have a special attitude towards himself and his symptoms. He feels so unworthy that he almost apologizes for taking up the doctor's time. This is in marked contrast to the neurotic patient, who generally revels in his own symptoms and expects the physician to be as interested in them as he is himself.

The above positive findings, taken singly, will not furnish much evidence of the nature of the attack, but where several are found in one case (and their frequency is such that more than one is likely to be found in each case of depression) they provide strong pointers to the correct diagnosis. Since, however, no mere mathematical sum of clinical facts is sufficient in itself to enable one to arrive at a diagnosis it is necessary to add certain observations of a more general character.

Anxiety neurosis was the diagnosis most frequently made before admission. Indeed, complaints of anxiety, agitation, and fear were often so prominent as to mask the underlying state of depression. The genuine anxiety neurosis tends to be of two types—an acute form in which each individual attack of anxiety develops abruptly, lasts for a few minutes or a few hours, and then dies away; and a more chronic form, often termed neurasthenia, in which smouldering symptoms of anxiety are almost constantly present. In both types psychodynamic factors can always be found which have an immediate cause-and-effect relationship to the anxiety symptoms. In the acute type the situation in which the attack occurs, or some association which that situation arouses, is usually pregnant with meaning for the patient and provides the clue to his repressed fears. In the chronic type there may be a more diffuse and complex cause for the symptoms, based upon faulty mental habits, with unhealthy attitudes towards himself, excessive timidity, etc. In both types depression occurs as well as anxiety, but it also is dependent upon situational factors—in contrast to the mood of a true depressive psychosis, which is far less affected by environmental changes.

In the history of a typical anxiety neurosis the symptoms will be found to have a gradual progressive evolution in the life history of the patient. The neuroses have been termed by Gillespie (1942) "disorders of social relationships," and this phrase illuminates most aptly their essential distinction from psychotic depression, which is an illness occurring as a more definite and circumscribed entity in the life history of an individual who at other times may appear relatively well adjusted.

The differential diagnosis from schizophrenia is usually evident from the bizarre nature of the symptoms in this condition and the previously shut-in nature of the schizophrenic personality. Difficulty chiefly arises at the two opposite poles of adult life—in adolescence and at the involutional period, when depression often assumes an unusual character. Discussion of these problems, however, belongs to the psychiatric textbooks.

It is necessary to bear in mind that depression produces a lowering of the whole psychic efficiency of the individual, so that, for example, obsessional symptoms may make their appearance. When such symptoms occur in attack form it is always wise to consider the possibility of an underlying depression.

Course and Treatment

It is difficult to predict the probable duration of an untreated attack of depression. A few cases clear up very quickly, lasting only a few days or a few weeks. The majority last for several months, a few very much longer. In the present series the longest duration was 7 years, and there were one or two others with a duration of 3 or 4 years.

Without shock therapy remission is generally a gradual process. The weight begins to improve, appetite to return, insomnia to lessen. There are often brief spells of cheerfulness to break the gloom, which seems by contrast all the worse. Indeed, it is sometimes then that suicidal risk is greatest, particularly as the power of decision is returning to the mind. Occasionally there is a sudden abrupt remission in some quite incongruous situation. Occasionally also there may be a swing over to a state of elation and excitement. Minor hypomanic episodes are fairly common, but they are usually transient and easy to handle. More severe examples are rare in this group, as may be inferred from the fact that there was a history of only 9 manic attacks during the previous life of all these patients. The misery which these patients experience during their illness has in the past only served to emphasize the inability of the physician to provide any specific remedy. General measures as emphasized by Ross and by Lewis have played their part as in many other conditions, but recovery, when it has occurred, has often been ascribed by the patient to some quite fortuitous circumstances.

There can be little doubt in the minds of those who have observed any considerable series of results that convulsion therapy provides the means, so long sought, of cutting short the attack of depression. The theoretical basis for the treatment is almost non-existent. It was introduced by von Meduna for the treatment of schizophrenia. Experience suggests that it is in fact not the treatment of choice for schizophrenia, but that it should be reserved mainly for depression. Cardiazol was at first used to induce a convulsion; but it is unpleasant for the patient, and the risk of fractures during treatment is considerable. Electric-shock therapy, credit for the introduction of which to this country must be shared between Fleming, Golla, and Grey Walter (1939) and Shepley and McGregor (1939), is rapidly superseding it. This method is without unpleasantness save for the transient disturbance of memory, and the risks are very slight. At this hospital, for example, about 400 convulsions have been induced during the past 12 months without serious misadventure. The majority of mild depressions, even those of several years' duration, are relieved by 3 to 8 convulsions, administered twice weekly. In many cases the improvement after two treatments is dramatic in the extreme.

In suitable cases treatment can be undertaken in the out-patient department or consulting-room. However, there is one point that must not be overlooked: treatment is not finished when the attack of depression has been overcome. The majority of cases have had some important psychological precipitating factor. It is necessary to attempt to deal with this factor, lest relapse occur speedily. This may require quite extensive psychotherapy or, more commonly, an attempt to instil into the patient's mind certain principles of mental hygiene which he had previously ignored. The importance of the constitutional factor must not be forgotten; but this should only emphasize the need for the patient to live within the limits of his capacity. There is no evidence that convulsion therapy has any power to prevent the recurrence of depression in the future. Experience over many years has, however, taught us that mental hygiene, sensibly applied, can greatly influence the probability of relapse.

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ABNORMAL AGGLUTINATION REACTIONS OF A STRAIN OF LEPTOSPIRA ICTEROHAEMORRHAGIAE

BY

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Proof of the diagnosis of Weil's disease (spirochaetal jaundice) depends in most instances on serological investigation. It is often impossible to differentiate this condition, on clinical grounds alone, from infective hepatitis (catarrhal jaundice), and only on rare occasions are leptospira seen in the blood or isolated by culture or guinea-pig inoculation during the first few days of the disease. Most commonly, Weil's disease is suspected because the patient, by vocation or chance, is brought into contact with rats (e.g., working in sewers, damp mines, fish-markets; immersion in canals or stagnant pools). Confirmation is obtained from the blood count, which in Weil's disease shows a polymorphonuclear leucocytosis; and proof is furnished by the presence in the serum of increasing amounts of antibody to *Leptospira icterohaemorrhagiae.*

The agglutination test is generally used to detect the presence of antibodies, and the specificity of the reaction has been well established, although care is needed in the choice of strain, preparation of antigenic suspension, and interpretation of results (Brown and Broom, 1939). In our case, for routine tests we chose, after a considerable amount of experimental work, a strain of *L. icterohaemorrhagiae* (Jackson), which we isolated in 1934 from a London sewer-worker suffering from Weil's disease. Cultures of this strain, grown in Fletcher's rabbit-serum-broth medium and formalinized to 0.2%, were used for eight years. This strain proved satisfactory throughout that period as judged by the correlation between the agglutination results and the clinical histories, blood pictures, and (in positive cases) the occasional isolation of leptospira from the blood or urine of patients.

Recent Abnormal Reactions

During the autumn of 1942, however, the sera of 34 cases of jaundice admitted to the Cambridge Hospital, Aldershot, were found to agglutinate this strain of *L. icterohaemorrhagiae* although there was nothing in the history of these patients to suggest that they were suffering from Weil's disease. In addition, differential blood counts were either normal or showed a relative mononuclear increase, as occurs in infective hepatitis, instead of the polymorphonuclear leucocytosis characteristic of leptospirosis. Nevertheless, these sera produced a true agglutination of *L. icterohaemorrhagiae* (Jackson). The agglutinated clumps, examined by dark-field illumination with a 1/12-in. objective, proved to consist of leptospira, thus differing from the false agglutination referred to by Brown and Broom (1939). During the course of the disease in these patients the agglutination titre of the serum rose to a limited extent (titres of 1/300 were not unusual) and then disappeared completely in a few weeks. In true Weil's disease the titre commonly reaches 1/10,000 to 1/30,000, and remains demonstrable, though at a lower level, for years after recovery.

The occurrence of a positive agglutination and the rise in titre during the disease suggested the possibility of atypical Weil's disease. Centrifuged deposits from the urine of patients between the fifteenth and twenty-third days of disease were examined microscopically by dark-field illumination, and were scarified into guinea-pigs by Lieut.-Col. N. T. Whitehead, R.A.M.C. All precautions were of course taken to examine as fresh urine as possible; and alkalis were administered to the patients to render the urine slightly alkaline. Blood taken from patients during the first ten days of the disease was also inoculated into guinea-pigs. In no case were leptospira seen and no guinea-pig became infected.

Protection Tests

The serum from cases of Weil's disease will normally protect guinea-pigs against infection by a virulent strain of leptospira. Pooled serum from six of the Aldershot cases was therefore injected intraperitioneally into guinea-pigs, each animal receiving a single dose of 5 c.cm., 2.5 c.cm., or 1 c.cm. The same doses of known anti-leptospira serum were given to another series of guinea-pigs. All the animals, and also controls which had received no serum, were inoculated with 0.5 c.cm. of a virulent culture of *L. icterohaemorrhagiae* (W.P.R.L. strain). The temperature of each animal was taken and recorded daily.

The results of this experiment were unusually clear-cut for a protection test. The anti-leptospira serum protected all the animals, none of which showed even a rise of temperature. The control guinea-pigs and all those which had received the pooled Aldershot serum showed the accustomed signs of leptospirosis in guinea-pigs—namely, temperatures mounting to 106° F. followed by a sudden fall to subnormal, and terminated by death between the fifth and seventh days. Post mortem the appearances were typical, and leptospira were seen in microscopical preparations from the livers.

Further Tests

Additional serological tests were carried out with other strains of *L. icterohaemorrhagiae*—namely, one human strain (Coppard) and two rat strains (Wild Rat and W.P.R.L.), all of which agglutinate well with anti-leptospira sera. The sera under investigation failed to agglutinate these strains. In addition, the adhesion test described by Brown and Davis (1927) was applied to these sera. The same strain (Jackson) which gave the spurious original agglutination results was used, but as a living, not a formalinized, culture. The adhesion test was consistently negative with these sera. These serological tests were carried out in duplicate, independently, in London and Aldershot, and only insignificant quantitative differences were obtained by the two workers.

It is apparent, therefore, that formalinized suspensions of this particular strain have become unduly sensitive to sera of certain cases of jaundice other than Weil's disease. The effect is not caused by the presence of bile in the serum reducing interfacial tension, because serum from a number of cases, including twelve of arsphenamine jaundice, produced no agglutination.

It seemed possible, therefore, that the result might be due to an altered protein ratio of the serum. We had intended to carry out protein-fractionation of all sera, but unfortunately pressure of other work rendered this impossible. However, to test this point with serum the protein ratio of which was known to be altered, blood from 25 patients suffering from various diseases which produce a high red-cell sedimentation rate was kindly supplied to us by Dr. J. M. Alston. Only one serum agglutinated *L. icterohaemorrhagiae* (Jackson); the others were all negative. The positive serum was from a child with a rheumatic condition; but after a few days in hospital he was removed by his parents and lost sight of.

There was no suggestion, therefore, that the protein changes which produce high E.S.R. are responsible for the agglutination.

Abnormal Behaviour of L. canicola

At this stage in the investigation a paper by Das Gupta (1942) appeared in which he stated that a particular strain of *L. canicola* had recently become agglutinable by normal human serum. Das Gupta found that this non-specific agglutination did not take place if the serum were heated to 56° C. for half an hour before use.

This abnormality differs from the one we have described because the suspensions of *L. canicola* were agglutinated by normal serum. However, we retested several samples of the sera under investigation against the Jackson strain after they had been heated. The agglutination titres were reduced but not abolished. This reduction of titre is not due to destruction of complement, because sera which had been held at room temperature for periods up to six weeks still produced agglutination, and after that time no complement could have been present.

Reversion of L. icterohaemorrhagiae to Normal

The leptospira suspensions with which these investigations were carried out were prepared from serial subcultures of the strain, and the aberrant agglutinations occurred with the different lots in use from Sept. to Nov., 1942. Later in November it was realized that no further sera which were without effect on the other strains were agglutinating the Jackson strain. Samples of four sera which previously agglutinated the strain were still available and were retested. Now they also produced no agglutination. Since that time some 50 additional sera have been tested, but no further cases of non-specific agglutination have occurred. The suspensions, however, are still agglutinable to full titre when tested against immune rabbit serum.

Discussion

The agglutination of one strain of *L. icterohaemorrhagiae* by a number of sera which were negative with other strains, and the abrupt cessation of the phenomenon, seem to point to some temporary instability of this strain. It is of course well known that the agglutinability of strains varies greatly, and this strain was chosen because it agglutinated well. The medium used for culturing leptospira contains rabbit serum, and it sometimes happens that the serum of certain rabbits appears to retard rather than enhance the growth. Also, some apparently satisfactory cultures fail to agglutinate with specific antiserum. It might be argued, therefore, that some abnormality of the medium had produced unduly sensitive suspensions, whereas later subcultures in normal medium had reverted to their usual stability.

On the other hand there is the undoubted fact that the serum from only a proportion of cases of infective hepatitis gave positive results with these suspensions, and this seems to suggest that the sera possessed some unusual constituent which reacted with an abnormally unstable suspension.

Summary and Conclusions

More than 70 cases of jaundice occurring during the autumn of 1942 have been investigated. Of these, the sera of 34 agglutinated the strain of *L. icterohaemorrhagiae* (Jackson) that had been in use for eight years as a diagnostic antigen

These "positive" sera failed to produce adhesion with the same strain, failed to agglutinate other strains of *L icterohaemorrhagiae,* and failed to protect guinea-pigs against infection with a virulent culture of leptospira.

No leptospira were seen in the deposits of the centrifuged urine of these cases. Scarification of the deposits and inoculation of blood into guinea-pigs failed to produce infection

Differential blood counts done on these patients were either normal or showed a relative mononuclear increase instead of the polymorphonuclear leucocytosis characteristic of Weil's disease.

The non-specific agglutinations are different from the false positives we have previously described. In our opinion they are due to an acquired abnormal susceptibility of the strain used as the antigen.

This instability was lost on further subculture, and the strain has apparently reverted to normal.

There must have been some additional factor present in the serum, because the sera of only a proportion of cases of jaundice produced this agglutination. Such an occurrence makes it necessary to employ cultures of more than one strain for diagnostic purposes.

We feel that this is an additional argument in favour of the view we have previously expressed that "until some method of standardizing cultures of leptospira is employed, the serological diagnosis of Weil's disease should be undertaken only at laboratories where the idiosyncrasies of the antigens are well known."

We wish to express our thanks to Col. W. H. O'Riordan, *M.C.*, O.C. Cambridge Hospital, Aldershot, and to Lieut.-Col. N. T. Whitehead, *M.C.*, R.A.M.C., assistant director of pathology, South-Eastern Command, for placing every facility at our disposal during this investigation.

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SYMPTOMATOLOGY OF MALARIA

BY

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Since April, 1942, I have been medical officer to a unit heavily exposed to malaria. During the hot months we had many cases of acute febrile malaria, 80% of which were malignant tertian infections. Hyperpyrexial, cerebral, and bilious forms were encountered, and one quickly grew accustomed to the vagaries and complications of malaria in its acute forms, and later to the so-called chronic malaria with its enlarged spleen, anaemia, and general ill-health.

With the onset of the cold weather fresh cases rapidly diminished, although I was faced with a large number of patients with relatively trivial complaints whom I at first treated on conservative orthodox lines according to their symptoms, but with no success. Headaches and pains in the back were evidently not English aches and pains. Dismissing the possibility of malingering by reason of my personal knowledge of the patients, I remembered that the largest pathological factor in this part of India was malaria, and, having access to a microscope, I began a general investigation of all cases reporting sick.

I hope, by recording the following cases, to show that malaria is something more than an acute febrile disease, and that it can produce such varied symptoms as pains in the back, rheumatic pains about joints, pains in the testicles, urticaria, multiple conjunctival ecchymosis, cardiac irregularity, recurrent diarrhoea, and obstinate eczematoid conditions without fever. I cannot say dogmatically that these symptoms and malaria are direct cause and effect, but I suggest that there is weighty evidence in favour of this, having regard to the positive blood examinations and the results of treatment.

Case Records

Case 1.—Complained of severe pain in the back, worse at rest than when walking about; no history of malaria; treated for several days as lumbago with liniment and mist. sod. sal. without improvement. A thick blood film showed B.T. rings and trophozoites; the spleen was not palpable though the splenic area was dull to percussion. A standard course was given and all symptoms disappeared on the third day of treatment.

Case 2—He had severe pain over second costal cartilage on left side. This appeared swollen and was tender on pressure. There was also clinical evidence of anaemia and general ill-health. A thick blood film revealed M.T. rings; the spleen was not palpable. After a course of standard treatment all symptoms disappeared.

Case 3.—This patient had severe pain in left side of chest over fifth, sixth, and seventh ribs, worse on breathing. There was no fever and no physical sign in the chest. The tip of the spleen was palpable, and a thick film revealed M.T. rings and crescents. All symptoms subsided after a standard course.

Case 4.—Complained of recurrent swellings of the face; there was no history of any previous allergic phenomena. A blood slide revealed B.T. rings and trophozoites. After a standard course no further swellings occurred. A previous similar case had been seen in a patient with recurrent benign tertian malaria. This man had urticarial swellings of face and over both tibiae and above the ankle-joint.. A third case showing B.T. rings has also been seen.

Case 5.—He developed a patch of dry scaly eczema with occasional formation of vesicles and pustules just above the left knee; other less-marked but recurring areas of dry scaling with erythema were apparent on the flexor aspects of the arms. Exposure to sun aggravated the condition. The spleen was not palpable, but thick blood film showed M.T. rings and crescents. There was evidence of anaemia. After a standard course the patches of eczema subsided for the first time over a period of three months.

Case 6.—He had clinical malaria four months previously and showed a large conjunctival ecchymosis. B.T. rings and trophozoites were found in thick film. No fever was present. Acute conjunctivitis with enlarged superficial blood vessels has also been seen which failed to respond to treatment on orthodox lines. M.T. parasites were found in thick blood film. The condition cleared after standard treatment. A third similar case of this type cleared very slowly under silver nitrate drops. Later, B.T. rings were found in the peripheral blood.

Case 7.—Complained of palpitation, and on examination a gross irregularity of pulse was found with dropped beats corresponding to extrasystoles, heard on auscultation of the heart. The irregularity disappeared on exercise. Thick blood film showed B.T. rings. After rest and standard treatment no further irregularity was detected. The spleen was not palpable.

Case 8.—Had pain in the left shoulder, slight pain in the right shoulder and left hip. There was low fever, 99° to 100°; the pulse rate was 120 standing and 90 lying. An apical systolic murmur was heard. A diagnosis of rheumatic fever was made, but a thick blood film showed M.T. rings. After a standard course he was restored to normal health.

Case 9.—Complained of pain and swelling in testicle. Right testicle swollen and acutely tender on palpation. Low fever 99° to 100°, headache, and malaise. A blood slide revealed M.T. rings and crescents. A standard course was given and the symptoms subsided rapidly. On rectal examination prostate normal; prostatic massage yielded only a little clear fluid; vesicles not palpable.

Case 10.—This is one case of many which showed identical symptoms—i.e., profound lassitude, frontal headache, and loss of appetite. No previous history of malaria. Thick blood film showed M.T. rings and crescents. There was evidence of anaemia. A standard course restored him to normal health.

Case 11.—Another example of several similar cases. Acute diarrhoea responding to intestinal sedatives but relapsing immediately these were withdrawn. There was loss of weight and appetite. Examination of the stools produced no microscopical evidence of disease. A thick blood film showed M.T. rings, and the diarrhoea responded to standard treatment.

Discussion

These cases suggest that the malarial parasite can exist in the peripheral blood and produce diverse pathological conditions without pyrexia.

The efficacy of treating a whole unit with antimalarial drugs —e.g., blanket treating—has been known for a long time, but with a supply of drugs that is not unlimited this is wasteful. Instead of indiscriminate "blanketing" it would be better to treat selectively, choosing any man obviously below normal health, where possible checking each case by thick blood preparations. It is a shibboleth that parasites cannot be found except in febrile cases. M.T. rings and B.T. trophozoites and rings can be found if the same diligence is used in searching a thick film as is necessary in thin films. The crescent, too, can be seen, though it is often too distorted for confident diagnosis.

Manson-Bahr describes a physical sign which I have found most useful as confirmatory evidence of malaria. In health the conjunctival blood vessels are few in number, pale-coloured, and of fine calibre; in other acute fevers they are often multiple and arranged radially, giving the eye a hazy pink appearance. In malarial infections, acute or afebrile, vessels of deep red colour and greater width can be seen winding a tortuous course on the surface of the conjunctiva. They are not especially numerous, nor is the whole of the conjunctiva necessarily involved. I have seen an extensive ecchymosis spread from one of these vessels during acute febrile malaria. If this can happen here it is probable that it can happen on any mucous membrane or indeed in any part of the body, and it offers an explanation of many of the obscure symptoms that may be encountered, such as the common throbbing frontal headache.

I submit that our conception of malaria as an acute fever is only one half of the truth and that it is also a generalized disease of arterioles and capillaries capable of producing a multitude of symptoms relative to the state and site of these vessels without any accompanying fever.

My acknowledgments are due to Brigadier McLeevey, who kindly read and approved this paper for publication.

GAS INFECTION OF THE BRAIN AS ONE FORM OF THE SERIOUS COMPLICATIONS OF CEREBRO-CRANIAL INJURIES

REPORT BY A COMMITTEE OF SOVIET SCIENTISTS (162)*

It is sometimes difficult to explain the various forms of serious complications arising from cerebro-cranial injuries. Very often these injuries run a different course in respect of the onset of granulation, conclusion of healing, and types of complications, in spite of the fact that they have the same localization, the force damaging the cranium is the same, and the missile is similar. The whole series of acute meningo-encephalitic complications which occur in the first stage of evacuation, in the F.M.H. (Field Mobile Hospital) of the first and second lines, attract attention and demand explanation.

It is now generally accepted that injuries sustained in the present war, including cerebro-cranial ones, are mostly infected. The range of pathogenic organisms infecting the wounds is very large. Gunshot and explosive missiles are in the majority of cases causing badly lacerated, contaminated, and consequently infected wounds. Data collected by Soviet authors and published during the civil war proved that the majority of cerebro-cranial injuries were caused by shell fragments, mines, etc.—not bullets—resulting in blind tracks, with retained pieces of clothing, dirty hairs, etc. Bullet wounds, particularly penetrating ones, were in the minority.

The Infective Organisms

We undertook investigations with the consent and support of the Chief Military Medical Directorate of the Red Army. We carried out intensive and detailed bacteriological examination of cases of cerebro-cranial injuries, and came to the conclusion that they were infected with the same micro-organisms as muscular injuries. Sterile wounds were rare: from 300 cases only 2 were registered as sterile. Of cases of cerebro-cranial injuries 61.7% were infected with cocci (*Streptococcus anaerobius*, *Str. pyogenes longissimus*, *Str. pyogenes longus*, *Str. brevis*, *Staph. pyogenes aureus*, *Staph. pyogenes albus*, micrococcus, diplococcus, *Gaffkya tetragena*, etc.).

Of our cases 20.5% were infected with putrefactive aerobes (*Bact. megatherium*, *Bact. mycoides*, *Bact. mesentericus*, *Bact. subtilis*, *Proteus vulgaris*, *Kurthia zenkeri*). 11.2% were caused by gas-producing anaerobic organisms, the great majority (94%) being *Cl. perfringens*; next came *Cl. oedematiens* (12.1%) —in only one case was there *Cl. oedematis maligni*. 6 2% were caused by putrefactive anaerobes—*Cl. sporogenes*, *Cl. putrificum*, *Cl. butyricum*, and *Cl. tetanomorphum*. *Cl. perfringens* is usually found in cerebro-cranial injuries in combination with putrefactive anaerobes, aerobes, and streptococci.

Table I gives comparative percentages of various organisms in cases treated in the F.M.H. during 1½ months after the injury; in cases transferred from other hospitals 1½ to 2 months after the injury and treated in the neurosurgical clinic of the Institute of Experimental Medicine; and cases treated in the Institute of Experimental Medicine 1 to 1½ months after the injury and receiving a course of sulphonamide therapy.

TABLE I.—*Percentages of Various Organisms*

	F.M.H.	Neurosurg. Clinic	Sulphonamide Therapy
Pathogenic anaerobes ..	13%	6%	9%
Putrefactive anaerobes ..	15·5%	18·3%	2·6%
Putrefactive aerobes	38%	50%	13 1%
Pathogenic streptococci ..	35%	41%	7·9%
Various cocci	75 52%	80%	94·7%

The figures in the table show that the more serious types of infection are met with during the first few days; later some of the patients die, and in some the pathogenic organisms disappear and are replaced by non-pathogenic ones (cocci). In neglected wounds the percentage of putrefactive organisms increases. The local use of sulphonamides accelerates the process of clearing the wound of pathogenic organisms.

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* Translated by A. Fry, M.R.C.S.

The part played by infection in penetrating wounds of the skull is very great, as the percentage of fatal results with anaerobic infection (gas gangrene) is high (Table II).

Table II.—*Percentages of Fatal Results*

Type of Infection	All Cases	Cases in F.M.H.
Pathogenic anaerobes .. .	33%	50%
Putrefactive anaerobes .. .	16%	15·4%
Putrefactive aerobes	6·5%	12·8%
Cocci	0·4%	1·5%

Although the general mortality due to coccal infection is the lowest it differs for various cocci: the most pathogenic are *Str. pyogenes longissimus* and *longus*; the mortality due to these in the F.M.H. is 3.1%, whereas the percentage of fatal cases due to all the other cocci is *nil*.

The healing process is also influenced by the type of infection in a way similar to Table II. Two cases with sterile wounds had healthy granulations on the eighth day, and scarring began on the eighteenth day in spite of the depth of the cerebral damage (5 cm. and 8 cm.). In 14 cases of penetrating and non-penetrating cranial injuries infected with staphylococci and micrococci the wounds were sterile about a month after the injury. Of 12 cases of infected non-penetrating cranial injuries 7 were sterile in the same period. Of 20 infected penetrating cranial injuries only 2 were sterile. Putrefactive aerobic infection gave sterile wounds in 4 out of 16 when the dura mater was not damaged, and 2 out of 16 when the injury was a penetrating one.

Of the greatest interest for us were the cranial injuries infected with spore-forming organisms (anaerobes). The clinical course of such cases varies, and there are four different forms: (1) acute; (2) subacute, 1 to 2 months; (3) chronic, 2 to 4 months; (4) latent. The last form comprises those cases which have a favourable clinical picture but in which pathogenic anaerobes continue to be isolated from the wound. We had 6 such cases, and in 2 we found *Cl. perfringens*, which was lethal for certain animals (white mice).

Table III gives the mortality and the favourable results of gas-gangrene-infected cases in the four clinical forms.

Table III

	Acute	Subacute	Chronic	Latent
Total cases	10	9	14	6
Died	8	4	5	0
Favourable result ..	2	5	9	6

Cultures taken from heart, liver, spleen, wound, etc., 10 to 24 hours after death have grown *Cl. perfringens* pure or in combination with *Cl. sporogenes*, *Cl. putrificum*, and *Cl. oedematiens*. Cultures grown post mortem have shown the presence of the same micro-organisms as during life. All facts proved that the cerebro-cranial wounds were the source of sepsis. All tests for the virulence of infection were performed on white mice weighing 40 to 50 g.; the culture used was 18 to 20 hours old, and the dose 0.3 c.cm. by intramuscular route into the thigh. The organism was afterwards verified post mortem from the animals' organs by growing it on Wilson and Blair's medium.

The high percentage of deaths from pathogenic anaerobic infection of cranial wounds proves the great virulence of the organisms. In the 39 cases of anaerobic cerebral infection there were found:

Cl. perfringens	in 36 cases	Cl. tetanomorphum	in 12 cases
„ oedematiens	„ 4 „	„ butyricum	„ 11 „
„ sporogenes	„ 15 „	„ tertium	„ 1 case
„ putrificum	„ 13 „		

The clinical picture of infection of the brain by gas-forming anaerobes is characterized by the following signs and symptoms: (1) gas gangrene; (2) discharge of necrotic brain tissue and debris from the wound; (3) colourless, watery, purulent discharge; (4) acute and putrid smell of the wound; (5) formation of gas in the wound; (6) oedema; (7) prolapse; (8) meningitis; (9) low temperature with rapid pulse; (10) abscesses; (11) severe "bursting" headaches; (12) blood picture (increase in number of lymphocytes and high sedimentation rate); (13) nausea and vomiting; (14) depressed state of patient; (15) general appearance; (16) delay in formation of granulation.

In the acute form we find: gas gangrene, discharge of necrotic brain tissue and debris, gas formation in the wound, acute and putrid odour, oedema, prolapse, severe bursting headaches, frequent septic complication, and death. In the subacute and chronic forms there is first of all gas formation in the wound; then watery discharge, acute and putrid odour, oedema, prolapse, and gangrene; later, sometimes after the external healing of the wound and apparent cure, there appear metastatic abscesses of anaerobic aetiology and meningitis, followed in some cases by death. In the latent form, to which belong all carriers—particularly of *Cl. perfringens*—there is a slow progress of wound-healing without the characteristic symptoms of gas-anaerobe infection.

In view of the fact that the carrier rate of gas-infection micro-organisms was found to be 11.2% in cases of penetrating injuries of the skull, the majority of which resulted in gangrene, it is obvious that this affection is very common. Our most important, and vital, task is therefore to lower the mortality rate of gas gangrene, and the means to achieve it are as follows:

1. The use of prophylactic anti-gas-gangrene serum in doses of 5,000 to 10,000 units.

2. The timely use of sulphonamides—locally and as an emulsion in castor oil or cod-liver oil (10 g. sulphanilamide, 10 g. sulphathiazole, in 80 to 100 c.cm. of castor oil); sulphathiazole orally 6 g. daily for 6 days; intravenously, 1% solution of sulphathiazole 30 to 40 c.cm. two to three times in 24 hours.

The facts about the action of sulphonamide emulsion will be discussed in a separate article.

For the better illustration of our suggestions about the conduct and treatment of gas infection of the brain we append abstracts of some of our cases.

Acute Form (Gas Gangrene of Brain)

Cases Ending Fatally

Case 1.—Wounded March 15, 1942; died March 23. There was a transverse wound in the right temporal bone 4 by 9 cm.; brain tissue was protruding from the wound, which was partly gangrenous and had an offensive odour. On the day of death the following signs and symptoms were noted: general state grave; unconscious; some dark-red brain matter was discharging and some gas bubbles were apparent in the wound. Necropsy showed considerable gangrene of the temporal region of the brain. Bacteriological findings in the wound and at necropsy were *Cl. perfringens* and *Cl. sporogenes*.

Case 2.—Wounded March 7, 1942; died March 31. An extensive brain lesion was found on trephining. The brain and dura mater were pulped and there was about 5 c.cm. of brain debris. Offensive odour. Grave condition of patient. Necropsy: semifluid mass with debris in the posterior part of the right cerebral hemisphere, with sero-purulent fluid and offensive smell. On section the cerebral cortex showed considerable loss of definition. Bacteriology: From wound while patient was alive—*Cl. perfringens* and *Staph. pyogenes longus*; at necropsy—the heart, liver, and spleen contained *Cl. perfringens*, the pathogenicity of which was confirmed on animal inoculation.

Case 3.—Wounded March 3, 1942; died March 7. Bone fragments, pieces of cap, and skin with hair were extracted from the depth of the brain wound, which was 7 cm. long. The discharge was dirty and purulent, and consisted of necrotic cerebral tissue with an offensive odour and gas bubbles. Condition grave; bursting headache; unconsciousness Necropsy showed extensive gangrene of brain tissue and loss of cortical definition. Bacteriology: From wound discharge—*Cl. perfringens, Cl. sporogenes, Cl. butyricum, Bact. mycoides, Proteus vulgaris*; at necropsy—*Cl. perfringens* and *Cl. sporogenes*.

Cases with Favourable Issue

Case 4.—Wounded April 3, 1942; a cranial bony defect 1 by 1 cm. was found during operation, with herniation of cerebral matter. A cavity was present in the temporal lobe from which gas escaped with a whistling sound and about 10 to 12 cm. of brain debris with purulent odour. The cavity was packed with emulsion of sulphanilamide and sulphathiazole. Condition grave; severe headache. Bacteriology: *Cl. perfringens, Cl. sporogenes, Cl. putrificum, Str. pyogenes longus*. April 3: On removal of the packing there was a sharp purulent odour. April 8: Absence of cerebral pulsation. April 11: Cerebrospinal fluid appeared from the wound. The emulsion of sulphanilamide and sulphathiazole in castor oil was applied on April 8, 11, 15, 20, and 23. The general state of the patient improved considerably during that period; the formation of gas in the wound stopped; the prolapse of brain tissue disappeared together with the sero-purulent discharge; granulation began. Bacteriology: *Cl. perfringens* isolated on April 12. On April 20 no more were seen. The culture of the organisms from the wound proved very virulent to animals. The patient was under observation until July 15, when he was discharged from our clinic.

Case 5.—Wounded on March 11, 1942. He was operated on on March 20, being in a very serious condition. There was a cranial defect between the parietal bones from which gangrenous portions of the brain and free bony fragments were protruding. The lesion was 6 cm. deep. There was about 15 c.cm. of putrid discharge with brain debris. The cavity was packed with our compound emulsion. March 23: Oedema of soft tissues of scalp; right-sided paresis and unconsciousness. Bacteriology during March 22 to 30: *Cl. perfringens, Cl. butyricum, Str. pyogenes.* Locally, sulphanilamide and sulphathiazole emulsion in castor oil was applied on March 23, 26, 30, April 3, 6, and every third day afterwards; orally, sulphathiazole, 4 doses of 1 g. on March 21, 22, 23, 24, 25, and 26. On March 26 the characteristic symptoms and signs of gas infection ceased. The patient's condition remained serious till April 5. April 9: Considerable improvement in patient's general condition: lively cerebral pulsation, granulation, amount of purulent discharge considerably lessened. Cultures from the wound on April 12 and 15 showed absence of *Cl. perfringens.* Patient remained in the clinic till April 20, when he was evacuated in good condition to the base hospital. Cultures of *Cl. perfringens* from the wound proved very virulent to animals. The rapid change in improvement in favourable cases is very characteristic of the acute form of gas infection (gas gangrene of the brain).

Subacute Form

Cases with Fatal Result

Case 6.—Wounded Feb. 22, 1942; died April 27. At the operation performed by us on March 12 at the F.M.H. we found, on enlarging the bony defect in the skull, a necrotic region of the brain and tracks in the frontal direction 7 cm. and in the occipital direction 4 cm. long. A dirty-coloured fluid with brain debris of offensive odour was found in those cavities. Cultures showed *Cl. perfringens.* An emulsion of 1 part of sulphanilamide and 2 parts of sulphathiazole was used locally throughout. General condition of patient grave; prolapse of cerebral matter; bursting headache; semiconsciousness; offensive sero-purulent discharge; later meningitis; at the end progressive cerebral abscess. At necropsy *Cl. perfringens* was found in the cerebral abscess and various organs.

Case 7.—Wounded March 3, 1942; died April 6. Muscular rigidity in the beginning; copious discharge; prolapse of brain tissue; bursting headache. Compound emulsion used throughout. Bacteriology (March 10): *Cl. perfringens, Bact. megatherium, Kurthia zenkeri,* streptococci. Signs of cerebral abscess appeared at the end of March. *Cl. perfringens* was isolated post mortem.

Case 8.—Wounded March 6, 1942; died May 4. Prolapse of cerebral tissues; gas bubbles; penetrating wound of left parietal region with necrosis of temporo-parietal cerebral regions; *Cl. oedematiens, Cl. sporogenes, Cl. putrificum.*

Chronic Forms

Fatal Cases

Case 9.—Wounded Dec. 21, 1941; died April 29, 1942. Diagnosis: penetrating wound of right temporal region. Condition during the prolonged period—serious. Operation was performed on Jan. 23. Fragments extracted from the cerebral wound. Subsequently there was a profuse offensive purulent discharge; meningeal symptoms; neck rigidity. Bacteriology (Feb. 2): *Cl. oedematiens, Cl. perfringens,* staphylococci, streptococci, *Proteus vulgaris.* Local application since Feb. 3: sulphanilamide and sulphathiazole 1:2 in vaseline oil; sulphanilamide solution intravenously; orally, sulphathiazole 1 g. six times daily for 5 days. Condition on Feb. 6 satisfactory; on Feb. 10, good. On Feb. 13, 17, 26, and March 19 no micro-organisms were found. On March 3 granulation started. However, towards the end of April symptoms of progressive cerebral abscess began, accompanied by meningitis, and on April 29 the patient died. Necropsy: Abscess in right temporal lobe; purulent meningitis. Bacteriology: *Cl. perfringens* from the abscess, blood, and spleen; *Cl. oedematiens.*

Case 10.—Wounded Jan. 23, 1942; died April 20. Until Feb. 15 Vishnevki's ointment was used. Feb. 15: Operation, when non-pulsating prolapse of brain was found. After excision of the prolapse, puncture of frontal and temporal lobes was performed, when pus with gas bubbles was obtained. A fistulous track covered with cerebral tissue was observed in the temporal direction. 20 c.cm. of pus was found. The wound was filled with 20% emulsion of sulphanilamide and sulphathiazole 1:2 in castor oil. The bursting headache improved after the operation. Bacteriology of discharge (Feb. 16 to March 3): *Cl. perfringens, Cl. putrificum, Cl. sporogenes, Cl. tetanomorphum, Cl. butyricum*; together with staphylococci, streptococci, *B. coli.* March 12: No more pathogenic microorganisms. March 17: Wound sterile, with healthy granulation and little discharge. March 23: Good general condition. From the beginning of April, however, the condition got worse: severe headache; right facial paralysis, rigidity, positive Kernig sign. Cerebral abscess was diagnosed. Patient operated on again, but died from heart failure. Bacteriology of brain post mortem: *Cl. perfringens,* which, although it disappeared from the wound while the patient was alive, caused the cerebral abscess, which proved fatal.

Cases with Good Result

Case 11.—Wounded Nov. 27, 1941. Diagnosis: comminuted wound of skull penetrating the cranial cavity. Vishnevki's ointment was applied until Dec. 17. Dec. 17: Discharge of brain debris with profuse offensive purulent discharge. Jan. 22, 1942: Operation. Bacteriology: *Cl. perfringens, Cl. oedematiens.* From Feb. 25 anaerobes disappeared. Emulsion of sulphanilamide and sulphathiazole in castor oil was used locally from Feb. 9. March 7: Condition good; patient was then evacuated to a base hospital.

TABLE IV.—*Results of Experimental Work on Animals infected with Gas Gangrene of the Brain*

Experiment No.	Animal	Infection Route	Dose of Infection c.cm.	Infecting Organism	When Died	Cultures Obtained	Post-mortem Findings
1	Cat	Intracerebral	0·50	Cl. perfringens	18 hrs.	Heart: sterile	Encephalitis; haemorrhages
	Mouse 1	,,	0·20	,,	,,	Cl. perfringens	Acute encephalitis; oedema; cerebral softening
	,, 2	,,	0·20	,,	,,	,,	,, ,, ,, ,,
	,, 3	,,	0·20	,,	,,	,,	,, ,, ,, ,,
	,, 4	,,	0·20	,,	,,	,,	,, ,, ,, ,,
	,, 5	,,	Sterile bouillon 0·50	—	Alive; killed	Sterile	—
2	Rat 1	,,	0·05	Cl perfringens	18 hrs.	Heart: Cl perfr.	Cerebral oedema
	,, 2	,,	0·05	,,	,,	,, ,,	,, ,,
	,, 3	,,	0·10	,,	,,	,, ,,	,, ,,
	,, 4	,,	0·10	,,	,,	,, ,,	,, ,,
	,, 5	,,	0·50	,,	Alive	,, ,,	—
	,, 6	Thigh muscle	0·05	,,	,,	—	—
	,, 7	,,	0·10	,,	,,	—	—
	,, 8	,,	0·10	,,	,,	—	—
	,, 9	Intracerebral	0·10	Str. pyogenes	48 hrs.	Heart: Strep.	Picture of general sepsis
	,, 10	,,	0·10	,,	,,	,, ,,	,, ,, ,,
3	Rat 1	,,	0·01	Cl. perfringens	18 hrs.	Cl. perfringens	Cerebral softening
	,, 2	,,	0·01	,,	,,	,,	,, ,,
	,, 3	,,	0·02	,,	20 hrs.	Heart: Cl. perfr.	Cerebral oedema; pulmonary haemorrhages
	,, 4	,,	0·02	,,	,,	,, ,,	,, ,, ,, ,,
	,, 5	,,	0·02	,,	18 hrs.	,, ,,	Cerebral oedema and softening; pulmonary haemorrhages
	,, 6	,,	0·05	,,	,,	,, ,,	,, ,, ,, ,, ,, ,,
	,, 7	,,	0·10	,,	,,	,, ,,	Oedema and cerebral haemorrhages: pulmonary haemorrhages
	,, 8	,,	0·10	,,	24 hrs.	,, ,,	Lungs: hepatinization and haemorrhages
	,, 9	,,	0·20	,,	—	—	,, ,, ,, ,,
	,, 10	Thigh muscle	0·10	,,	—	—	Severe oedema of thigh
	,, 11	,, ,,	0·10	,,	—	—	Oedema of thigh
	,, 12	,, ,,	0·50	,,	—	—	Severe oedema of thigh and abdomen
	,, 13	Intracerebral	0·01				
	,, 14	,,	0·05	Sterile bouillon	—	—	—
	,, 15	,,	0·05				

Case 12.—Wounded Dec. 1, 1941. Diagnosis: penetrating comminuted wound of temporal region of skull. Vishnevki's ointment applied till Feb. 10; from Feb. 10 sulphanilamide and sulphathiazole. Condition: December, serious; January, less serious; from Feb. 14 patient felt much better. In March, evacuation to the base. Bacteriology on Feb. 4 showed *Cl. perfringens.* No pathogenic organisms after Feb. 13.

It is evident, in the subacute and chronic forms of anaerobic infection of the brain, that if the disease progresses without metastases (cerebral abscess) the prognosis is good; but if metastases of anaerobic origin appear the result is serious.

Case 13.—Wounded Dec. 24, 1941. Feb. 18, 1942: Operation; intracerebral abscess found, cavity 6 cm. deep. Bacteriology (Feb. 18, 24, March 3, 16, 26, 31): *Cl. perfringens* virulent to animals tested March 23. Culture on April 11 was already less virulent. In spite of the findings the general state began to improve after March 30 Granulations appeared on March 3

Discussion

It is obvious that the symptoms and signs of gas gangrene of the brain in all its forms depend on several causes—virulence of the anaerobe, type of trauma or crushing of cerebral tissue, degree and depth of infected wound, disturbance of circulation, resistance of patient, etc. Gas infection of the brain has several distinguishing signs and symptoms as compared with the similar infection of muscles—prolapse of cerebral tissue, bursting headache, meningitis, absence of crepitations (as in muscles).

Prof. Sacharov is carrying out experimental work on rats and mice infected with gas gangrene of the brain (Table IV). Infecting the animals with *Cl. perfringens* directly into the cerebral hemispheres beneath the dura mater without causing any trauma to the cerebral tissue, he was able to demonstrate that they died from acute cerebral oedema, cerebral softening, and other septic symptoms of gas infection.

Several cases of cerebral abscesses of anaerobic origin have been described: during the war of 1914-17 Academician Burdenko observed cerebral abscesses containing anaerobes. There has, however, been no research into gas infection of the brain complicating cerebro-cranial injuries. Military Surgeon Frantz gives statistics of 118 cases of gas oedema of the brain during the war of 1914-17; but his data are incomplete, as they do not include anything of clinical or bacteriological value.

Conclusion

Our experience proves that the best results in gas infection of the brain are obtained by active surgical intervention and the use of anti-gas-gangrene serum. We boldly dealt with the excision of prolapsed brain tissue, the gas infection, and the removal of necrotic tissue, applying sulphanilamide and sulphathiazole emulsion to the cavity. Orally we gave sulphanilamide 1 g. six times in 24 hours; and, intravenously, 1% solution of sulphathiazole 2 to 3 times daily in doses of 30 to 40 c.cm. in meningeal involvement, with 0.8 g. sulphanilamide intrathecally. We carefully watched the blood for any signs of agranulocytosis. Where this occurred we gave a blood transfusion and did not stop the active sulphonamide therapy. But very often in such a complication we reduced the sulphonamide dose, and in order to lessen the toxic effects on the blood transfused 250 to 350 c.cm. of blood, using anti-gas-gangrene serum at the same time. In our opinion it is imperative that instruction should be issued to all front-line dressing stations about the use of anti-gas-gangrene sera and local and oral sulphonamide therapy in contaminated penetrating cranial injuries, which are so often complicated by gas gangrene.

The Interdepartmental Committee on Dentistry, recently set up under the chairmanship of Lord Teviot by the Minister of Health and the Secretary of State for Scotland, has invited certain interested bodies, including associations of local authorities and dental associations, to submit evidence bearing on their terms of reference, which are as follows: To consider and report upon (*a*) the progressive stages by which, having regard to the number of practising dentists, provision for an adequate and satisfactory dental service should be made available for the population; (*b*) the measures to be taken to secure an adequate number of entrants to the dental profession; (*c*) existing legislation dealing with the practice of dentistry and the government of the dental profession; (*e*) measures for the encouragement and co-ordination of research into the causation, prevention, and treatment of dental diseases.

Medical Memoranda

Trophic Necrosis, Skin-grafting, and Vitamin C

During 20 years' practice I have seen 3 cases of scurvy, all within the last four years. There are now simple methods of estimating vitamin excretion in the urine applicable directly to ascorbic acid, thiamin hydrochloride, and nicotinic acid, and indirectly to vitamins A and D. Soon riboflavin is likely to join the former category. It is therefore possible to approach the subject of avitaminosis without dependence on theoretical and commercial claims, and to do so is to learn much of interest and value. This is illustrated by the two undermentioned cases of ulceration of the leg.

CASE I

A farmer's widow aged 69 complained of sores on the leg. Onset was acute, with much pain. She was of a thin hard-working type. Temperature 100°. Three areas of discoloration and apparently superficial ulceration on the right leg. Large varicose veins. Urine contained neither sugar nor albumin. W.R. was negative. Two days later the three ulcers had become circumscribed patches of black moist gangrene. She was removed to hospital. Fresh ulcers appeared, and she developed circumcorneal ulceration. There was no improvement until, on finding that the urine contained no ascorbic acid, 150 mg of ascorbic acid was given daily by the mouth. Skin-grafting of the two largest patches, 3 in. by 2 in., was successful, and progress was uninterrupted.

CASE II

A woman aged 70 has for 20 years had large superficial areas of ulceration of both legs, 4 in. by 6 in., and extending halfway round the limbs. There were no visible varicose veins. The skin generally was thin and white. Five years previously this patient was in hospital under my care. Routine treatment was without effect and skin-grafting completely failed.

She was readmitted on Aug. 2, 1942. No vitamin C (ascorbic acid) excreted in the urine. Course of ascorbic acid, 150 mg. daily, begun. First leg grafted Aug. 9 (Reverdin); second leg grafted Aug. 31. Discharged healed, and much improved in general health, on Oct. 21.

COMMENT

These two patients illustrate another aspect of avitaminosis which I cannot at present explain—namely, the considerable individual variation in vitamin C sub-saturation found in practice. Case I required 150 mg. daily for 8 weeks before ascorbic acid was excreted regularly in the urine. On two occasions increase of the daily dose to 700 mg. secured small urinary excretion (0.8 and 1.5 mg. per 100 c.cm. respectively). Although this patient had achlorhydria (as is the rule when the urinary execretion of ascorbic acid is *nil*) the administration of HCl apparently did not improve the absorption of the ascorbic acid. Case II, on the other hand, showed urinary excretion of 1 mg. per 100 c.cm. on the sixteenth day, and maintained this rate.

The analyses were made by Mr. R. O. Eames, F.I.C.

The conclusion reached is that vitamin C is indicated in some cases of trophic ulceration, especially before skin-grafting, and the amount for control by estimation of the urinary excretion.

Caernarvon. GRIFFITH EVANS, F.R.C.S.

The Diagnosis of Alkaptonuria

Alkaptonuria is a rare irregularity. The symptoms are slight dysuria and frequency of micturition at night. The condition is said to be due to an inborn error of metabolism of the tyrosine linkage in the process of protein metabolism, the end-product being 1 : 4-dihydroxyphenyl-acetic (homogentisic) acid, which is passed into the urine. Alkapton urine is normal in colour when freshly passed, but on exposure to air and light rapidly darkens from the surface downwards, ultimately assuming a dark-brown or black colour. Addition of alkali increases the rate of oxidation. It reduces cupric oxide and also silver nitrate solution (cold).

1 : 4-dihydroxyphenyl-acetic acid may be regarded as a derivative of hydroquinone (Fishberg, 1942). Therefore its presence can be detected in urine quite readily by first making the urine strongly alkaline with caustic soda or caustic potash. A drop of the urine so treated will, when placed upon regulation sensitized photographic paper, instantly turn the latter black. This colour change does not take place with the substances occurring normally in urine, or pathologically except with homogentisic acid. Thus the diagnosis of alkaptonuria may be made.

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J. NOËL GOULD.
TUDUR GLYN THOMAS.

REFERENCE

Fishberg, E. H. (1942). *J. Amer. med. Ass.*, 119, 882.

Reviews

UROLOGY IN WAR

Urology in War. Wounds and Other Emergencies of the Genito-Urinary Organs, Surgical and Medical. By Charles Y. Bidgood, Lieut.-Commander, U.S.N.R., Chief Urologist, U.S. Naval Hospital, Washington. ($2.00 or 11s.) Baltimore: The Williams and Wilkins Company; London: Baillière, Tindall and Cox. 1942.

This small handbook of 78 pages will be useful as a manual of reference to those engaged in the general surgery which war inevitably provides. In wartime high specialization is only a make-believe. Bombs and bullets do not respect anatomical limitation: the injuries are usually multiple and widespread. The scope of the book is made clear in a foreword by Rear-Admiral McIntire, Surgeon-General U.S. Navy. It is intended not necessarily for urologists but for surgeons who have to care for emergency conditions arising from wounds or disease of the genito-urinary tract. The surgeon on active service needs wide training in general surgery in order to fulfil his mission. He will welcome small volumes for his portable library such as that under review. If some wound of the genito-urinary tract calls for priority in treatment, he has at hand instructive information presented in attractive form. In an emergency he will gain rapid guidance from 27 descriptive and elegant illustrations.

Ruptured urethra is a comparatively common injury in war. The recommendations for treatment lack clarity and are too short. Fig. 10 illustrates the operation for anastomosis of the urethra described and illustrated by W. de C. Wheeler (*Proc. roy. Soc. Med.*, 1928-9, **22,** 469). Other sections give treatment in more detail and sometimes with an exactitude which leaves nothing to be desired. Some novel procedures are illustrated, such as the transfusion of blood into the corpus cavernosum, when the veins of the limbs are not available.

A SYNOPSIS OF TROPICAL MEDICINE

Synopsis of Tropical Medicine By Sir Philip Manson-Bahr, C.M.G., D.S.O., M.D., F.R.C.P. (Pp. 224; with 5 plates. 7s. 6d.) London: Cassell and Co., Ltd. 1943.

Those who are familiar with *Manson's Tropical Diseases* will not fail to recognize the close connexion it has with the *Synopsis of Tropical Medicine*—in fact, the latter, by the same author, is a synopsis of the former. As the larger book deals with nearly every aspect of tropical medicine, so also does the smaller synopsis, the difference being largely due to the suppression of all redundant matter. The result is that the synopsis gives essentially the same information as the larger book but in a form which is more that of a catalogue and which, in consequence, is perhaps more difficult to read. Nevertheless the *Synopsis of Tropical Medicine* is a veritable mine of information which for all practical purposes is remarkably accurate and cannot fail to supply the student with all that he may require for the practice of medicine in the Tropics. The size of the book is such that it will slip into the jacket pocket, so that we predict it will be the constant companion of the very many whose duty it is, particularly at the present time, to practise in a field of medicine which in ordinary circumstances would have been closed to them. The author is to be congratulated on his very successful contribution to the war effort.

OTO-RHINO-LARYNGOLOGY IN THE SERVICES

The Ear, Nose and Throat in the Services By R. Scott Stevenson, M.D., F.R.C.S.Ed., Major, R.A.M.C. Oxford War Manuals. (Pp. 116 5s.) London: Oxford University Press 1943

The nature of the author's own service naturally makes him most familiar with practice in the Army, but he has designed his book to meet the needs of the Navy and the R.A.F. also. It will, however, be most useful to officers of the R.A.M.C. whose lot it is to deal with large numbers of minor maladies, especially of the ears, and a few serious cases. The author has put his knowledge and experience to good use in compiling this little manual, which is of necessity superficial, but in spite of its modest size contains a great quantity of information of the kind likely to be required. It recalls a similar book in French by Bourgeois and Sourdille which was most useful during the war of 1914-18, but since that time the electric otoscope, chemotherapy, and audiometry, besides other improvements, have come into general use, so that there is need for a modern book of the same type. The aim of practice in the R.A.M.C. is naturally to keep men fit for service, and if they need treatment to provide such treatment that the period of absence is as short as possible, the clinical material being drawn from a highly selected group of the population. Yet in spite of this process of selection the type of case which presents itself, having regard to the limitations of sex and age, differs but little from that encountered daily in departments for out-patients, and gross malingerers are quite uncommon—certainly much less common than the numerous neurotics who infest the civilian out-patient clinics to-day in their efforts to avoid some form of national service. This is an aspect of practice which total war has made almost universal. The author approaches with excellent sense the question of excising the tonsils in soldiers. It is an operation which is easily abused and is naturally rather discouraged, but where it is evident from the history that recurrent attacks of tonsillitis are making a man unfit and repeatedly absent, the man can easily be made fit and his health improved. If junior officers of the R.A.M.C. will read the book they will have reason to be grateful to Major Scott Stevenson for his guidance.

PAEDIATRICS

Advances in Pediatrics. Volume I. Editor, Adolph G. De Sanctis, M.D. (Pp. 306. 21s.) London: William Heinemann.

The 1942 Year Book of Pediatrics Edited by Isaac A. Abt, M.D., with the collaboration of Arthur F. Abt, M.D. (Pp. 512; illustrated. 19s.) Chicago: The Year Book Publishers; London: H. K. Lewis and Co. 1943.

It is argued that the days of the textbook in medicine are past, for progress is too rapid, and large volumes taking a long while in preparation get out of date by the time of publication. There is certainly a lot to be said for this, especially in the postgraduate field, and the first volume of a new series entitled *Advances in Pediatrics*, edited by Dr. A. G. De Sanctis and consisting of a series of monographs, represents the new type of publication. Eleven authors have taken part, producing nine monographs and a final chapter on recent advances of a more miscellaneous type. Selection was guided by a questionary sent to the leading paediatricians in the United States, and the following are the titles of the subjects chosen as having shown important changes in the past two years: toxoplasmosis, virus diseases, chemotherapy, electro-encephalography, vitamin K, surgical treatment of persistent ductus arteriosus, prematurity, tuberculosis, endocrinology. Of these, the first can be mentioned for its novel character, the disease discussed being quite unknown in Great Britain; and for special merit Dr. Waldo E. Nelson's contribution on tuberculosis can be rightly singled out, although the whole standard is remarkably high.

In *The Year Book of Pediatrics* Profs. I. A. Abt and A. F. Abt continue their extremely able annual review of the literature, mainly American, in this field. As usual, the editorial comments form an important part of the book's value, and an excellent index makes it easy to use the volume as a work of reference. Among British authors cited it is a pleasure to see appreciation of Prof. C. McNeil's advocacy of infant hygiene and breast-feeding, and there are also various references to articles which have appeared in the *Archives of Disease in Childhood*. The illustrations are well chosen, and the standard of reproduction indicates that American editors and publishers have not yet had to grapple with paper shortage.

Notes on Books

In 1941 Mr. WILLIAM MAIR compiled *An Index of New Remedies* containing a list of recently introduced drugs, etc., with short notes on the therapeutic purposes for which they were recommended. In view of the desire of manufacturing firms to label their products with names registered as trade marks, and the hindrance that this is to the development of any rational nomenclature for new drugs, Mr. Mair's pamphlet provided a very useful work of reference. Its cordial reception in these columns and elsewhere has led to the preparation of a second series, *An Index of Modern Remedies*, which is published by the *Scottish Chemist* for the medical and pharmaceutical professions from 240, Albert Drive, Pollokshields, Glasgow, at the price of 1s. 6d. Like the first, it is essentially an index. Information on any given item may be readily found by means of the alphabetical list at the end of the pamphlet.

The Metabolism of Fat, by IDA SMEDLEY-MACLEAN, D.Sc., of the biochemical department of the Lister Institute of Preventive Medicine, is a recent addition to Methuen's Monographs on Biological Subjects (price 5s.). It is an attempt to give in very brief compass a critical account of some of the more important developments in our knowledge of the metabolism of the fatty acids—a problem now being attacked by more and more investigators from widely different points of approach. For her present purpose the author has picked out what seemed to be the most significant results and has endeavoured to piece them together. The bibliography grouped under the several chapters will give useful pointers to those wishing to amplify this introduction to the subject by reference to contemporary periodical literature.

Preparations and Appliances

A PORTABLE SUCTION APPARATUS NOT DEPENDENT ON A SOURCE OF ELECTRICITY

N. F. SAHER, M.B., D.A., and R. SALT send the following description from the Nuffield Department of Anaesthetics, University of Oxford.

In the apparatus described here a cylinder of compressed gas, such as oxygen, is used as a source of energy. The gas is fed to an ejector unit and produces suction at any negative pressure up to a maximum of about 400 mm. Hg. When a cylinder containing 20 c.ft. of oxygen is used and the negative pressure is adjusted to 200 mm. Hg continuous suction can be obtained for about 40 minutes. Previously, suction apparatus working on the ejector principle was described by Mr. Norman Lake (1924). In his apparatus, however, the gas was fed direct from the cylinder to the jet of the ejector unit. While that arrangement was effective it was rather wasteful in gas, especially as the suction became practically ineffective as soon as the pressure in the cylinder fell below 30 atmospheres, which resulted in about a quarter of the contents of each cylinder being wasted. The apparatus now to be described is more efficient, and therefore more economical in gas: practically the whole contents of each cylinder can be used. Moreover, the negative pressure is easily adjustable.

The apparatus is built up on a stand, with castors, intended for an oxygen cylinder of either the 20-c.ft. or the 40-c.ft. size. To the cylinder is fitted a reducing valve (Fig. 1, A)—e.g., McKesson or similar type—having a tyre-clip adapter to which high-pressure tubing is attached. Through the tubing the gas is led to a Schraeder stop-valve (Fig. 1, C, and Fig. 2). This valve is placed in a convenient position to enable the oxygen flow to be switched on or off by foot control, which helps to economize in oxygen. When the foot button is pushed down, oxygen passes into the ejector system and produces a negative pressure at the entrainment port (Fig. 1, D, and Fig. 2). If the ejector is fitted with a No. 70 Amal jet it has been found possible to obtain any required negative pressure within the range mentioned simply by adjustment of the reducing valve, and at the same time to preserve a reasonable economy in oxygen consumption. A reduced-pressure gauge calibrated in mm. Hg (Fig 1, B) is provided on the low-pressure side, and indicates the negative pressure obtainable at various settings of the reducing valve. The outlet of the ejector system is fitted with a silencer (see Fig. 2). When the foot button is released the oxygen flow is stopped.

The entrainment port (Fig. 1, D) is connected by tubing to a glass bottle (Fig. 1, E), which is in a cage fixed to the cylinder stand. A second tube leads from the operation field. There, aspiration can be carried out with any of the various catheters or suction tips in common use. The aspirated material collects in the glass bottle.

Performance of the Apparatus

(*a*) *With the Reducing Valve set to 24 lb. per sq. in.*—The rate of oxygen usage is 12.5 litres per minute (measured at atmospheric pressure). When the suction side of the apparatus is closed to prevent entry of gas or liquid the negative pressure produced is 200 mm. Hg. As is to be expected, the time taken to attain this negative pressure depends upon the volume of air in the suction side of the system, mainly in the collecting bottle, before the oxygen flow is started, and upon the resistance of the tube connecting the ejector unit and the collecting bottle. This latter consists of two feet of thick-walled rubber tubing of 1/4 in. internal diameter. With an empty three-pint bottle the full negative pressure is attained in 11 seconds; with a one-pint bottle, in seven seconds. The rate at which the apparatus sucks up water through a Magill No. 0 tube, attached to the collecting bottle by a metal connector and four feet of thick-walled rubber tube of 1/4 in. internal diameter, is 1,200 c.cm. per minute. The rate at which the apparatus sucks up blood is about 1,020 c.cm. per minute. These figures give some idea of the capacity of the apparatus in the conditions stated. Naturally, the volume sucked per minute will be smaller if a fluid more viscous than blood is being dealt with. Moreover, if a longer tube is substituted for the Magill No. 0 or a tube of smaller bore is used, the resistance to the passage of fluid is higher and consequently the volume sucked per minute will be lower.

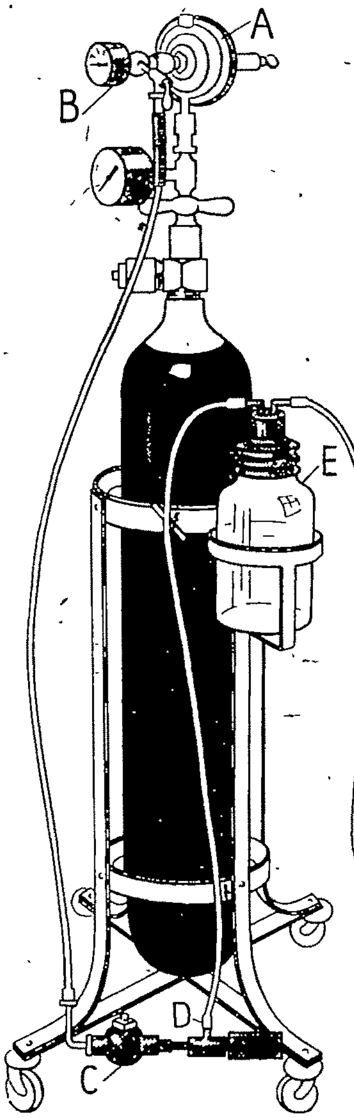

FIG. 1

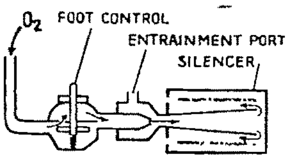

FIG. 2

As might be expected from the figures already given, the time lag between starting the oxygen flow and the beginning of suction flow is influenced by the size of the collecting bottle if empty, or the volume of the air space in the bottle if partly full. With a one-pint bottle the time lag before visible suction of water begins is about one second; with a three-pint bottle the lag is about 2½ seconds.

(*b*) *With the Reducing Valve set to 35 lb. per sq. in.*—The rate of oxygen usage is 15.5 litres per minute. The negative pressure produced when the suction side of the apparatus is closed is about 300 mm. Hg. Therefore a cylinder containing 20 c.ft. of oxygen provides continuous suction for about 30 minutes. The time taken to attain the full negative pressure of 300 mm. Hg is 15 seconds when an empty three-pint collecting bottle is used, and 11 seconds with a one-pint collecting bottle. Although there is a time lag before full negative pressure is reached, actual "entrainment" of water begins almost at once. The rate at which the apparatus aspirates water in the conditions stated above is 1,300 c.cm. per minute; for blood the rate is about 1,040 c.cm.

This apparatus can be obtained from Medical and Industrial Equipment Ltd. of 12, New Cavendish Street, London.

REFERENCE

Lake, Norman C. (1924). *Lancet*, 2, 1166.

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FOURTH CENTENARY OF "DE FABRICA"

This year marks the four-hundredth anniversary of an event of the highest significance for our civilization—the advent of the modern view of the material world. The universe of medieval thought was very different. In its centre lay the "corruptible" spherical earth. Round it circled in order the "incorruptible" heavenly bodies, each in its proper sphere and each sphere within the next, like skins of an onion. The influence of these bodies entered all earthly activity, disposing, if not forcing, even the human will. Hence the universal respect for astrology, which was a theory as to how the parts of Creation were related to each other. The world had been made for man, and it was natural to believe that his bodily organs were related to this plan, certain planets or constellations affecting certain organs. Thus arose elaborate schemes of the relation of the "Macrocosm"—the great outer celestial world—to the "Microcosm"—the little inner world of man himself.

In May, 1543, the aged Polish astronomer, Copernicus (1473-1543), lay on his death-bed and a copy of his book *On the Revolutions of the Celestial Spheres* was rushed to him. As all know, it sets the sun in the centre of the world and the earth, like other planets, moving round it, the whole system being bounded by an outermost starry firmament. This system was incompatible with medieval astrology and in that sense was revolutionary. Yet, despite the great battle that came to be fought in the name of Copernicus, it is not really a modern book in the proper sense. Its tone is still scholastic. It contains few observations. By retaining the system of regular movement in circles and the fixity of the firmament it proclaims its medieval roots. It is a work of ratiocination in the medieval manner. Utterly different was the other great scientific book of 1543, nor could two men be more contrasted than the Pole Copernicus and the Belgian Andreas Vesalius (1514-64), whose work is described on another page by Dr. E. Ashworth Underwood.

Vesalius studied at the Universities of Louvain and Paris. In both the teaching of anatomy was quite medieval in method and substance. The professor lectured always from his Chair, a physical reality in those days—a great pulpit with a reading desk. There he read from the text of Galen—hence the academic title "Reader"—commenting on it as he went, while his "Demonstrator" directed with his wand a menial to the actual task of dissection. All was done third-hand and according to the written word. Vesalius soon revolted against this system and betook himself to Padua, long renowned as a medical centre. By his work there he succeeded in a surprisingly short time in changing completely the whole content and tradition of thought about the human body, and indeed of thought about the universe as a whole. From his time we may date the establishment of anatomy as the positive basis of medical teaching. Vesalius was still only 28 when, in June, 1543, there was issued at Basle his *De humani corporis fabrica*. With this great book the scientific study of living things began again where Aristotle and Galen had left it in antiquity. The personality of Vesalius impressed itself on the whole conception of the human *fabrica*—a word which had, for him, the sense of something at work. It was always living anatomy that he was trying to describe, and, as a corollary, it was always the body as a whole that was in his mind. This vision of the living *fabrica* made him a great creative anatomist, but it made him at the same time a creative artist. Yet this vision makes his work difficult reading for us, since to understand it we must rid ourselves of certain ideas that we accept automatically and unconsciously. The modern biologist deals with descriptions and origins. He takes an organ or part or function or reaction or group of organisms, and investigates it in detail. Then he treats it comparatively and considers its relation and descent. His thought is always saturated with evolutionary implications. But with Vesalius it is not so. For him the body is a piece of living workmanship made by the Great Craftsman. The parts must be considered always in relation to the scheme as a whole, and treated as contributing to that complex that we call a man. Thus, for example, his famous general figures of bones or of muscles are not diagrammatically displayed from front, back, and side, as in a modern treatise, but posed as in the living body. They are given tone and movement and provided with a background such as they would have in life. This method is used with all the artist's skill. It was his own; nor need we discuss the share that any other artist, Calcar or another, had in the drafts, for the artist's mind that conceived them was that of Vesalius.

Vesalius was trebly equipped for his task: first, by a wonderful native genius for anatomical observation and classification; second, by great powers of imagination exalted by contact with high models of Renaissance art; third, by an admirable education directed along humanist lines by some of the ablest humanists of the day. But he was also most happily constituted for his task by the *lack* of certain qualities which would have handicapped him in that age. Philosophical or theological problems were far from him. He was not at all given to the drawing of those vague physical analogies typical of the men of his time, who borrowed much of this sort from Aristotle. From diversion into the miraculous or magical he was saved by a mind stocked with what he actually saw and did. Vesalius was a thorough extrovert; of stable, unsubtle, constructive, yet restless mind; with an artist's eyes, hands, and imagination: the very type and exemplar of the modern man of science. The work of Vesalius is thus great in a very different sense from that of Copernicus. The *De revolutionibus orbium celestium* is a foundation work of modern astronomy and displaced the medieval view of the Macrocosm, but it is a feat of ratiocination rather than observation. The *De humani corporis fabrica* is a foundation work of modern biology and displaced the medieval view of the Microcosm, but its vast treasury of direct observation is set forth in a systematic and orderly fashion and in the full modern manner. If one took certain parts of it, correcting a few errors, it would read like a series of articles in a modern scientific journal. Thus it is fair to claim that it is not only a foundation work of modern science but also the first modern scientific book. In this additional sense it opens the modern period of science.

TUBERCULOUS EMPYEMA

Tuberculous empyema is only too familiar to those undertaking the treatment of pulmonary tuberculosis. Any contribution to the prevention and treatment of this unfortunate complication, in terms of general principles or of technical details, is to be welcomed. We are glad, therefore, that three opening papers read at a recent meeting of the Tuberculosis Association are now in print.[1] The preventive treatment of the condition, especially as it occurs during artificial pneumothorax, was stressed by Dr. C. Hoyle. A pneumothorax is often maintained when adhesions are preventing proper collapse of the diseased areas of the lung, and the incidence of empyema is high in this type of case. Unless the restricting adhesions can be divided by cauterization, the pneumothorax should, as a rule, be abandoned. Once an empyema has developed, a primary consideration is the presence or absence of a secondary pyogenic infection. Only very rarely may a secondary infection die out or be overcome by local and general chemotherapy; but no reliance should be placed on this. The correct procedure is to secure proper surgical drainage at once and, whenever possible, to proceed to an early thoracoplasty.

While there is fairly general agreement on this, there is greater difference of opinion on what should be done for the simple forms. All the speakers were agreed that the best possible treatment is to obliterate the infected pleural space by inducing expansion of the lung by aspiration and pleural lavage, preferably with an antiseptic. Unfortunately this happy result is achieved in only a small percentage of cases. Either the lung will not expand completely or the presence of uncontrolled active disease in it makes this undesirable. If the pulmonary condition does not demand permanent collapse it is proper to give a trial of aspiration and lavage. Dr. W. C. Fowler made some useful practical observations on this. He laid down that every case should be treated from the start with the idea that a thoracoplasty may be needed sooner or later. Punctures for lavage should therefore be made well away from the possible operative field, and preferably high up in front of the chest wall above the level of the fluid. With the aid of a thoracoscopic trocar and cannula, a rubber catheter or a suction tube can be passed down to the bottom of the pleural space and masses of debris which would never pass through an ordinary needle can be sucked out. A thoracoscope may also be inserted for inspection of the cavity. A puncture made high up in this way heals safely and quickly, unlike the usual puncture made at a low level, which is expected to heal in a bath of residual tuberculous pus. The development of tuberculous sinuses, often with extensive infection and cold abscesses of the chest wall, is a grave complication of an already serious condition, and if Dr. Fowler's technique were followed many of these distressing results would be prevented.

Opinion is sharply divided between the need for radical treatment and the continuance of conservative treatment in those cases that do not respond to simple aspiration and lavage. Oleothorax has but few supporters. The late Dr. Chandler[2] made a plea for recognizing that in a small proportion of cases a purulent collection may become encysted and harmless, or even beneficial, as a sterile plomb. While this may sometimes occur, it is unsafe to rely upon it; and it is very difficult, if not impossible, to pick those cases which might be expected to follow such a benign course. Continued conservative measures, especially in the presence of disease of the underlying lung, expose the patient to the risk of the grave complications of rupture into the lung and of secondary infection. Mr. R. C. Brock quoted figures from the literature and from his own series in favour of early thoracoplasty when conservative measures have failed. Woodruff,[3] reporting on 154 cases of tuberculous empyema from Saranac Lake, had found that "of those patients who originally had a non-contaminated tuberculous empyema and who did not die of it, 30% finally developed complications either by perforation or by secondary infection." Of the 154 patients 64 were known to be dead at the time of the follow-up, a mortality of 42%. In Mr. Brock's series conservative treatment yielded very poor results, the mortality being 44%, almost the same as in Woodruff's series. In the secondarily infected group the mortality in patients not strong enough to undergo thoracoplasty was over 90%. Thoracoplasty gave very good results in simple tuberculous empyema, there being only one death in 21 patients. In the secondarily infected group the mortality of thoracoplasty was 29%; sound healing was achieved in 15 out of the 35 survivors.

It is clear that thoracoplasty combined with drainage is the only thing that holds out hope to the patient with a secondarily infected tuberculous empyema. The problem is more difficult in the uncontaminated case. The advocates of conservative measures point to their few successful cases, perhaps forgetting those which have progressed to fistula, secondary infection, and death. Those who advocate radical treatment by thoracoplasty consider the results to be so much better, and the mortality so much lower, that such treatment is clearly indicated whenever conservative treatment has failed after a fair trial.

PARATYPHOID FEVER

It is becoming increasingly evident that paratyphoid fever exhibits many differences from typhoid fever in its epidemiological features, as Sir William Savage[4] has shown in a study of forty outbreaks in Great Britain due to *Bact. paratyphosum* B. The incubation period is variable and, in general, shorter than it is in typhoid. As well as being a milder disease, the case mortality in paratyphoid is lower, approximating to the case mortality of *Salmonella* food-poisoning. Although characterized by an insidious onset, a proportion of attacks are initiated by acute gastro-intestinal symptoms simulating acute food-poisoning. As in typhoid, the portal of entry of the paratyphoid bacteria is through the intestinal lymphatics, and during the incubation period they multiply in the liver, spleen, and mesenteric lymph glands. A bacteriaemia initiates the onset of symptoms, and excretion of the organisms soon follows into the intestine via the bile. Contrary to the older conception, it is considered that Peyer's patches are then invaded, because it has been shown that the intestinal mucous membrane is in itself an efficient barrier against direct bacterial invasion. There is a tendency to a summer prevalence of paratyphoid outbreaks comparable with the seasonal incidence of *Salmonella* food-poisoning. Infected foodstuffs were responsible for 80% of the forty outbreaks, and half of these were traced to cream or cream cakes. Water was rarely a vehicle, and shellfish were not once implicated. Search of the literature reveals very few outbreaks of paratyphoid B fever that could be proved conclusively as water-borne. There was the Brixworth outbreak mentioned in Sir William's series, with only four cases, and Hippe described a small outbreak on a farm in Schleswig-Holstein. There was gross and continued pollution of the water with sewage in both instances. Paratyphoid bacteria survive in sewage and sewage effluents for a considerable time. That infection has been traced to cream is interesting, for it is probably a good medium for growth when the temperature is fairly high; but more information is required on this point. Cream is a vehicle that affords ideal opportunities for infection from a specifically infected food handler, and although cream, particularly the artificial kind, is manufactured by but a few firms, it is distributed over a wide area before it is further processed and introduced into cakes and pastries.

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[1] *Brit. J. Tuberc. Dis. Chest*, January, 1943.

[2] *Brit. J. Tuberc.*, 1942, 36, 103.

[3] *J. thorac. Surg.*, 1938, 7, 420.

[4] *J. Hyg.*, Camb., 1942, 42, 393.

There is no doubt that the number of notified cases of paratyphoid fever forms only a small proportion of the total infected. There are many mild undiagnosed cases, and examination of more than one outbreak has revealed many infected persons without symptoms. The most frequent sources of infection are the ambulatory unrecognized case and the bacterially infected person without symptoms, rather than the chronic carrier, who is the usual source of infection in typhoid fever. A proportion of cases remain as temporary carriers, but we do not know the percentage of patients who become chronic—that is to say, who continue to excrete the organisms for more than a year after convalescence. Paratyphoid B bacteria have, however, been isolated from crude sewage and unchlorinated effluent at Epping for nearly ten years after the outbreak of 1931. Apart from 22 cases in 1933 traced to infection of cows' udders with sewage, no abnormal notification of cases has occurred in this locality in spite of the persistence of this reservoir of infection. When searching for the source of infection, close attention must be paid to dates and past and clinical history of the suspected carrier. The agglutination test is of considerable value, and O, H, and Vi agglutinins should be separately estimated; consistently low titres are of considerable significance. *Bact. paratyphosum* B is generally considered a human parasite, but there is evidence recently from Scandinavia that dogs may become infected. Sir William Savage explains the differences in the epidemiology of paratyphoid and typhoid fevers by considering *Bact. paratyphosum* B as a true *Salmonella* in an evolutionary stage. This organism must be present in large numbers for a successful invasion of the tissues; thus, water-borne infections are rare unless the contamination is massive, while vehicles in which the organism is able to multiply are frequent causes of outbreaks.

TOXIC PROPERTIES OF INDIUM

Indium is a silver-like ductile metal, untarnishable by air and unaffected by water, which, owing to its substitution for other less readily available metals, now finds increasing use in industry for plating by electrodeposition. Its three best-known compounds are the trichloride ($InCl_3$), the sulphate ($In_2(SO_4)_3/9H_2O$), and the sesquioxide (In_2O_3). The last is used chiefly in glass manufacture, while indium cyanide is also used as a plating solution. Therapeutically, indium has been tried in the treatment of trypanosomal and spirochaetal infections. Earlier animal experiments have established the fact that indium is indubitably toxic and have indicated the nature and site of its toxic action. The lethal dose of indium citrate by subcutaneous injection was found to range from 0.06 g. per kg. body weight for mice to 2 g. per kg. for rabbits, and by oral administration from 1.2 g. per kg. for rats to 2 g. for rabbits. Death from asphyxia was preceded by hind-leg paresis, rapid and spasmodic respiration, and convulsions. Some indication was given by these experiments that indium, like thallium, had a depilatory action. A more recent investigation[1] has attempted a closer approximation to conditions of industrial exposure to indium, and has included an examination of its possible effect as a skin irritant on both animals and human beings. The results of application of indium cyanide to the shaved skin of animals are particularly interesting, because indium cyanide represents the chief indium risk in industry. Local caustic action was followed by rapid death, but control experiments with sodium cyanide showed that this severe toxic action could not be attributed to indium, but rather to the cyanide component, as the same effect was obtained with equal amounts of sodium cyanide, and no such injury followed the application of indium chloride or sulphate or of metallic indium. Subcutaneous injection of indium sulphate and chloride in amounts varying from 2 to 6 mg. per kg. body weight caused, especially in rabbits, rapid anorexia and loss of weight, followed by nose bleeding, paresis of the hind legs, and twitching of the muscles—a picture similar to that of a mild degree of strychnine poisoning. Intravenous injection was followed by the same syndrome, but with a relative toxicity about four times that of subcutaneous injection. Post-mortem examination revealed widespread haemorrhage in the lungs, liver, kidneys, and ureters; inflammatory changes in the liver, kidneys, and heart; and atony of the gastro-intestinal tract and urinary bladder. The liver was the organ most severely affected. Albumin and indium were present in the urine. Blood counts, where these could be made, showed in general less severe damage than had previously been believed to occur, but there was a trend towards diminution of red cells and haemoglobin, haemolysis, and the appearance of nucleated red cells. In human beings no evidence of any skin-irritant property of indium resulted from the wearing on the forearm, for periods up to 30 days, of indium-treated silver plates. Incidentally, these experiments showed that indium diffused into silver has no anti-tarnishing effect. The depilatory action of indium mentioned in earlier experiments was not confirmed by the application of indium salts to the hairy coat of animals. From this investigation it appears that, while indium has undoubtedly toxic properties, its industrial application does not constitute a toxic hazard, even as a skin irritant.

HEALTH PROBLEMS IN THE NEW LONDON

London will be in the hands of the builder for many a long year after the war, and in a recent Chadwick lecture Dr. C. F. White, medical officer of health for the City, addressed himself to some of the health problems that will rise up with the post-war scaffolding. In spite of extensive destruction in certain areas, the London of the future will not differ very much in lay-out from the London as we have known it. Some sites which have been cleared, it is to be hoped, will not be built on; some thoroughfares will be widened, but the centre of London will bear much the same contours as before; and, although business and pleasure may be rather more decentralized, there will still be the enormous centripetal flow of population every morning. Dr. White foresees some decentralization of hospitals, but he is of opinion that the teaching hospitals and their medical schools must remain in central London, near the University. One would not have supposed that, with modern transport, this consideration carried its former weight, and indeed for many years one of the teaching hospitals (King's College) has been situated three miles or more from Charing Cross. Dr. White spoke of the need for flat roofs as open spaces and the allocation of basements for the purposes of machinery and stores only. The sterilization of air by sprays and vapours, the control of air-borne infections in offices, and structural rat-proofing, which in his view is the only rat-repressive measure of permanent value, are all matters to be considered in the rebuilding of business London. But until the architects have got further on with their plans the medical officer of health cannot be very specific. Dr. White also touched on future London government. What kind of local authority can best manage London? It must not be so small that it cannot provide an efficient service, nor so large that the personal touch essential to successful administration is lost. Many present units of local government in London are too small; on the other hand, Dr. White thinks the county council is too large. It is true that the population of the county of London is more than sixfold that of the administrative county of Lancashire and nearly threefold that of the West Riding of Yorkshire. On the other hand, is density of population the determining factor? In area the West Riding could contain twenty Londons, and Lancashire fifteen. Moreover, the area of the London County Council, large as it is, is compact; it is a cartwheel structure. If the L.C.C. is too big as a unit of local government, how shall London be divided? To bisect it by the Thames, as it is geographically bisected, would be likely to introduce more complications than it solved. The problem which might well exercise the planners is not how London can be made smaller but whether it should not be enlarged by bringing in the boroughs and counties on its periphery.

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[1] *J. industr. Hyg.*, 1942, **24**, 243.

PHYTIC ACID AND MINERAL METABOLISM

The rachitogenic property of cereals was first demonstrated by Sir Edward Mellanby by means of experiments on dogs. The agent responsible for this property was destroyed on boiling the cereals with 1% hydrochloric acid or by allowing them to germinate. Steenbock, Black, and Thomas[1] suggested that the phosphorus in the cereals was in an unavailable form, and that on treatment with hydrochloric acid or on the germination of the seed the organic phosphorus was converted into some more readily available inorganic form. Bruce and Callow[2] identified the organic form as inositol hexaphosphoric acid (phytic acid). Harrison and Mellanby,[3] working with dogs, found that the action of phytic acid was not only negative in that its phosphorus was unavailable to the animal but that it was positively detrimental in that it combined with the calcium of the cereal and of any other food eaten at the same time, forming an insoluble phytate and thereby removing the calcium from the food tract also. Indeed it was only after supplying enough calcium to combine with all the phytic acid present that additional amounts were available for calcification.

McCance and Widdowson[4] observed that healthy men and women absorbed calcium and magnesium much less readily from brown than from white bread dietaries, and showed that the effects of brown bread could be reproduced by adding sodium phytate to white bread. It was recognized, however, that the laxative action of brown bread might have exerted some influence on the absorption of calcium, and experiments were then carried out with brown bread from which the phytic acid had been removed.[5] They compared (*a*) a "brown" flour reconstituted from white flour and bran; (*b*) a flour mixture similar to the last but with the phytates hydrolysed enzymically to inorganic phosphates and inositol; (*c*) a mixture of white flour and bran from which nearly all the phytates and most of the products of hydrolysis had been removed; and (*d*) white flour. Each of 6 subjects (3 men and 3 women) were submitted to each of the above dietaries for periods of 7 days each for analytical work, with 3 days of preliminary feeding and several days of after-feeding on each diet. The orders of feeding were suitably "randomized." Calcium, magnesium, and phosphorus absorptions were studied. It was found that the laxative properties of the dietaries (*a*), (*b*), and (*c*) were approximately the same; that the calcium absorptions were worse in (*a*) than (*b*) and in (*b*) than (*c*), but almost the same in (*c*) and (*d*); that the magnesium absorptions improved progressively in passing from (*a*) to (*d*); and that the phosphorus absorptions were worse in (*a*) than (*b*) or (*c*) and a little worse in (*b*) or (*c*) than in (*d*).

Thus Mellanby's work on puppies has been extended to human beings and the same results obtained. The addition of calcium to brown bread would counteract its only known disadvantageous property and make it unquestionably superior to white bread in all known respects.

ROYAL MEDICAL BENEVOLENT FUND

For the first time for many years Sir Thomas Barlow, now in his ninety-eighth year, was absent from the annual general meeting of the Royal Medical Benevolent Fund. His place was taken by Sir Arnold Lawson, who expressed the general regret at his absence and the affection which is universally felt for him. The annual report of the Fund, presented by Dr. Lewis G. Glover, the honorary treasurer, showed a slight increase both in the subscription and the investment income. The Fund has been materially helped during the year by legacies amounting to £7,412, including a sum of £1,200 allocated by the British Medical Association as part of the bequest of the late Dr. T. C. Craig of Torquay. During the year the sum of £21,893 has been distributed in charitable assistance. The amount expended on gifts to beneficiaries, chiefly for maintenance, was just over £15,000, and on annuities £6,000. A sum of £1,277 was spent on social services and administration, and £644 on appeals and publicity. A pension scheme has been started for the staff of the Fund, with a commencing reserve of £2,000. The president, Sir Thomas Barlow, the honorary treasurer, Dr. Lewis Glover, and the honorary secretary, Mr. R. M. Handfield-Jones, were re-elected.

At the beginning of this month a number of men and women, lay and medical, Spanish, Catalan, Basque, and British, sat down to a dinner given in honour of Dr. Josep Trueta on the invitation of Señor Ramon Pereira, the President of the Casal Catala. The occasion was to celebrate the conferment on Dr. Trueta of an honorary D.Sc. of Oxford University. In response to Señor Pereira's speech of welcome, Dr. Trueta charmed his audience, in a reply mostly in English but partly in Catalan and Spanish, with a modest account of his own researches and a pleasant analogy between his technique of treating open wounds and the methods necessary to deal with political evils. In so far as there was any merit in his work, he said, tribute should be paid not to him but to Nature, whose methods of healing he tried to follow.

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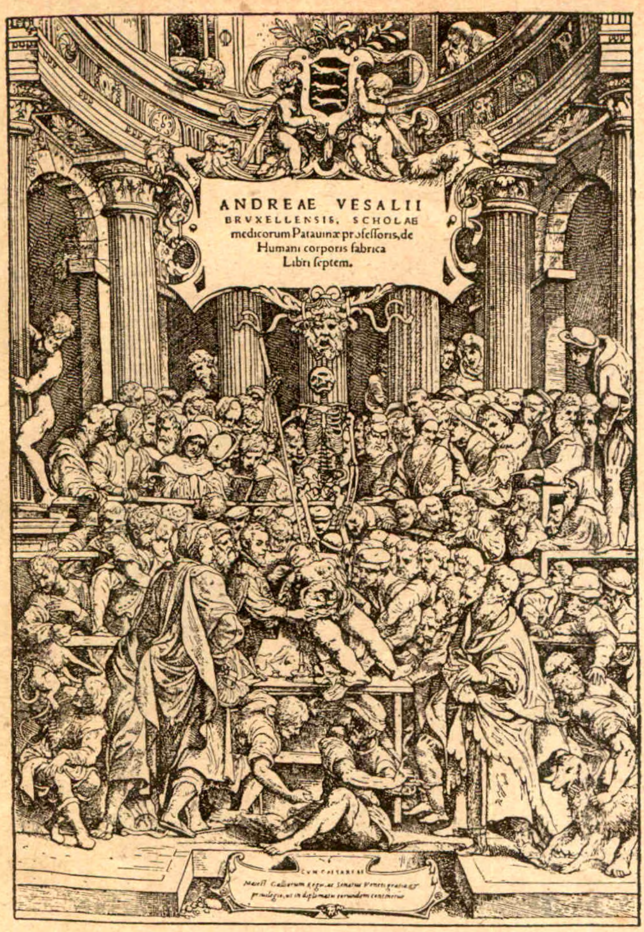
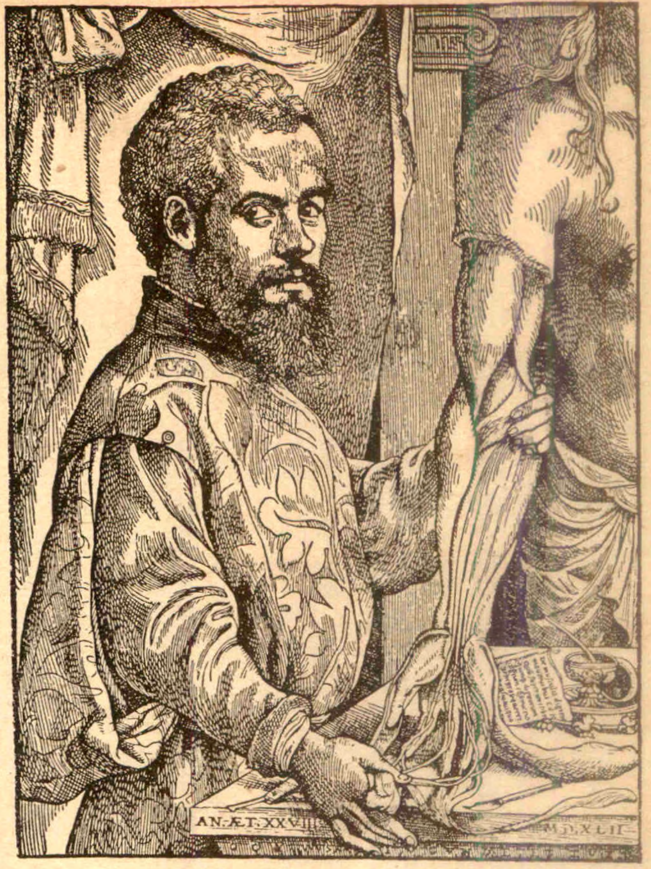
[1] *J. biol. Chem.*, 1930, **85**, 585.
[2] *Biochem. J.*, 1934, **28**, 517.
[3] Ibid., 1939, **33**, 1660.
[4] *J. Physiol.*, 1942, **101**, 44.
[5] *J. Physiol.*, 1942, **101**, 304.





THE "FABRICA" OF ANDREAS VESALIUS

A QUATERCENTENARY TRIBUTE

BY

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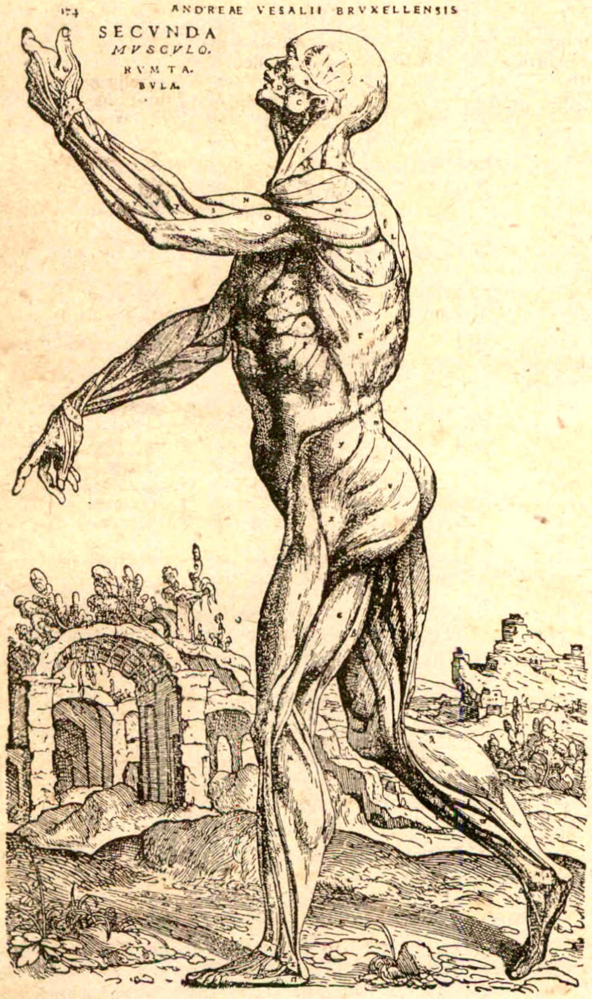
The month of June, 1943, marks the four-hundredth anniversary of the publication of one of the epoch-making works in all medical literature. Some time in the month of June, 1543, there appeared from the press of Joannes Oporinus, Professor of Greek at Basle, the *De Humani Corporis Fabrica* of Andreas Vesalius. It behoves us at this time to cast our minds back through the centuries, and to view in the light of later discoveries the work of this ardent reformer of anatomy and pioneer of the scientific spirit.

Vesalius was born in Brussels on Dec. 31, 1514. The son and descendant of court physicians and apothecaries, he received the thorough classical education of the age, studied medicine at Montpellier and Paris, and then settled for a time at Louvain. In these schools the trammels of the Middle Ages had not yet been broken by the spirit of the Renaissance. Anatomy was taught according to the views of Galen ; and, indeed, apart from the work of Mundinus two centuries before, and by then largely forgotten, there had been practically no development in anatomical thought throughout the Middle Ages. Mundinus published in 1316 a short work—in Latin of course—called *Anathomia.* Roth, the biographer of Vesalius, considers that it is well arranged and rich in "positive" anatomy. The terminology of Mundinus was derived mainly from the old Arabian writers. As an anatomist he had the virtue of carrying out his dissections in person, but as the years passed the professors who succeeded him undertook less and less of the practical work. An Italian translation of the *Anathomia*—the *Fasciculo di Medicina*—was published in 1493, and a remarkable illustration in that book shows the method of teaching anatomy two decades before the birth of Vesalius. The duty of the professor was to comment from the altitude of his "chair" on the writings of Galen, while his assistants below him dissected the body. Students never handled the subject at all. From his childhood Vesalius had had an urge for the dissection of all sorts of animals, and with such a system of teaching he could make little headway in the study of human anatomy. Subjects for dissection were difficult to obtain, and he has left an account of one of his expeditions to steal a corpse from a gibbet. Vesalius was attracted by the new learning of Northern Italy, and in 1537 we find him at Venice, where he was in the schools with Ignatius Loyola. While he was studying there he tells us that he treated patients, "not without the greatest expectation," by the new method of the China root. When he was 23 years old he graduated in medicine at Padua, and on Dec. 6, 1537, he was appointed professor of surgery, with the direction of a school of anatomy, at that university.

The next five years were pregnant for the future of medicine. At Venice Vesalius had met a compatriot, an artist, Jan Stephan van Calcar—*insignis nostri seculi pictor,* as Vesalius calls him—and in 1538 the two men collaborated in the production of six anatomical diagrams. Such "fugitive sheets" had been not uncommon in previous years, but those of Vesalius were anatomically and artistically a marked advance on their predecessors. Although they were extensively printed and pirated, all but two bound sets seem to have disappeared. They were reprinted in facsimile—thirty copies only—by Sir William Stirling-Maxwell in 1874, and in 1920 Holl and Sudhoff reproduced them by the photostat process. Vesalius was in 1538 still largely influenced by Galen. In fact in that year he edited a revised version of the *Institutiones anatomicae* of Guinterius, a pronounced Galenist and a former teacher of Vesalius at Paris. (Five years later he will tell us in the *Fabrica* that he is able to demonstrate more than two hundred errors of Galen.) He was, however, already famous, and he had evolved the modern or Vesalian method of studying and teaching anatomy.

The 1543 edition of the *Fabrica,* apart from its superb detailed descriptions of the "fabric" of the human body, contains three features—the Portrait, the Tabulae, and the Title-page—which are of vital interest in connexion with Vesalius himself and his method. The Portrait (see Fig.) was drawn by Calcar—

as were all the other illustrations in this magnificent book. It has long been considered to be one of the finest woodcuts of its age. The head is essentially Flemish in type, and the firm thick-set lips and piercing eyes seem to throw out a challenge to the world. The dissection chosen and the text of the scroll combine to exhibit the confidence of Vesalius in his advance on Galen. The disproportions in the design have been ascribed to the conviction of Vesalius that in anatomical matters the head is more important than the hand, but Prof. Charles Singer has recently expressed the view that only the drawing of the head was by Calcar, and that the design was the work of an inferior craftsman. It is interesting to note that, of the twenty-eight oil paintings and the many other pictures of Vesalius which still exist, this *Fabrica* portrait is the only one which is considered to have been drawn from life. There is no doubt that Vesalius thought much of it ; he used the original wood block not only for the *Epitome* and the *Fabrica* of 1543 but also for the *Letter on the China Root* of 1546 and the second edition of the *Fabrica* of 1555.



The most important of the tabulae in the *Fabrica* are the three plates dealing with the skeleton and the fourteen plates of the muscles. The second muscle tabula is reproduced here. These superb drawings are really representations in line of Vesalius's conception of the science of anatomy. The body is a piece of vital mechanism, and the artist—undoubtedly inspired and instructed throughout by Vesalius himself—has positioned his dissected subjects so as to suggest the functions of the various parts. A noteworthy feature of the 1543 edition of the *Fabrica* is the landscape background in each tabula. The tabulae can be arranged in a certain order so as to give a complete panorama with a small additional picture. Reproduction gives little indication of the firmness of line and freshness of these tabulae as they appear in the original copies of the work. They certainly marked an enormous advance in the art of anatomical illustration, with the possible exception of the drawings of Leonardo da Vinci, which were not available until centuries later.

The title-page of the 1543 edition of the *Fabrica* is reproduced on page 795, but space does not permit of a discussion of the many interesting features shown by this famous woodcut. It should be noted that Vesalius is carrying out with his own hands the dissection of the female subject. The ape on the left and the dog on the right symbolize the master's readiness to use animals if the supply of human subjects failed ; indeed, many of the smaller illustrations in the *Fabrica* are of animal parts, and the book contains a section devoted to experiments on animals. The erect skeleton is perhaps an expression of his devotion to osteology as the basis of the human fabric. The naked man by the column on the left—probably used for the demonstration of surface anatomy—appears clothed in the inferior drawing of the title-page to the second edition of the *Fabrica* (1555), in which other alterations were also made. This famous plate expresses to perfection the Vesalian method of teaching anatomy, and the enthusiasm with which the teaching was received by the students of Northern Italy.

With the *Fabrica* Vesalius issued an *Epitome*, which is not merely a summary of the great work. It was intended more for artists than for students of medicine, and consists of a short text followed by an anatomical atlas. The illustrations and tabulae are frequently different from those in the *Fabrica*, and they do not appear in the text itself. There is evidence that many of the *Epitome* illustrations were completed later than those of the *Fabrica*. In various places Vesalius explains that the *Epitome* is an appendix, an index, and a compendium to the *Fabrica*. The two books are twin works, each completing and explaining the other. The *Fabrica* was finished—as the dates on the portrait show—in 1542, when Vesalius was 28 years of age. It was severely criticized by some of his old teachers, and, as he tells us in his *Letter on the China Root*, in a fit of despair he burned his books and sought service with the Emperor as Court Physician. His life with the army in the wars, his ill luck over the supposed body of a corpse which came to life, and his enforced pilgrimage to Jerusalem need not detain us. He died on the island of Zante in 1564.

There is no doubt that the *Fabrica* is one of the great books of all time, although the specialized nature of its subject has prevented its wide recognition as such. In its nearly seven hundred beautifully printed pages it contains over three hundred original illustrations, many of the highest merit. The new spirit was abroad at the time, and others were working on similar lines. Eustachius of Rome had within ten years of the publication of the *Fabrica* completed a magnificent series of forty-seven anatomical tabulae, engraved on copper. A number of these were more accurate than the illustrations of Vesalius, but one has only to compare the muscle tabulae of the two men to appreciate the superiority of design and drawing in those of Vesalius. Unfortunately the tabulae of Eustachius were not published until over a century and a half after his death. To Vesalius the real advance in anatomy is due. Of numerous structures or organs—for example, the sternum, the bones of the skull, many muscles, and the uterus—he gave descriptions which were long unsurpassed. He was the first to introduce illustrations to direct attention to comparative anatomy, and in many passages he is frank enough to admit that he had not actually seen in the human the features which he describes, but had demonstrated them in apes. Anatomy, long dead, was resurrected as a science in the month of June, 1543.

On a tomb in one of the tabulae Vesalius had inscribed *Vivitur Ingenio, Caetera Mortis Erunt.* Though the remainder of his own bodily work may have perished, the spirit of his great accomplishment lives to-day. We may perhaps be reminded, not unprofitably even now, that in an age when the dead hand of medievalism lay heavy on knowledge of the human frame the whole science was born anew and advanced beyond recognition by the faith, the enthusiasm, and the unremitting labour of a single man.

I am indebted to Dr. Charles Singer and his publishers for kind permission to reproduce the three figures from his book *The Evolution of Anatomy* (Kegan Paul, Trench, Trubner and Co. Ltd., 1925).

"PORTRAIT OF A DOCTOR"

[*From a Correspondent*]

The B.B.C.'s series of "Professional Portraits," which has included such differing subjects as a Clydeside riveter and a district nurse, struck yet another new note in the recent portrait of "The Doctor." There is something about the medical profession which can be relied on to evoke a *frisson* from the uninitiated—the remnant perhaps of the awe of priestcraft—whether it be the thrill of wonder at esoteric knowledge or a morbid association with sickness and mortality. The best-selling value of such works as *The Citadel* must surely lie mainly in the reaction from reverence which comes from the debunking of a mystery. Stephen Potter, in his portrait of a children's physician, succeeded in presenting a real person; he certainly romanticized his subject, but contrived to do so without a touch of false glamour or a suggestion of deflation.

Certain of the portraits in this series have been built upon a basis of "actuality"—that is, by a flexible use of what might be described as the technique of the interview-cum-snapshot. "The Doctor," on the other hand, was a studio performance, played by James McKechnie (as the doctor) with a very strong supporting cast; and this choice of method was amply justified in the coherence and timing of the sequences, often no more than brief snatches of conversation, whose rapid succession built up a well-proportioned picture.

The divergent appeals of medicine as a career were brought out in the talk of a group of medical students—how to one medicine means research, to another activity among *people*, to another the following of a family tradition, and so on. The medical students were excellently cast; the crudity and immaturity of their conversation were well suggested, though necessarily in somewhat expurgated form.

In the rapid flash-back in which the doctor recalls the progressive stages of his own hospital training it may perhaps have been difficult for the layman to follow each step. Too much technical language is apt to become unintelligible, while translation into common idiom loses verisimilitude. The compromise here was effective for the most part, for while a sprinkling of technicalities remained the context was suggested in plain English.

Best among the minor studies were those of the two mothers, and it was in these sequences that one realized how, whereas most doctors have to understand and convince their patients, the children's doctor can make contact with the child only through the medium of the intervening parent. Dr. Basing justified his choice of specialization in children's diseases on the ground that here, in contrast with the treatment of adults, was to be found the study of pure disease—disease in isolation. While in adults the clinical picture is confused by social habits and the wearing out of the machine, one wonders all the same whether in children it is not equally obscured by the deceits and irrelevancies of parents, who have to be studied themselves as an important feature of the case history.

BOOKS FOR PRISONERS OF WAR

As previously announced in the *Supplement* (March 20, p. 36), the B.M.A. has sent parcels of medical books to certain prison camps where numbers of its members are known to be. It has also invited individual members who are prisoners of war to send particulars of medical books they need for private study or in connexion with their camp or hospital duties. The Association had intended to ask its members at home to contribute to a fund for supplying the books required, but in order to avoid setting up a separate war charity it has now been decided that the Medical War Relief Fund will administer money subscribed for the special purpose of providing medical books for British doctors who are prisoners of war, whether or not they are members of the B.M.A. Medical men who wish to assist this work are therefore asked to send contributions to the Honorary Treasurer of the Medical War Relief Fund at B.M.A. House, W.C.1, indicating that they wish their contributions to be devoted to the provision of books for prisoners. Only subscriptions so marked will be used for this purpose, and any unexpended balance will go to the general purposes of the Fund. It is hoped that doctors at home will respond generously to this appeal and so enable the Fund to give adequate assistance to their prisoner colleagues, particularly those who are handicapped by lack of suitable reference books in their work of treating the sick and wounded in the camps and hospitals.

SIXTH ADDENDUM TO THE "BRITISH PHARMACOPOEIA"

The General Medical Council will publish shortly a Sixth Addendum to the *British Pharmacopoeia*, 1932, in which new monographs and modifications of existing monographs will be included. Under normal conditions, when a new *Pharmacopoeia* or an Addendum to a *Pharmacopoeia* has been ready for publication, it has been customary to give facilities for advance copies to be inspected, during the three months immediately preceding publication, by medical practitioners, pharmacists, analysts, manufacturers, and others who may be interested. The Sixth Addendum to the *British Pharmacopoeia*, 1932, like the Second, Third, Fourth, and Fifth Addenda, has been prepared to deal with conditions arising from the present emergency, and it is expedient that it should be published, and thus made official, without delay.

The following new monographs will be included:

Acetomenaphthonum
Acidum Ricinoleicum
Alcoholia Lanae
Chloroxylenol
Dithranol
Injectio Procainae et Adrenalinae Mitis
Kaolinum Leve
Kaolinum Ponderosum
Liquor Chloroxylenolis
Menaphthonum
Nicotinamidum
Riboflavina
Stilboestrol
Terpineol
Unguentum Alcoholium Lanae
Unguentum Dithranolis
Unguentum Zinci Oxidi Anhydrosum

The Addendum will contain, in addition, amendments to the *British Pharmacopoeia*, 1932, which have been made official by notices in the London, Edinburgh, Belfast, and Dublin *Gazettes*:

Syrupus Ferri Phosphatis cum Strychnina
Syrupus Ferri Phosphatis cum Quinina et Strychnina
Extractum Cascarae Sagradae Siccum
Ferri Sulphas Exsiccatus
Paraffinum Molle Album

and emendations to the following monographs, which will become official on the date of publication of the Sixth Addendum:

Acetum Scillae
Acidum Mandelicum
Atropinae Sulphas
Colchici Cormus
Ergota
Ergota Praeparata
Ferri Carbonas Saccharatus
Insulinum
Ipecacuanha
Ipecacuanha Pulverata
Magnesii Trisilicas
Mepacrinae Hydrochloridum
Mepacrinae Methanesulphonas
Pamaquinum
Sulphanilamidum
Unguentum Acidi Borici
Unguentum Acidi Salicylici
Unguentum Acidi Tannici
Unguentum Aquosum
Unguentum Hamamelidis
Unguentum Hydrargyri
Unguentum Hydrargyri Ammoniati
Unguentum Hydrargyri Oleati
Unguentum Hydrargyri Subchloridi
Unguentum Sulphuris
Unguentum Zinci Oleatis
Unguentum Zinci Oxidi

The Addendum will contain also new or revised appendices relevant to the monographs named above and an index. It must be understood that no additional monograph, or emendation of a monograph, is official until the Sixth Addendum has been published.

Reports of Societies

VASOMOTOR DISORDERS IN WARTIME

At a meeting of the Section of Neurology of the Royal Society of Medicine on May 20, Dr. R. M. STEWART presiding, a discussion was held on vasomotor disorders and immersion injuries as experienced in warfare.

Classification

Prof. J. R. LEARMONTH said that vasomotor disturbances encountered during total war assumed special importance in the surgery of the extremities; at the worst their occurrence might prejudice the survival of a whole limb, and at the least might lead to loss of digits or to loss of function. He suggested the following classification as a basis for discussion:

I. Vasomotor disorders resulting from injury. A. Arterial spasm: (1) local, after subcutaneous injury, (2) of collateral vessels (*a*) after arterial contusions with thrombosis, (*b*) after division of an artery; B. Traumatic arteritis; C. Traumatic venous thrombosis; D. After division of peripheral nerves.

II. Vasomotor disorders occurring in organic vascular disease. A. Syphilitic endarteritis; B. Arteriosclerosis; C. Thrombo-angiitis obliterans (1) of rapid development, (2) of slow development, (3) of stabilized type; D. Paradoxical spasm.

III. Vasomotor disorders from local effects of cold. A. Symmetrical syphilitic digital gangrene; B. Vasomotor symptoms and signs started or accentuated by (1) change of occupation, (2) change of climate, (3) high altitudes; C. Immersion foot; D. Frostbite.

He proceeded to give some brief descriptions of cases in which vasomotor symptoms and signs started or were accentuated by change of occupation or of climate or by high altitude.

An airman aged 19 went up without gloves. At 12,000 ft. he began to suffer a "fierce ache" in hands and wrists. A few hours after landing he was quite better. After this episode he had similar attacks when above 12,000 ft., although always suitably clothed. In the third of these, and in subsequent attacks, the medial three fingers of both hands became blanched up to the proximal interphalangeal joints. Four years later, although he had been employed on ground duty only, he was still having similar attacks, which were worst in cold weather, particularly in early morning. The vasomotor responses in the digits showed digital arterioles to be in a state of spasm. Full reflex vasodilatation was not reached until the feet and legs had been heated at 45° C. for 50 minutes (normal 15 to 30 minutes), although the ultimate skin temperatures (32° to 35° C.) were high enough to exclude any notable organic narrowing of the vessels.

A patient aged 25, by occupation a cinema operator and accustomed to work in a hot environment, went to Army duty in the north of Scotland. In summer, while working on the metal of a high pylon, he had his first attack, in which all the fingers of both hands became first dead white and cold, then blue, then fiery red. During the following winter these attacks became more frequent and interfered with his military duties. On clinical examination no evidence of cardiovascular disease was found, the fingers reaching full vasodilatation level in the normal time.

On the subject of "immersion foot" Prof. Learmonth emphasized the scrupulous avoidance of a too rapid return of blood flow to the chilled parts, whether induced by local heating (e.g., during first aid) or by interruption of sympathetic vasoconstrictor fibres. He had found it useful to nurse these patients on the face, with feet and legs uncovered and elevated, by an open window in default of a fan. The surgeon's attitude must be almost rigidly conservative, and this might require much patience. Formal high amputations should be reserved for the rare cases in which gangrene had been extensive or which were aggravated by sepsis. Some form of arch support should be provided in cases of paralysis of the small muscles of the feet; this should be worn during graduated walking exercise until these muscles recovered power.

Experimental Findings in Immersion Foot

Dr. W. BLACKWOOD gave an account of some histological and experimental findings in immersion foot. The human material consisted of one foot from a man who died half an hour before rescue and of tissues from feet and legs removed from survivors from 2 to 26 months after rescue. In the majority of the later cases peripheral sepsis was present. The histological appearances suggested that at the time of immersion damage was done to all the structures in the limb of a degree and to a level dependent upon the length and severity of the exposure. In particular, damage was done to nerves and muscle, with some damage to veins. Changes in skin and bone awaited further study. The nerves had the greater proportion of their axis cylinders and myelin sheaths killed. Muscles were probably damaged directly. Haemorrhage from and thrombosis of veins and venules might arise. All these changes were curiously patchy, but increased peripherally. After rescue the nerves began to regenerate. Axis cylinders grew down slowly and myelinization took place very slowly. Organization and recanalization of thrombus occurred in the veins. Muscle might await re-innervation or be replaced by fibrous tissue.

The experimental work carried out in conjunction with Dr. Russell consisted of exposing the tails of rats to cold artificial sea water for varying lengths of time and studying the changes after rescue. Patchy damage was found to be produced in nerve and muscle. In rats recovering up to two months the nerves showed persisting partial Wallerian degeneration. The muscles showed acute patchy changes similar to Zenker's necrosis, followed by inflammatory and regenerative processes and later by atrophy due to denervation. The implication was that early changes in the human might well be similar to those seen in the rats, but early human histological material had not so far been available.

Immersion Injuries due to Cold

Surg. Cmdr. C. C. UNGLEY confined his remarks to immersion injuries due to cold. True immersion foot and immersion hand, or peripheral vasoneuropathy after chilling, followed prolonged exposure to degrees of cold insufficient to cause frostbite. There was damage to peripheral nerves, vessels, muscles, and skin. During exposure the extremities swelled and there was loss of feeling. Peripheral arteries might be pulseless for some hours after rescue, and remain so in cases going on to gangrene. This short pre-hyperaemic stage was followed by a stage of hyperaemia in which the affected parts became hot, red, painful, and more swollen, the more severe cases showing blisters and gangrene. The result of damage to nerves was evident in sensory loss, and motor, vasomotor, and submotor paralysis. In the post-hyperaemic stage inflammation subsided and vascular tone recovered, skin temperature fell, and vessels might become hypersensitive to cold. Complete recovery, which in severe cases must await complete regeneration of peripheral nerves, was often preceded by signs suggesting partial re-innervation of end-organs and effector organs. Late sequels included recurrence of pain, tingling, swelling or blisters, persistence of the cold sensitive state or of hyperhidrosis, and occasionally circulatory effects suggestive of vascular occlusion.

In describing some studies in vasomotor disorders, he said that the instability of the hyperaemia in the later weeks of the hyperaemic stage was specially noteworthy. Once the feet had become cold—as, for example, by immersion in cold water or by walking on cold stone floors—they remained cold for hours in spite of all attempts to induce reflex vasodilatation. On the other hand, if they were hot to begin with, it was impossible to induce vasoconstriction reflexly. One of the characteristics of post-ganglionic sympathectomy was that the denervated vessels became sensitized to minute amounts of adrenaline such as circulated in response to insulin hypoglycaemia. Similar sensitization was seen in the hyperaemic stage of immersion foot. As the hyperaemia was passing off, often about 6 to 14 weeks after rescue, there might develop a cold sensitive state manifested either by Raynaud's phenomenon or by coldness of the feet, which took hours to warm after return to a warm environment.

Dr. J. B. GAYLOR described a case of persistently cold limbs following shipwreck two years ago, together with lack of sensation in the foot, almost to the ankle. It was possible that the low temperature of the limbs had inhibited nerve regeneration, or that owing to impairment of blood supply there was not sufficient oxygen to encourage regeneration, even though there might be sufficient to prevent loss of tissue.

Dr. RAYMOND GREENE discussed the justifiability of interference with the nerve supply in such a condition as frost-bite or immersion foot, and whether, if interference was justifiable, it should be immediate or carried out at a later time. He gave reasons for supposing the effect of any immediate interference to be either negligible or harmful, the condition of a limb after immersion or exposure being equivalent itself to that of a limb subjected to a natural post-ganglionic sympathectomy.

Sir THOMAS LEWIS said that the observations brought forward to the Section were the first reasonable ones on immersion foot, largely because such observations could be made only in time of war. It was obvious that cold had a damaging effect on tissue. In a general way that had long been known; it was merely a question of degree of cold and the duration of exposure. He took it that a person would eventually die from exposure to cold provided the cold was sufficiently extreme and the period sufficiently long. It was not strange, therefore, that changes were found when limbs were immersed for periods of hours, or perhaps days, and that those changes should affect all the tissues—skin, muscle, nerve. It seemed clear that the vasomotor system was not exceptional in this respect, and that at a relatively early stage of recovery there were vasodilatation in response to heat and vasoconstriction in response to cold. As to whether sympathectomy should be employed, it seemed to him that sympathectomy, if it was to be attempted at all, should be carried out during the later allergic stage, which seemed to produce in some way a spasmodic condition of many of the vessels in the limbs. For some of the recorded phenomena there was as yet no physiological explanation. But facts must come first, and the physiological explanation must be sought later.

At the annual meeting of the Medical Society of London Prof. G. Grey Turner was elected president.

HYPERTENSION AND RENAL DISEASE

At a meeting of the Section of Urology of the Royal Society of Medicine on May 27, Mr. H. L. Attwater presiding, a discussion took place on the relation of hypertension to renal disease.

Mr. Kenneth Heritage said that arterial hypertension, the cause of 23% of deaths in persons over 50, was outstripping cancer as a principal cause of death. Surgical interest in hypertension, excluding associated endocrine diseases, applied in three groups of cases: (1) hypertension associated with bilateral renal disease, chiefly bilateral urinary obstruction, with or without infection; (2) hypertension associated with unilateral renal disease; (3) essential or malignant hypertension in which evidence of a primary renal lesion was absent or doubtful. Hypertension was found associated with chronic urinary obstruction due to prostatic enlargement, urethral stricture, bilateral ureteric calculi, ureteric obstruction due to inflammatory or neoplastic infiltration, and a variety of other lesions. In many, particularly older, patients this might be a chance association, but a fall in blood pressure followed by a permanently lowered level was observed often enough to be a commonplace. Although these patients were frequently of advanced age and had long-standing urinary back-pressure, the hypertension was of a particularly benign type and responded well to drainage.

Clinicians had been on the look-out for cases of hypertension with evidence of unilateral disease, in the hope of affording relief by nephrectomy. Although a dramatic fall in blood pressure often followed nephrectomy, in most cases a subsequent steady upward creep of the pressure was noted until sometimes the original reading was reached again. The unilateral lesions most often associated with hypertension were trophic pyelonephritis, hydro- and pyo-nephrosis, and vascular lesions of the kidney; but he emphasized that it was exceptional to find a gross surgical lesion associated with hypertension, and it was always possible for the association to be an accidental one. The great majority of the cases were in the third of his groups, the "unknown" or essential group, and there was no evidence that the kidney was primarily responsible for this condition.

An Unknown Factor

Dr. R. W. Scarff said that the curious feature of the hypertension resulting from kidney damage was the inconstancy of its occurrence. Various explanations for the apparently fortuitous happening had been put forward—anoxaemia, excretory failure, or the formation of substances which directly or indirectly neutralized the action of the pressor substance. There was no parallelism between the event of hypertension and the amount of renal disability. He concluded from a survey of recent work that both humoral and nervous mechanisms might play a part in the production of hypertension, but that knowledge of these alone was insufficient to explain the inconstancy of the occurrence and the variations in the behaviour of this condition. A vital link in the chain had still to be sought.

Dr. Horace Evans said that there was no adequate treatment, either medical or surgical, for essential or primary hypertension. Two main groups of patients with hypertension were now recognized. In one group the hypertension was secondary to some obvious pathological state such as chronic nephritis, and in the other it appeared as the primary feature without obvious renal or other disease. Benign hypertension was a disease of later life (50–60), and ran a course of many years, often symptom-free until some cardiac or cerebral catastrophe occurred. Malignant hypertension appeared to be a separate clinical entity. It was relatively rare and found in a younger age group (40–50), with severe symptoms such as headache, dyspnoea, and visual disturbances at the onset, and in the later stages renal failure was common, with death within 12 to 18 months of onset. Papilloedema was the early physical sign which immediately distinguished this condition from benign hypertension. A careful search for unilateral kidney disease should always be made, especially in young patients. The results of nephrectomy in such patients might be miraculous, though the outcome must depend upon the presence or absence of secondary vascular changes in the sound kidney. Apart from this small group, the main group was essential or primary hypertension. Here it was of the first importance to make an accurate diagnosis of the several disorders which had so much in common in their later stages. He referred to the "hotch-potch" of conditions which masqueraded under the designation of chronic interstitial nephritis, including late stages of Bright's disease, malignant hypertension, chronic pyelonephritis, and late-stage pregnancy kidney. Particularly important was the separation of benign and malignant hypertension. A period of careful observation of symptoms, blood-pressure readings, optic fundi, and renal function was essential. Until an effective therapy was introduced it was probably true to say that the majority of patients with hypertension were better without treatment unless the state of the heart demanded it.

Errors in Search for "Surgical Kidney"

Mr. Dickson Wright spoke in particular of some errors which had followed upon the enthusiastic search for the surgical kidney in hypertensive subjects. These on occasion might be serious, even endangering the life of the patient. (1) Pyelography had been over-interpreted and minor variations and kinks had been given an exaggerated importance. (2) Kidneys might be extirpated on the basis of minor pathology to cure hypertension, with no result, so that the patient lost a good kidney and was left to fight a largely renal disease with only one kidney—a sad state of affairs. Nephrectomy was not indicated unless the kidney concerned had practically no function left or nephrectomy was indicated *per se*; in each case the operation of splanchnic and lumbar sympathectomy and possibly adrenalectomy should be done there and then, because if the patient fell among the 70% who were unaffected by nephrectomy one had at any rate done something else for his hypertension, and he required only one operation more to complete the treatment on the other side. (3) The kidney exposed at the first splanchnic resection might be found to be grossly diseased, and although pyelography might be normal the surgeon might be tempted to remove it there and then, to refrain from splanchnic resection on account of the gross renal pathology, or to go back and remove the diseased kidney later if sympathetic surgery failed. Mr. Wright described cases illustrating these points. One of them illustrating the first and third of these alternatives was the following:

A woman aged 26 had severe eclampsia with her third child and was left with malignant hypertension. Course downhill in spite of all treatment. At her first sympathectomy kidney found to be markedly granular, with a raspberry-like surface. Agreed with physician that first kidney would come out later if bilateral sympathectomy a failure. At second sympathectomy the other kidney looked normal, but a biopsy was done, and the section was indistinguishable from that of the grossly diseased kidney; both showed gross renal pathology. If biopsy had not been done a serious error might have been made.

The importance of the surgical kidney should be written down rather than up. A biopsy of the renal parenchyma in hypertension should always be made. The sympathetic nerves in a renal operation should always be cut if hypertension was present.

In a Chadwick lecture on "Plants causing Irritation," with Sir William J. Collins, M.D., in the chair, Mr. F. J. Chittenden said that a considerable number of plants met with wild, or cultivated in gardens in England, were apt to irritate the skin or the nose and eyes of those handling them. Some, like *Primula obconica*, were well known to be suspect, but many were unsuspected, and sometimes the result of contact with them was not only irritation but general discomfort and, for the time being, incapacity for work. These symptoms had not infrequently been attributed to other causes, with failure to obtain relief. The study of such afflictions was complicated by the well-ascertained fact that, while some persons were susceptible to irritation by one plant, others suffered far less from it or might escape altogether, though susceptible to irritation from some other plant. Most of these disorders, except for the various forms of hay-fever, only followed actual contact with the foliage or stems of the irritating plant, and some of the primary causes of irritation acted only through wounds in the skin. The wounds might be very minute, like those made by the hairs of the stinging nettle, or, in very thin skins, by the needle-like crystals abounding in the sap of the daffodil and many other bulbous plants. Knowledge of the range of plants capable of causing such troubles might give pointers in the search for the causes of some obscure skin affections, or of running at the eyes and nose, and a chance of avoiding them.

Correspondence

Psychotherapy in General Hospitals

SIR,—Dr. Dalton Sands's article and your editorial of May 22 have raised vital issues. Dr. Rees and Dr. Shepley express disapproval of the policy advocated, while Dr. Dillon warmly supports it. I venture to suggest that the issue, as raised by these correspondents, is a false one. Indeed it would seem as if we were witnessing the unedifying spectacle of competition within the profession for the privilege of treating a certain group of patients.

Putting aside such subsidiary questions as the feelings of relatives and the so-called "stigma" of the mental hospital, we have to deal with a single fact in reality—namely, the inevitable locked gate of the mental hospital and all that it rightly represents in the way of legal supervision and protection. The locked gate is for certain patients necessary, for others unnecessary; for some it is helpful, for others the reverse. The therapeutic resources on both sides of the locked gate should be equivalent. They are far from being so now, and in consequence we have the anomalous situation of patients being persuaded to pass the locked gate by the assurance that though they have no need of supervision or restraint yet only behind the locked gate can the necessary treatment be secured. Conversely, if, as some of us hope, therapeutic resources, such as electric convulsant therapy, become generally available at open hospitals, we shall have to face increasingly the pleas of patients, relatives, and often family physicians: "If the proper treatment is available at the general hospital, surely the patient needn't be condemned...."

It follows therefore that psychiatrists will be called on to make more definite diagnoses of what may be roughly defined as certifiability, and on that issue *alone* to decide the disposal of the patient, in the full knowledge that the decision will not limit or even modify therapeutic possibilities. And it may be hoped that, if such a state of affairs is achieved, the psychiatrists on both sides of the locked gate will co-operate with good will and an objective outlook on clinical realities.—I am, etc.,

London, W 1. H. CRICHTON-MILLER.

SIR,—Dr. T. P. Rees and Dr. W. H. Shepley in their letter (June 12, p. 735) make several statements which are open to criticism.

First I should like to point out that, having been a member of the medical staff of a mental hospital for many years, I am well aware of the extremely good work which goes on in such hospitals, and I should be the first to deprecate the fact that mental hospitals should be used solely as dumping grounds for the chronic, incurable patient. On the other hand, I maintain that there are many types of patient who are definitely unsuitable and unwilling to enter mental hospitals on a voluntary basis because of the impossibility of complete segregation. Many of those suffering from neuroses and early psychoses (socially well conducted) resent going into mental hospitals, as even though they are housed in separate villas or admission units in the mental hospital they of necessity meet the chronic patients on common ground—viz., at occupation, recreation, in the grounds, etc. Would Dr. Rees and Dr. Shepley prefer that these patients, therefore, because of their unwillingness to enter a mental hospital, remain untreated until they become certifiable, or their illness becomes so chronic that the chances of recovery are considerably diminished and in any case is probably prolonged by months?

Secondly, this hospital makes no claim for the originality of the methods of treatment employed. Dr. Rees and Dr. Shepley state that these methods were already proved in the modern mental hospital. This is rather a sweeping statement. Are they proved? I, personally, am not convinced that such methods of treatment as electro-convulsive therapy, insulin, etc., are not still in the experimental stage, and that many more years of research are necessary to *prove* these methods. Did they originate in Warlingham or other mental hospitals? So far as I know, they were first employed in American and Continental neuropsychiatric clinics and were then tried out in this country.

The fact that the number of admissions to Warlingham Park Hospital has increased from 125 in 1932 to 277 in 1942 is somewhat surprising, as throughout the country the number of admissions to mental hospitals has decreased appreciably during the war years. Why, then, does the Croydon area differ in this respect?

Regarding the financial aspect, I agree with Dr. Sands that many of these cases, if treated later because of their unwillingness to enter a mental hospital in the early stages of their illness, would have required prolonged hospitalization involving more economic distress to their dependants and a heavier financial burden to be borne by the hospital. The comparison of the maintenance rate at Sutton with that of a mental hospital established in peacetime and built as such is hardly fair. This hospital was an upgraded institution which had to be adapted for hospital purposes and is continually being adapted at the present time. In my opinion, after this war there will be a place in psychiatry for the neuropsychiatric clinic in the general hospital, psychiatric units for acute and short-term disturbed cases, and for the mental hospital. The last would still have a cross-section of all psychiatric cases and continue to carry on the good work which it is doing at the present time.—I am, etc.,

Emergency Hospital, Sutton. LOUIS MINSKI.

Selecting the Medical Student

SIR,—So it seems that the planners are now getting busy with the prospective medical student. No longer will boys or girls say that they are going to be doctors, but must wait until they have been before a board to see if these mandarins will allow them to be so. Suppose a candidate is rejected, is there to be any appeal? Will he be told why he is not suitable? Then suppose the rejected tries something else, is another board going to tell him he can't be that?

Let us get rid of these attacks on our freedom before it is too late, and we find we are a nation of spineless individuals with no say in our future or that of the children. It is an astonishing fact that such interference should be suggested, and is a sign of the times, when all initiative and liberty are being taken from the public. Personally I should not presume to tell anyone what his future career cannot be. With much more interference the press gang is more likely to be needed to gain entrants to the ranks of the medical profession.—I am, etc.,

Sheffield J. A. WOOD.

Planning of Medical Education

SIR,—Dr. C. F. V. Smout, in his letter (May 29, p. 676), offers destructive criticisms of a few of the suggestions put forward in my article on medical education (May 1, p. 547). These criticisms, apart from indicating an attitude of complacency and satisfaction on the part of Dr. Smout, are largely invalid, in that their author has indulged in the practice of lifting a statement from its context and ascribing to it a significance not intended in its proper setting: this applies in particular to his remarks on co-ordination of the anatomy of the body as a whole. I hoped that I had made it clear that the time saved by rendering unnecessary the repeated revision of minute details would be available for such correlation; at present the student is fully engaged in acquiring new minute details and attempting to revise ones already noted right up to the eve of his professional examination, and it is common experience that he has no time to take a broad view of the human body and acquire a thorough understanding of the important principles involved. Then Dr. Smout asks, "Who *is* placing a premium on feats of memory?" May I *truthfully* reply that both Dr. Smout and myself are sinners in this respect?

Dr. Smout accuses me of being out of date regarding the relationship between universities and the Ministry of Labour. I can assure him that no school is more strict than my own in its duty to the State in this connexion, and would inform him that his horizon must be limited if he is unaware of the large number of students in Great Britain who descended from degree to diploma in the immediate pre-war days; although war measures have temporarily diminished this number, this does not affect the ultimate issue.

Finally, with regard to Dr. Smout's complaint concerning the length of time required to interview prospective entrants, I would impress on him that the importance of this interview of a person on the threshold of his proposed life's career is becoming generally appreciated, and, while a proportion of the candidates may be eliminated by means of the entrance examination, coupled with a survey of their previous records (as envisaged in my communication), even if the time devoted to interviewing the remainder approaches that calculated by Dr. Smout, it would be time which, in the view of many, would be extremely well spent. In effect, I hope Dr. Smout will turn his mind towards constructive effort, as I am sure he must be aware of the widespread dissatisfaction felt concerning the present state of affairs.—I am, etc.,

University of Sheffield. F. DAVIES.

Future of Medical Services

SIR,—Our medical Peers and Dr. Charles Hill by their statesmanlike and practical speeches, reported in the *Journal* of June 12, have so qualified the discussion on medical services that we must all feel grateful to them. We seem to have been delivered from a state of hopeless confusion that had little apparent prospect of decision; there has been of late a tendency to widen again the closing gap between preventive and curative medicine, but these speeches should help to stop such a disastrous move.

What private practitioners, consultant or general, are anxious to know is: What form will local authority take, and in what way, if at all, will it interfere with their professional lives? It appears that these influential speakers envisage a local authority, not our present-day county or municipal council, but an *ad hoc* health authority which may well be so constituted as to be democratic and acceptable to the medical profession. It has often been stated that there is no urgent need to set going any new scheme, and the Dawson Consultative Council more than twenty years ago was of opinion that the only satisfactory way of finding out what was wanted and what could be done was to set up an experimental health centre.—I am, etc.,

Westbury, Wilts CHAS. E. S. FLEMMING.

Doctors and the Future

SIR,—Mr. A. B. Rooke and his co-signatories (May 22, p. 649) asked the very question to which I have tried, without success, for some time to obtain an answer. I beg your indulgence and valuable space, since no one has yet answered this group their vital and very pertinent question, to ask this question again: Since the Government considers a drastic reorganization of the medical profession and extensive changes in the conditions of medical practice urgently necessary, can we not be told what it is considered that is wrong now?

It might seem to many of us that this explanation is a prime necessity, owed to us at the outset, and one that should have been made clear at the beginning before the discussion of schemes started. It is not doubted that there is room for great improvement, nor can it be questioned that great improvements have steadily evolved since the last war, but there will still be room for further and continuous improvement even after any new Government scheme for a comprehensive medical service has been brought in.

A second question arising out of the above is: Who is really behind this desire for drastic change? Is it purely political? I know of no such agitation or demand on the part of the general public.

Lastly, since the present National Health Insurance scheme is, at the moment, the chief form of State medical service or scheme, why is not this scheme to be modified, and, building on the existing foundations, made a really first-class, comprehensive, and complete medical service for the bulk of the populace? In the present panel scheme we have at least the nucleus of what could be made a comprehensive medical service for the great majority. Is the N.H.I. scheme to be "washed out"? As Lords Dawson and Horder have so wisely urged, we should build upon existing foundations, and gradually improve and evolve. It is not a happy augury for the Government's future scheme that their existing one (N.H.I.) should be a byword in many respects; for it is still rather regarded as an insult than an honour to be termed "panel"! Millions of our people are ashamed of belonging to it.—I am, etc.,

Hassocks. CHARLES A. H. FRANKLYN, M.D.

Proposals and Discussions

SIR,—The Secretary of the B.M.A. and the Chairman of Council have ruled that to question whether the country or the profession wants the Beveridge plan is to challenge the British Constitution, since Parliament—*vox populi*—has tentatively accepted the proposals. This is a specious argument bearing no analysis. It is all a question of what is reasonable. Parliament has no more right to coerce the medical profession against its will than it would have to order Anglican clergy to practise Roman Catholicism. Trade unionism is a direct consequence of the recognition of the right of the worker to a hearing.

At the joint meeting held on March 31 last the Chairman of Council said: "The Council regarded the Beveridge report as of such importance as to call for reports on its proposals from certain of the standing committees." Would it be impertinent to suggest that the proposals are of such importance as to justify an inquiry of the whole profession? Such an inquiry is expected as of right of membership of the B.M.A. There is, in more senses than one, no doubt of the way in which the Ministerial mind is working. The present position is that whatever Bill is presented to Parliament will possibly meet with the approval of half a dozen members of the discussions committee. But there is no more guarantee that the Bill would be modified in deference to popular medical opinion than that the original proposals for a State Medical Service will not be introduced.

On Feb. 13 last it was announced that special meetings were to be held on March 31. The motion to be debated, as framed, afforded a very poor occasion for full discussion, but it gave some the opportunity to contradict Sir William Beveridge. However (perhaps by skilful tactics), the Minister precipitated Council into entering into "discussions," thus effectively depriving the rank and file of the profession of their only chance of an expression of opinion. The Beveridge report is a major political issue, and, while it is clear that the Minister intends to introduce legislation at the earliest moment practicable, it is equally clear that he will not risk a Governmental defeat. Thus his primary concern is the possible reaction of about 400 Members of Parliament, while the reactions of about 40,000 practitioners are as much "in the discard" as the preliminary discussions. Had this not been so the Minister would have continued to attend all the discussions in person.

The demand for a Royal Commission had a salutary effect, for the committee was able to negotiate the postponement of the White Paper. This was reported in the *Daily Telegraph* as a "concession to doctors." It was nothing of the sort. The question of a State Medical Service had not arisen. The withdrawal of the request for a Royal Commission was, however, a concession to the Minister in consideration for his undertaking to honour his promises. Meanwhile we must wait impatiently to learn the basis of the continuing discussions. I will hazard the guess that the basis is the Draft Interim Report of the Medical Planning Commission, about which the Chairman of Council said at the last Annual Representative Meeting "there need be no fear that anything would be done without full consultation."

Much has been said of unity in the profession. Unity cannot be achieved without acknowledgment of other points of view. Unity is the basis of stolid government the very foundation of which is based upon the existence of an official opposition. This is the sort of thing the British Constitution provides for. It should not be beyond the ability of Council to devise some similar machinery. Applied to Representative Meetings, the effect would be stimulating to thought and conduct. Unity is achieved by sinking differences after they have been acknowledged to exist. Council must by now be strangely lacking in this respect. Had the profession been consulted earnestly and promptly the Minister would never have dared to trifle with us. Had propaganda been wisely directed, the doctors would not yet be judged as seeking concessions. At this eleventh hour the effort to achieve unity would still be small, but the purpose remains very high. As matters stand the Minister will make proposals calculated to meet with the approval of Parliament. That will be that.—I am, etc.,

Watton-at-Stone MAURICE E. WIGFIELD.

"In the Discard"

SIR,—I would like to draw attention to the most timely warning you give in the last sentence of your excellent leading article under this heading (May 29, p. 670) and also to endorse your advice to read the report of Dr. Charles Hill's speech (*Supplement*, May 22).

The Beveridge Assumptions C and A and the housing question will most certainly exercise the minds of those who have to find a living to a much greater extent than will problems of health or education. Unemployment and bad housing will never allow of "positive health"; to offer the electorate a nationalized medical service instead of work and proper shelter would be grossly unjust and intolerable. It is unnecessary to repeat here all the reasons against a whole-time salaried service; but as a vote of almost 90% was cast against such a service at the A.R.M. in 1942 it behoves those of us who are of this mind to continue to support, actively, those of our officials and leaders who have shown that they appreciate that this is not the best way in which we can render our services to the community.

However well it may work in some special services, the State official (or local government authority official) can be no substitute for the "family doctor." Of this the patients are well aware from past experience. Our new "publicity" must warn the people that, in spite of the promises of politicians, the imposition of such substitution has been the basis of Ministerial proposals; whereas B.M.A. proposals are based on the best interests of the individual patient.—I am, etc.,

Chester. DAVID R. OWEN.

Radiologists and the Future

SIR,—There are some points in Dr. Norman Henderson's letter (June 5, p. 710) that call for comment. The replies to Dr. Henderson's questionary indicate that 57% of the radiologists prefer to continue their private practice in their own rooms, while the replies to the questionary issued by the Faculty of Radiologists show a majority of 2 to 1 in favour of conducting their diagnostic *x*-ray private practice in their hospital or hospitals. This disparity is possibly explained by a difference in the type of practitioner consulted. The membership of the Faculty is restricted to those exclusively engaged in radiology in one or more of its branches, and the Faculty's questionary was submitted to its members only. Dr. Henderson's questionary was submitted to a wider field, including medical men engaged in general practice as well as radiology. In reply to the Faculty's questionary an overwhelming majority of radiotherapists expressed their agreement with concentration of all radiotherapy, private and hospital, into large units. Regional organization as outlined in the Memorandum on Planning of Radiotherapy for Great Britain issued by the Faculty is in keeping with that opinion and with present-day needs.

The Faculty is one of the appointing bodies to the Medical Planning Commission organized by the B.M.A., and subscribed to the general principles embodied in the Interim Report of that Commission, in which respect it is in agreement with the great body of medical opinion in this country. The Faculty, in its Memoranda on Radiodiagnostic and Radiotherapy Services for Great Britain, certainly supports the principles of regional organization of those services, but there is nothing in either memorandum to warrant Dr. Henderson's suggestion that it favours the idea of a whole-time salaried State Medical Service.

The mainspring of Dr. Henderson's recent activities seems to be an apprehension that the interests of radiologists are not being watched in these times of impending change, but as he is not a member of the Faculty he is perhaps not fully informed of how much the Faculty has been doing in this respect. Its members have been consulted by questionary on the broad principles involved; its Council has been in arduous session throughout the past three years, has submitted the two Memoranda above mentioned, and has, at the request of the Goodenough Committee on Medical Schools, produced two further reports on radiological education. The Faculty is in close co-operation with those bodies charged with negotiation with the Minister on the medical service of the future; and at the invitation of the Joint Committee of the three Royal Colleges has appointed a committee, which is now in session, to advise on radiological matters.—I am, etc.,

S. COCHRANE SHANKS.
London, W.1. President, Faculty of Radiologists

Haemolysis in Blackwater Fever

SIR,—I have just received your issue of March 6 and read the paper on haemolysis in blackwater fever by Felix Smith and R. Winston Evans (p. 279) with very great interest. In these days of disruption it is obviously not easy to get at files of the smaller journals, and so I attach no blame whatsoever to the authors for believing that their alkaline treatment is a "new rationale for the treatment of intravascular haemolysis." I enclose a reprint of my paper on "The Biochemical Aspect of Blackwater Fever" from the *West African Medical Journal* of as long ago as July, 1932. This reprint gives the alkali treatment in great detail, and I still insist on the importance of glucose in the matter. Up to 1934 I knew of thirty-four cases treated as I advocate and there was one death. Since then I have treated four cases in Jamaica with no deaths.

In the same mail *Nature* of Feb. 27 contains a letter from Maegraith, Findlay, and Martin, who are in West Africa, in which the authors announce their discovery of a red cell lytic enzyme in organs which include the liver and spleen, and an enzyme which occurs in serum and tissues. Such a discovery follows the rule of enzyme action, and the sites of production are exactly those that would be postulated by the reasoning in my paper of 1932.—I am, etc.,

Kingston, Jamaica W. E. McCULLOCH.

Tuberculosis and Exposure to Infection

SIR,—Your correspondent Dr. Basil Sampson (June 5, p. 708) happens to have forgotten the factor of personal resistance in his remarks on bovine tuberculosis in South Africa, which illustrate the common tendency to assume that everyone exposed to tuberculous infection will sooner or later become tuberculous. Although it may be good policy to regard everyone so exposed as potentially tuberculous, it is common knowledge that only a small fraction of such persons develop tuberculosis. Whether they do so or not depends partly on inheritance, but largely on habits and conditions of life; and where there is evidence of exposure to such infection, these constitute the first thing to investigate and if necessary to set right.

In spite of the great advances made in diagnostic technique, there is still need for a good laboratory test to distinguish between those who are beginning to develop tuberculosis and those who are in no such danger.—I am, etc.,

Farnham, Surrey F. R. WALTERS.

Advice on Sterility

SIR,—It is difficult to understand why Dr. R. H. P. Hick is so annoyed with Lord Horder. On his own admission he sends his sterile patients to a gynaecologist, who investigates the couple more or less completely and sends them back to Dr. Hick with reports and advice as to treatment. This is precisely what the medical officer at a clinic does if the patient is sent there by a general practitioner. But what of all the unhappy couples who are not so blessed as Dr. Hick's patients and whose medical advisers shrug their shoulders and say, "Go home and keep on trying," or, to the wife, "You could have a D and C done"? With regard to this business of numbers—though numbers are necessarily used at clinics, as in hospitals, for purposes of filing and records—it may ease Dr. Hick's mind to know that the patients themselves are invariably addressed by their proper name and title. Are clinic doctors necessarily more inhuman and unsympathetic than gynaecologists, and is the sweeping statement that "a State Medical Service is unwanted by doctors and patients" true? It is nice to know of the faith that Dr. Hick's patients, no doubt justly, repose in him, and of how successfully he and his gynaecologist collaborate to fight sterility, but it may be pointed out that if a couple is by them ranked as sterile "after even a few months" this may account for a proportion of their successes. Incidentally, how is our knowledge about this exceedingly complex problem to grow unless there is some co-ordination of methods and accurate recording of observations over a period of many years?—I am, etc.,

Crediton, Devon. MARGARET C. N. JACKSON.

Oedema of Extremities at Sea

SIR,—In the matter of Dr. H. E. Thorn's letter (June 5, p. 708) on oedema of the feet and ankles in fit men during a voyage, may I offer the conjectural fruit of my experience? I was on a liner for four years which crossed the Tropics every month, and this oedema was a regularly recurrent trouble in hot weather. So far as the crew were concerned—and they were supposed to be fit men—it often affected the same members voyage after voyage; it was confined to the victualling department—i.e., stewards, cooks, etc.—the deck and engine-room departments did not suffer. Rubber soles were an obvious factor in every case; habitual "scurriers"—e.g., bedroom and saloon stewards—were the worst victims; leather soles or cold weather relieved the condition. All the passenger accommodation on this ship—cabins, alley-ways, and public rooms—was decked with some rubber compound, and from these and other facts I came to the conclusion that the main cause was the insulation which this and the rubber soles made complete, and that an accessory one was the friction on the sole and dorsum of the foot which the abrupt rubber to rubber contact on walking created. So far as troops on transports are concerned bare feet for at any rate part of the day are the best preventive and cure.—I am, etc.,

Beckley, Sussex. C. G. LEAROYD.

Nasal Intubation

SIR,—I have never been able to understand the objection by the rhinologists to this method. Is it because it was developed by the anaesthetist and not by the rhinologist? The article by Mr. A. R. Dingley (June 5, p. 693) is interesting, but it gives no more than the usual precautions which every anaesthetist takes when he employs this very useful procedure. Mr. Dingley admits very few complications, and at the same time suggests "lack of anatomical knowledge of the nasal cavity," faulty technique, etc. If an anaesthetist does not possess the anatomical knowledge—which I very much doubt—or is guilty of faulty technique, it is no reason why the method should be condemned. I think there is very little danger of doing harm if reasonable care is used—and it should be used in all procedures. I have seen much more damage done by the inexperienced during the oral approach than I have by the nasal one. I have seen one or two sanguinary encounters when an inexperienced anaesthetist has spent his time removing divots from the pharyngeal wall. Nasal intubation by a Magill tube is, to my mind, quite safe with reasonable care, and I have seen a life saved by the method when a lung abscess ruptured into a bronchus. The anaesthetist had not time to assemble the laryngoscope, but intubated blindly and suctioned. The patient made an uninterrupted recovery.

Mr. Dingley cites two cases which are of special interest: the first where the enthusiastic anaesthetist produced two pints of blood from the nose, and a second where a case of adenoids was nasally intubated. These two cases were obviously instances of wrong technique, but they did nothing to condemn the method. I think the method is ideal for oral surgery and especially for difficult dentistry.—I am, etc.,

J. B. H. HOLROYD,
Anaesthetist, Sheffield Royal Infirmary.

SIR,—Mr. A. R. Dingley in his article on nasal intubation (June 5, p. 693) says: "It is clearly unwise to pass a tube through a nasal passage the interior of which is a closed book to the introducer." I would point out that the experienced anaesthetist, when passing a nasal tube, gently explores the nasal airway, and can diagnose by means of his tube the nature and position of any obstruction that he may meet without inflicting injury on the mucous membrane, in the same way that a surgeon may diagnose the type and position of an obstruction in the urethra by means of a sound or catheter. This renders unnecessary the previous visual examination of the nasal airway, which Mr. Dingley advises should be done after cocainization and with a head lamp.

Mr. Dingley gives no figures, but hints that virulent sinus infection is not very uncommon after nasal intubation for tonsillectomy. In my experience it is not common or virulent, one mild sinus infection having occurred in 500 cases (all soldiers) which were nasally intubated for tonsillectomy. Hewer in *Recent Advances in Anaesthesia* quotes 500 consecutive cases of nasal intubation for tonsillectomy without a complication sufficient to prolong the patient's stay in hospital.—I am, etc.,

Colchester. DOUGLAS CLENDON.

Social Insurance and Medical Practice and Research

SIR,—Dr. E. M. Fraenkel, in his most interesting and suggestive letter (May 8, p. 583), points to the important part which university clinics on the Continent have played in scientific research. May I add that the part which sickness insurance on the Continent has played in this matter is just as notable. While, under the British system of health insurance, approved societies and insurance committees were hardly in a position to show much interest in the progress of scientific research and its socialization, the municipal and other sickness funds on the Continent have regarded this part of their duties as the most essential one.

Let me quote for this a description which Dr. G. F. McCleary, formerly a deputy senior medical officer of the Ministry of Health, has given in his book on *National Health Insurance*, 1932, page 53: "The General Local Sickness Society in Hamburg, for instance, has four institutes for artificial sunlight therapy, where about 7,000 persons are treated annually, and a large orthopaedic institute to which is attached a workshop for making appliances. Diagnostic facilities are provided on a large scale. The Institute of the Association of the Berlin Krankenkassen (sickness funds) contains chemical, pathological, bacteriological, and serological departments, and makes 5,000 to 6,000 examinations monthly. The miners' benefit societies have founded a number of hospitals, many of which are models of their kind, for the special needs of the population." No wonder, then, that, as McCleary observes, "the extensive range of the medical services provided by the German scheme brings the insurance societies into close relation with the great body of the medical profession in Germany."

To all those who, in common with the views often expressed by the International Labour Office in publications on social insurance, emphasize the organic, and indeed dynamic, link between medical science and sickness insurance administration, it must come as a shock that the Beveridge report aims at widening the gap already existing in this country between social insurance and medical practice and research. Social insurance funds will be entirely "separated" from medical service and research, to which they will only contribute just as a tax-payer contributes to the needs of the country. The ambition of local sickness funds to set up—in their own interests as well as in the interests of a higher human aim—the best possible service and to attract to it the best men of practice and research will be eclipsed in favour of a State scheme, of which we cannot say when it will come, what its comprehensiveness will be, and how far it will leave open the door for individual exertion so necessary in that great science—medicine.—I am, etc.,

Richmond. HERMANN LEVY.

V.D. in the Merchant Navy

SIR,—I welcome Dr. J. C. H. Browne's exposure (May 22, p. 645), after a first-hand experience of it as ship surgeon, of the discreditable state of affairs that may still obtain at some ports and times to impede the proper medical care of the merchant seaman infected with venereal disease. Now Dr. Browne records his observations of the dire results to seamen, and the public health, of the absence of hospital accommodation for venereal disease at ports, and the interruption of other peacetime arrangements for continued treatment at ports of V.D. in seamen; while the third year of war found us in full and public agitation over the increase of V.D., especially in seamen and in the populace of our ports.

I feel sure that medical opinion can rightly be unanimous in pressing for: (1) in all ports, facilities for treatment that do in fact facilitate the seaman's finding treatment and keeping under it; (2) instruction in V.D. of the medical profession in general, and the ship surgeon in particular; (3) proper equipment for adequate treatment of V.D. in ships that carry surgeons; (4) serious consideration to be given to the fact that in ships that carry a surgeon only a minority of seamen who have cause do consult him for suspected or apparent V.D., although the seaman heartily dislikes visually apparent V.D. either in himself or in his shipmates.

Since the very great majority of ships carry no surgeon the seaman, by long-established custom, keeps his ailments for medical attention when he gets ashore—if by then they still distress him. The idea of treatment on board ship is perhaps still foreign to the merchant sea-going profession. Moreover, in the past, treatment of V.D. on board ship could be, at best, only inadequate; it was hardly better on shore; and while the last three decades have brought a great improvement of treatment, it has lagged at sea far behind the standard on shore. There is still some foundation for the traditional idea in the seaman's mind that not much benefit will accrue to him from bothering the ship surgeon on such a matter. The main barrier, however, keeping him from the ship surgeon in the matter of V.D. is dislike and suspicion of its being logged against him—as by law it must be if his ship surgeon deals with it. The same seaman, however, evinces no objection to the hospital doctor's logging V.D. against him in a clinic's records, even when done in his presence. The ruling difference appears to be not only that the clinic is publicly pledged to secrecy—though that is highly valued—but also that the hospital doctor is not his boss, and the clinic books are not open to inspection by bosses—master, mate, owner—as is the ship's log. Easy to understand, not easy to reform, yet reformed it ought to be.—I am, etc.,

H. M. HANSCHELL,
Director, V.D. Clinic,
Albert Dock Seamen's Hospital.

London, E 16

The Contaminated Injection

SIR,—Your annotation on the contaminated injection (May 15, p. 608) draws attention to the problem of filling a hypodermic syringe with sterile air under adverse surrounding conditions, and suggests a cumbersome procedure as a solution. The problem is simply overcome by using a platino-iridium needle and a spirit lamp. A platino-iridium needle can be raised to a white heat in a spirit flame without harm, and while holding its point in the flame and at the same time withdrawing the piston you have a medium through which sterilized air can be drawn and which no spore can withstand. I have used this method many hundreds of times without harming the needle or the glass syringe. It has the added advantage that the same needle can be used where many injections have to be given at one sitting, it being perfectly sterilized each time. The ordinary needle could be used in the same way in an emergency, but it would be quickly ruined by such treatment.—I am, etc.,

Portland. M. J. SAUNDERS.

Universities and Colleges

UNIVERSITY OF MANCHESTER

A one-day course of lectures on health in the factory has been arranged for industrial managers on Sunday, July 4, by the Extra-mural Department of the University in conjunction with the Association of Industrial Medical Officers. The course begins at 10.45 a.m., when Dr. H. Trumper will speak on the responsibility of management for the health of the worker, followed at 12 noon by Dr. T. M. Ling on psychological factors in industrial health. At 2.15 p.m. Mr. G P. Barnett will speak on management's part in accident prevention.

ROYAL COLLEGE OF SURGEONS OF ENGLAND

The following candidates have passed the Primary Fellowship Examination:

R. C. Bell, D. T. A Brown, B N. Catchpole, B S. Crawford, J. F Dark, F. X. Darne, J R G. Edwards, E J. Field, J P Haile, A. G. Leacock, R. I. T. Lloyd, S. T. McCollum, R A. C Owen, V. G. Patel, R D Richards, Mary F. Richardson, R B K. Rickford, F Robinson, K E D Shuttleworth, G. F. Smart, J. B. L. Taylor, G. T. Watts, M. R. Williams

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH

Sir Henry Dale, G.B.E., P.R.S., will deliver the Frederick Price Lecture on "A Prospect in Therapeutics" in the Hall of the College on Friday, July 2, at 5 p.m.

Obituary

SIR ARTHUR NEWSHOLME

Dr. J. D. ROLLESTON writes:

The sympathetic obituary of this great man in the issue of the *Journal* for May 29 has an important omission—namely, the lack of any mention of his keen interest in the alcohol problem. For many years he was a member of the Society for the Study of Inebriety and Drug Addiction, and in 1927-9 was its president. In 1928 he attended the 19th International Congress against Alcoholism held at Antwerp, where he delivered a masterly address on "The Place of the Alcohol Question in Social Hygiene." His *International Studies* (1931) contain an instructive account of anti-alcohol activities in Denmark, Sweden, Switzerland, Italy, Yugoslavia, Poland, and Czechoslovakia, while his work on *Red Medicine* (1933) gives a description of the campaign against alcoholism in Soviet Russia.

Sir FRANCIS FREMANTLE, M.D., M.P., writes:

Your tribute to Sir Arthur Newsholme mentions his work on tuberculosis. I would remind your readers of his report to the Local Government Board and his article in the *Journal of Hygiene* (July, 1906, **6**, No. 3) showing the special influence of segregation in workhouses and workhouse infirmaries in the reduction of the phthisis death rate. The breadth of his inquiry in this and other countries, the thoroughness and honesty of his statistical evidence, the credit given to other known factors, the searching criticism of accepted argument, gave a new and convincing proof of the value of the abused Poor Law and of institutional treatment as such. As a young county M.O.H., on a pilgrimage to him at Hove some 40 years ago, I had much valuable advice, of which one phrase has endured: "Study vital statistics, Fremantle; they will prove anything you want." I always wondered if he meant "prove" in the Pauline sense.

The following appreciation of EDWARD HARTE, M.B., B.Ch., D.P.H., deputy medical officer of health, Harrogate, comes from Dr. D. Derry Payne, medical officer of health, Harrogate, and Dr. J. Tudor Lewis, medical officer of health, Barnsley: We would not wish the recent sad death of Dr. Edward Harte to pass without paying a tribute to his strong character and great personality, qualities which enabled him to bear the bludgeonings of a hard fate with a laugh and a joke. We first knew him when he joined the public health staff in Croydon. A slowly progressive illness "accidentally discovered" had caused him to give up his practice in Blackpool. After taking his D.P.H. he entered the Public Health Service and very soon became a great success. When one of us went to Harrogate as M.O.H., Harte soon followed as deputy. He was outstandingly successful with children, and the mothers all had an abounding confidence in him. To the many administrative problems of a public health department he brought a sane common sense, and he had the gift of making himself liked by all his colleagues, medical and lay. What attracted people most was perhaps his great spirit and sense of humour. He could and did see fun in everything, and his quickness of phrase and richness of expression were astonishing. Although he knew he was doomed we never once heard him complain of his fate; he rather liked to joke about it, and when he got a retinal haemorrhage he was amused and laughed that his senior colleague "had bought a pup." This was typical of Harte. Reading was his main relaxation, but at one period he had played a good game of golf. He was also a very keen bird-watcher, and his knowledge of this subject was extensive. We have lost a dear friend and a valued colleague. The profession generally and the Public Health Service in particular will be much the poorer by his untimely passing.

Dr. W. HENDERSON STEPHEN died at Southend-on-Sea on May 28 in his 75th year after a long illness. A graduate of Aberdeen in 1891, and of farming ancestry, he had fought his way by his own tireless industry and settled, first at Preston, and later, for 20 years, at Smethwick, where he built an outstanding practice by his thoroughness and by his kindness, cheerfulness, and sense of humour. He had been an ardent Territorial, serving 1914–16, and retiring as lieut.-colonel. Settling in partial retirement at Southend, he again achieved a successful practice until two years ago, when his health failed. He had been a member of the B.M.A. for nearly 50 years and was a past chairman of the South Essex Division.

Medical Notes in Parliament

THE GOVERNMENT'S PROPOSALS

Dr. RUSSELL THOMAS on June 10 drew attention to the negotiations between the Minister of Health and the medical profession. He said the House should have some idea of these before the White Paper was published. At a meeting on May 16 the Deputy Secretary of the B.M.A., Dr. Hill, spoke on the proposals put forward by the Minister. Put briefly, these were that medical men would cease to practise freely as doctors and would become whole-time employees of local authorities. If this happened doctors would form a service of technicians controlled by men and women ignorant of medical matters. The objections to the local authority arrangement had been set out by Dr. Anderson, Secretary of the B.M.A., in a letter to the *Times*. The main objection was that the medical profession would be in the hands of the local authorities, people who were frequently under the influence of party politics, and could not understand the vital personal relationship which existed between doctor and patient. In any case the scheme put forward by the Minister would lack the comprehensiveness which was an essential of the Beveridge plan. The proposals for a consultant service were vague. They were to be centred in a hospital. The appointment would be by the local authority and would be full- or part-time. The Minister said there would be compensation for practices, but no details were given. The money invested in practices was between £50,000,000 and £100,000,000. This was dismissed in the Minister's proposals with small consideration. The *British Medical Journal* had said it almost looked as if the Government wished to claim absolute control of the general practitioner for strict supervision of certification by the doctor. The upshot of it all was that the medical profession turned down further discussion of the proposals as completely unfruitful. They demanded a Royal Commission, but after further consultation that was set aside. The negotiations up to date had done incalculable harm through the whole rank and file of the medical profession.

Dr. MORGAN said Dr. Russell Thomas's speech was the essence of medical stupidity. The present negotiations were non-committal and exploratory. The Minister depended too much on the B.M.A. and leant toward bureaucracy. The present medical system was no credit to this country. It was completely uncoordinated. He wanted the Minister to negotiate with other bodies, medical as well as lay; to have in mind the principle of no public finance without lay control; and that medical education should be brought within the purview of some authoritative body.

Discarded "for the Present"

Mr. ERNEST BROWN said they dealt with a gigantic national issue—a question of the whole administrative structure of a comprehensive health and hospital service. It included the relation between the municipal hospitals and the voluntary hospitals. In February the Government had announced its acceptance of Sir William Beveridge's Assumption B. That meant that it announced its decision to go ahead with the preparation of a comprehensive medical service for the whole country. There was need for speed, although there was no need for haste. Several major issues demanded decisions soon. The country would want to know what was to be done with the Emergency Medical and Hospital Service when the war came to an end. The Government also had a duty to the large body of medical men and especially young medical men now in the Forces and to their future. Whatever conclusions they came to they would need good will. They were now in the preliminary stage, in which he sounded representatives of the medical profession, the major local authorities, and the voluntary hospitals to find out how their minds ran on the various issues, and to put before them ideas of his own. They had not reached the main discussion stage, which would be followed by legislative proposals when the Government had come to its conclusions. The second stage he still desired to be one of full and open review of the subject both in Parliament and elsewhere among the organizations, professions, and persons likely to be affected, including many now serving in the Forces. For this stage discussion might be more fruitful if he put before the House an appreciation of the main issues which gave everyone something to bite on.

Dr. HADEN GUEST: Without commitment?

Mr. BROWN: Certainly, at that stage. That would be the stage at which they could find out the feelings of the general public, who were to be the patients of this service. The third stage was the introduction of draft legislation, when the Government would have to make up its mind what was the right and practicable measure to introduce to Parliament. Since February he had arranged with representatives of the medical profession and the voluntary hospitals to embark on the preliminary and informal exchange of ideas. The medical representatives consisted of a group of medical men and women brought together by the B.M.A. and the Royal Colleges. This Representative Committee agreed with him to discuss and exchange ideas in confidence and without commitment. The committee was not his appointment, but that of the profession. He had put a number of ideas to it, including some on a possible salaried basis for general practice in a comprehensive service. He invited the committee's own criticisms and counter-suggestions. After a number of meetings the committee suggested that the whole subject should be referred to a Royal Commission. They discussed the suggestion but agreed that the previous exchange of ideas should be resumed. Disproportionate attention had been directed to certain phrases such as that about the "discard." The committee had understood him to mean that if it would advance discussion he would discard for the present any ideas so far considered and would consider each further issue quite afresh. The discussions had been resumed. He was sure they would continue to be helpful. Fairly soon he hoped to publish a statement, perhaps as a White Paper, to afford a focus for all concerned. They ought not to take final decisions until the man-in-the-street and the individual doctor in practice or in the Forces had a full chance to consider the main issues fairly. He was amused to see it suggested that the Government intended to dragoon one of the oldest of the learned professions into a corps of "State lackeys," or to deny the ordinary individual the elementary right to have his say in choosing his medical adviser.

The House then adjourned for the Whitsuntide Recess.

Enemy Attacks on Hospital Ships

In the House of Commons recently Mr. A. V. Alexander, the First Lord of the Admiralty, circulated a list of hospital ships which had been sunk or damaged by the enemy, as follows:

1940:
May: *Atlantis*, off Norway, bombed four times, no damage.
,, *Brighton*, Dieppe Harbour, bombed three times, sunk
,, *Maid of Kent*, Dieppe Harbour, bombed, destroyed by fire
,, *St Andrew*, nr. Calais, shelled twice, no damage; nr. Dunkirk, bombed twice, no damage.
,, *St. Julien*, Dunkirk; off Calais and in Downs, shelled twice, bombed once, no damage; on passage to Dunkirk, bombed and machine-gunned, slight damage
,, *St. David*, off Gravelines, shelled from shore batteries, no damage; off Dunkirk, bombed, shelled, machine-gunned, no damage.
,, *Worthing*, off Calais, shelled twice, bombed once, no damage
,, *Isle of Guernsey*, off Calais, shelled from shore batteries, no damage; on passage to Dunkirk, bombed and machine-gunned, slight damage.
,, *Isle of Thanet*, off Calais, shelled from shore batteries, damaged; English Channel, bombed and machine-gunned, no damage
,, *Dinard*, off Dunkirk, shelled once, bombed once, slight damage.
June: *Worthing*, nr. Dunkirk, bombed and machine-gunned twice, severe damage.
,, *Paris*, on passage to Dunkirk, bombed three times, sunk.
1941:
Jan. and Feb.:
Dorsetshire, off Sollum, bombed once, machine-gunned once, no damage.
,, *Aba*, Tobruk Harbour, bombed, slight damage
April. *Aba*, Suda Bay, Crete (at anchor), bombed. slight damage.
May: *Aba*, Canea, Crete, machine-gunned, slight damage; on passage to Haifa, bombed twice, damaged.
April: *Vita*, Tobruk, bombed twice, damaged; on tow in Mediterranean, bombed, badly damaged.
,, *Ramb IV*, nr. Tobruk, bombed, slight damage.
Aug.: *Amra*, Gulf of Suez, torpedoed from aircraft, no damage
Sept. *Karapara*, Tobruk, bombed; damaged
,, *Dorsetshire*, Port Tewfik, bombed, slight damage.
Nov: *Llandovery Castle*, Suez (in dock), bombed, slight damage
Dec.: *Somersetshire*, between Tobruk and Alexandria, dive-bombed and machine-gunned, no damage.
1942
Jan: *Somersetshire*, between Tobruk and Alexandria, dive-bombed, no damage.
Feb: *Somersetshire*, Tobruk Harbour, bombed, no damage.
,, *Llandovery Castle*, between Alexandria and Tobruk, bombed three times, no damage.
Mar: *Llandovery Castle*, Tobruk Harbour, bombed, slight damage.
April: *Somersetshire*, between Alexandria and Tobruk, torpedoed, severe damage.
May *Ramb IV*, nr. Alexandria, bombed, sunk.

To this list must be added the *Centaur*, torpedoed and sunk a few weeks ago by the Japanese, with a loss of 268, including ten nurses, in addition to the matron, and, according to some reports, eighteen medical officers.

All these ships were properly marked in accordance with the Geneva Convention.

Investigations into Incidence of Tuberculosis

Mr. DOUGLAS on May 27 asked the Minister of Health whether any national survey had been undertaken to ascertain the effects of poor housing conditions and of malnutrition upon the incidence of tuberculosis. The MINISTER replied that reports were published before the war by the National Association for the Prevention of Tuberculosis on "Causal Factors in Tuberculosis" and "Tuberculosis and Social Conditions in England," and the association was at present conducting an inquiry into the relation between malnutrition and tuberculosis. The subject was also mentioned in the M.R.C. report issued in October last on "Tuberculosis in Wartime." Various lines of medical research were being officially pursued on the general question of nutrition, which might prove to throw some light on the particular question of the incidence of tuberculosis.

National Health Service Proposals

Mr. HOGG on June 3 asked whether the Minister of Health, in view of the misapprehensions resulting from his negotiations with the B.M.A. on his proposals for a National Health Service, would renew the Government's assurance that Assumption B of Sir William Beveridge's report still formed part of the Government's policy. Mr. BROWN: Yes, sir.

Medical Examination at Detention Barracks.—Sir JAMES GRIGG,* answering questions on May 18 about detention barracks, said regulations on the medical examination of soldiers sent to detention barracks were clear and explicit. A military court of inquiry would examine whether they were generally observed at Chatham detention barracks The medical officer of this barracks had been transferred elsewhere.

Increase in Short-term Sickness.—Mr. BROWN said on June 3 that there had been an increase in the incidence of short-term sickness among the insured population. He had no evidence to suggest that the increase was attributable to long hours of labour and to fatigue resulting from Civil Defence and Home Guard duties.

Notes in Brief

According to the latest figures in the Ministry of Health there are some 4,100 maternity beds in voluntary institutions, 8,000 in municipal homes and hospitals, and over 3,000 in the emergency maternity homes established by the Department, making a total of between 15,000 and 16,000 beds in England and Wales.

Of members of the Forces discharged owing to disability and whose claims for pensions have been rejected about 17% have been cases of psychoneurosis.

EPIDEMIOLOGICAL NOTES

Discussion of Table

In *England and Wales* during the week notifications of whooping-cough, diphtheria, and scarlet fever fell by 89, 82, and 76 respectively, but those of measles rose by 273.

Diphtheria was less prevalent throughout the country, a drop of 31 in Staffordshire being noteworthy. Scarlet fever was down by 32 in Yorks West Riding, 31 in Lancashire, and 31 in Staffordshire. Whooping-cough pursued a less steady course than diphtheria or scarlet fever, notifications being 71 fewer in Lancashire, 36 in Staffordshire, 29 in Warwickshire, and 28 in Middlesex; the largest rise was in London, 36.

Within the counties the largest increases for measles were in Monmouthshire 122, Oxfordshire 105, Essex 95, Lincolnshire 93, Northamptonshire 78, Somersetshire 71, and Glamorganshire 53. The biggest falls were in Norfolk 100 and London 64. This was the eighth consecutive week for which a decline has been recorded in London; the notifications have dropped from 1,166 to 365 during the period.

Additional cases in existing outbreaks accounted for a rise of 9 in the incidence of dysentery. In Warwickshire, Birmingham C.B., the cases rose from 3 to 23; in Gloucestershire, Bristol C.B., from 8 to 12; and in Cornwall, Bodmin M.B., from 3 to 9.

In *Scotland* scarlet fever notifications fell by 48, those for cerebrospinal fever rose by 10, the returns for Glasgow mounting from 5 to 14. An outbreak of dysentery has been reported from Edinburgh involving almost 100 cases, the majority being pupils and teachers at a school and residents in a university hostel.

Quarterly Returns for Northern Ireland

During the first quarter of 1943 the birth rate was 24.3 per 1,000, compared with an average of 19.7 for the five preceding first quarters. Infant mortality was 85 per 1,000 registered births and was 14 below the five-years average. The general death rate was 15.0 per 1,000 and was 1.1 below the rate for the March quarter of 1942 and 2.6 below the average rate for the first quarters of 1938-42. Deaths from pulmonary tuberculosis numbered 254 and other forms 86; the five-years average was 270 and 72. 231 deaths were attributed to the principal epidemic diseases, compared with 437 for the average of the preceding five first quarters.

The Week Ending June 12

The notifications of infectious diseases in England and Wales during the week included: scarlet fever 1,966, whooping-cough 2,063, diphtheria 607, measles 6,724, acute pneumonia 637, cerebrospinal fever 50, dysentery 127, paratyphoid 6, typhoid 5.

No. 22

INFECTIOUS DISEASES AND VITAL STATISTICS

We print below a summary of Infectious Diseases and Vital Statistics in the British Isles during the week ended June 5.

Figures of Principal Notifiable Diseases for the week and those for the corresponding week last year, for: (a) England and Wales (London included). (b) London (administrative county). (c) Scotland. (d) Eire. (e) Northern Ireland.

Figures of Births and Deaths, and of Deaths recorded under each infectious disease, are for: (a) The 126 great towns in England and Wales (including London) (b) London (administrative county). (c) The 16 principal towns in Scotland (d) The 13 principal towns in Eire (e) The 10 principal towns in Northern Ireland.

A dash — denotes no cases; a blank space denotes disease not notifiable or no return available.

Disease	1943					1942 (Corresponding Week)				
	(a)	(b)	(c)	(d)	(e)	(a)	(b)	(c)	(d)	(e)
Cerebrospinal fever ..	79	7	31	5	6	127	9	38	2	3
Deaths		2	—				—	2		
Diphtheria	630	37	160	66	31	583	23	179	39	25
Deaths	9	3	7	—	—	8	1	2	—	2
Dysentery	125	8	35	—	2	100	8	45	—	—
Deaths			—	—	—			—	—	—
Encephalitis lethargica, acute	6	—	—	—	—	1	—	1	—	—
Deaths		—	—				—	—		
Erysipelas			47	9	—			46	7	2
Deaths		—	—					—		
Infective enteritis or diarrhoea under 2 years				33					44	
Deaths	51	13	4	13	6	32	1	10	4	1
Measles	7,668	365	517	23	44	7,279	856	1,003	109	373
Deaths	1	—	1	—	1	12	2	3	1	1
Ophthalmia neonatorum	107	10	30	1	1	111	3	28	2	1
Deaths										
Paratyphoid fever ..	6		2			10	—	1	1	
Deaths	—	—	—		—			—		—
Pneumonia, influenzal*	768	42	5	2	15	794	43	3	—	5
Deaths (from influenza)	6	—	2	—	—	15	2	2	—	—
Pneumonia, primary ..			213	20				236	23	
Deaths		19		6	8		29		6	10
Polio-encephalitis, acute	2	—				1	—			
Deaths		—					—			
Poliomyelitis, acute ..	5	—	1		—	1	—	1		—
Deaths		—	—				—	—		
Puerperal fever ..		3	9				2	18		
Deaths		—			—		—			—
Puerperal pyrexia† ..	169	16	26	2	2	170	10	20	4	2
Deaths		—		—					—	
Relapsing fever ..	—	—			—	—	—			—
Deaths										
Scarlet fever	1,921	168	220	54	54	1,058	41	217	74	13
Deaths	—	—	1	—	—	—	—	—	1	—
Small-pox	—	—	—		—	—	—	1		—
Deaths	—	—	—	—	—	—	—	—	—	—
Typhoid fever	4		1	10	1	5	1	4	10	1
Deaths‡	—	—	—	—	—	1	—	—	—	—
Typhus fever	—	—	—	—	—	—	—	—	1	—
Deaths			—	—	—			—	—	—
Whooping-cough ..	2,144	151	226	17	46	1,137	103	65	29	11
Deaths	11	—	3	—	1	8	1	1	—	—
Deaths (0–1 year) ..	310	48	67	38	23	331	36	68	21	25
Infant mortality rate (per 1,000 live births)										
Deaths (excluding stillbirths)	3,949	556	573	199	127	4,263	551	596	197	114
Annual death rate (per 1,000 persons living)			12·9	13·1				13·4	13 2	§
Live births	6,501	762	1041	431	321	5,868	639	890	382	282
Annual rate per 1,000 persons living ..			21·3	28·3				18·4	25 5	§
Stillbirths	228	22	23			224	17	44		
Rate per 1,000 total births (including stillborn)			22					47		

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* Includes primary form for England and Wales, London (administrative county), and Northern Ireland.

† Includes puerperal fever for England and Wales and Eire.

‡ Includes paratyphoid fever for England and Wales and London (administrative county).

§ Owing to evacuation schemes and other movements of population, birth and death rates for Northern Ireland are no longer available.

The Services

Brigadier R. M. Luton, M.C., Canadian Army, was appointed C.B.E. (Military Division) in the Birthday Medical Honours.

Fl. Lieuts. G. D. Graham and N. Livingstone, R.A.F.V.R., have been appointed M.B.E. (Military Division).

Capt. J. W. Logan, R.A.M.C., has been awarded the D.S.O., and Capts. J. D Dow, E. J. Kerr, and Lieut. R. G. Boyd, R.A.M.C., have been awarded the M.C. in recognition of gallant and distinguished services in North Africa.

The following medical officers have been mentioned in dispatches: Group Capt. C. T. O'Neill, O.B.E., and Wing Cmdr. L. Freeman, R.A.F.; Squad. Ldrs. W. A. S. Falla, A. Wilson, R. G. D. Forward, R. G. Griffiths, W. Hopkins-Jones, Fl. Lieuts. O. T. Brown, N. G. Farrell, and A. Russell, R.A.F.V.R.

The *London Gazette* announces the appointment to O.B.E. (Civil Division) of Capt. (temp. Major) WILLIAM BRUCE KIRKLAND, M.B., B.S., Chief Medical Officer, Northern Territory Medical Service, Commonwealth of Australia. The announcement reads as follows: During the air raids on Darwin Dr. Kirkland was in charge of the hospital and was continuously on duty. In very difficult circumstances and with only broken equipment he remained for some weeks to deal with the air-raid casualties. After the first air raid many patients were successfully evacuated to safer accommodation. Dr Kirkland rendered outstanding services in conditions of grave danger.

CASUALTIES IN THE MEDICAL SERVICES

Prisoner of War.—Capt. H. A. Deverell, R.A.M.C.
Died.—Lieut.-Col. H. R. Pomroy, A.A.M.C.
Officially Reported Prisoner of War.—Surg. Lieut. A. P. Curtin, R.N.V.R.
Killed.—Surg. Lieut. J. H. Graves, R.N.V.R.
Reported Missing in North Africa.—Capt. I. E. W. Gilmour, R.A.M.C.
Prisoner of War in Japanese Hands.—Lieut.-Col. T. Hamilton, A.A.M.C.

Medical News

A joint meeting of the Nutrition Society and the Food Group (Society of Chemical Industry) will be held on Saturday, July 3, beginning at 11 a.m., at the London School of Hygiene and Tropical Medicine, when the subject of discussion will be "Milk." The chair will be taken by Prof. H. D. Kay, and papers will be read by Mr. J. L. Davies ("The Production, Supply, and Marketing of Milk"), Dr. A. T. R. Mattick ("Bacteriological Aspects of Milk Processing and Distribution"), and Dr. S. K. Kon ("The Chemical Composition and Nutritive Value of Milk and Milk Products"). The participants in the discussion will include Dr. W. R. Wooldridge, Prof. A. W. Ashby, and Prof. G. S. Wilson.

Under the auspices of the Association of Austrian Doctors in Great Britain Dr. A. Czech will give a lecture on "The Past and Future of Austrian Health Services," with lantern slides, on Thursday, July 1, at 6 p.m., in the Conway Hall, Red Lion Square, W.C.1. Guests will be welcomed.

Surgeon Rear-Admiral Cecil P. G. Wakeley will present a talking cinematograph film, illustrating first aid in the Navy, in the Council Chamber, the County Hall, West Street, Chichester, on Saturday, July 3, at 3 p.m.

The Derry Gardens, on the top of the well-known store of that name next to Kensington High Street Station, will be open on behalf of St. Bartholomew's Hospital from July 5 to 10 inclusive.

The trustees of the Lady Tata Memorial Fund announce that, on the recommendation of the Scientific Advisory Committee, they have agreed, if circumstances permit, to make the following awards for research in blood diseases, with special reference to leukaemia, in the academic year beginning on Oct. 1, 1943: grants for research expenses—Dr. J. Furth (New York), Dr. P. A. Gorer (London), Dr. A. H. T. Robb-Smith (Oxford), Prof. L. Doljanski (Jerusalem); part-time personal grant and grants for assistance and research expenses—Dr. W. Jacobson (Cambridge).

Official information has been received that Drs. W. Ainslie, R. E. Anderson, M. C. Bain, H. Allan, R. I. Macbeth, J. M. Sclater, and C. S. Wilson have been interned in Changi Camp, Singapore.

In the *Journal* of June 5 (p. 701) we printed an appeal for funds for a British Hospital to be built in Stalingrad. Since then medical men have sent in a number of donations, which now amount to £400. No donation is too small, and we hope that doctors will not hesitate to dip their hands into their pockets for an object so worthwhile.

Letters, Notes, and Answers

All communications in regard to editorial business should be addressed to THE EDITOR, BRITISH MEDICAL JOURNAL, B.M.A. HOUSE, TAVISTOCK SQUARE, LONDON, W.C.1.

ORIGINAL ARTICLES AND LETTERS forwarded for publication are understood to be offered to the *British Medical Journal* alone unless the contrary be stated.

Authors desiring REPRINTS should communicate with the Secretary of the Journal Board, B.M.A. House, Tavistock Square, W.C.1, on receipt of proofs. Authors over-seas should indicate on MSS. if reprints are required, as proofs are not sent abroad

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TELEPHONE No.—B.M.A. and *B.M.J.*: EUSTON 2111.

TELEGRAPHIC ADDRESSES.—EDITOR, *Aitiology Westcent, London;* SECRETARY, *Medisecra Westcent, London.*

B.M.A. SCOTTISH OFFICE: 7, Drumsheugh Gardens, Edinburgh

ANY QUESTIONS?

Resistance to Tanning

Q.—*A man aged 26 is undergoing a course of artificial sunlight. He obstinately refuses to tan and is in consequence perpetually desquamating. He is dark-haired but has a very fair skin. I presume there is a marked lack of pigment which produces this state of affairs. I have had him on iron and the usual prophylactics against peeling, without any improvement. From a psychological point of view I should like him to obtain a good tan. I shall be grateful for any suggestions.*

A.—If the mercury vapour lamp is used a trial might be made of the carbon arc, or of the sun, the rays of which have a deeper penetration into the epidermis. The power of pigmentation if not naturally present cannot be provoked, and fair-skinned people require to be treated by artificial sunlight with caution. Desquamation is the sign of active response of the skin, and tanning the protective result.

Habitual Abortion

Q.—*A woman has had a series of spontaneous abortions and wishes to have a child. How should she be treated?*

A.—The treatment of so-called habitual abortion is largely empirical unless a cause can be found. General systemic disease—particularly nephritis and hypertension—and local pelvic disease—such as retroversion and malformations of the uterus—should be excluded. If no cause is apparent, a recent suggestion has been to have the blood of both husband and wife tested for incompatibility from the point of view of Rh factor. At present this is possible only at a few of the larger laboratories. Syphilis does not cause early abortions, but should be excluded if the abortions have occurred after the twentieth week of pregnancy.

Assuming that such investigations give negative results, then nothing further is necessary until the patient becomes pregnant again. She should be advised to defer pregnancy until six months after the last abortion and to report immediately one menstrual period is missed. No pelvic examination should then be made, but the diagnosis should be established by an Aschheim-Zondek test on the urine. This test may also give some indication of hormone imbalance such as gonadotrophic hormone deficiency. The patient should be instructed to live as quiet a life as possible, avoiding in particular riding in mechanically propelled vehicles, heavy work, and coitus. Various medical forms of treatment have been suggested from time to time, and although definite proof is lacking most clinicians are of the opinion that they have some value. The most commonly employed are progesterone, 2 mg. intramuscularly twice weekly up to the thirty-second week of pregnancy; thyroid, 1 gr nocte; and vitamin E, 6 mg. once or twice daily until term. These three can be combined with advantage and should be begun as early as possible in pregnancy. In place of progesterone, ethisterone, 5 mg. t.d.s. by mouth, can be given. It has a similar, if less powerful, action on the uterus. Finally, the patient should be assured of an adequate intake of iron, calcium, and vitamins A, B, C, and D. These are conveniently given in the form of a compound tablet

Antibody in Convalescent Measles Serum

Q.—*Is there any serological method for the estimation of antibody in convalescent measles serum?*

A.—There is none as yet. There is no doubt, of course, that, given a measles antigen, the serological assay of measles serum would be possible. But for a virus antigen to be satisfactory for these serological tests a high concentration of virus is essential. Blood or nasopharyngeal washings from cases of early measles, although virulent, would probably contain insufficient antigen to be of use as an antigen even in a complement-fixation test, which works with a lower "threshold" of antigen than agglutination or precipitation The recent claim to have cultivated measles virus on the chorio-allantoic membrane of the developing hen's egg has been confirmed, and this method should make available a suitable measles antigen for serological test.

Drug-resistant Organisms

Q.—*We often read that small doses of the sulphonamides are not only useless but may be harmful in producing a drug-fast strain of organism. Is there any evidence that this belief is a fact? In one of your annotations ("Prophylaxis of Rheumatic Fever," Journal, Dec. 19, 1942, p. 729) one might gather that small doses (1.0 and 1.3 g.) were found helpful over a period of years, and that objectionable results were few. In treating syphilis with N.A.B. some think massive therapy is much more dangerous than the relatively conservative doses extending over months or years. Are the instances comparable?*

A.—Continued exposure to sublethal concentrations of many types of antiseptic substance, ranging from phenol and mercury perchloride even, according to recent evidence, to penicillin, may produce increased resistance to its action. This is due not to a change in the metabolic behaviour of the bacterial cell but to the selective breeding-out of those individual cells which possess a greater capacity for resistance. There is both *in vitro* and clinical evidence that this is true of the sulphonamides, and the danger of inadequate dosage is well recognized, particularly in the treatment of pneumonia and gonorrhoea. The treatment of syphilis is not comparable for two main reasons. (1) Although drug-resistant syphilis occurs, there is no proof that a change in the spirochaete due to habituation to arsenical compounds is responsible for it; experimental attempts to produce this change have failed. (2) The extended treatment of syphilis does not consist in giving small doses of the drug three times a day, but in giving large doses at long intervals, following each of which the concentration in the body is high. Such a series of spaced attacks on the micro-organism, each adequate in itself, is quite a different thing from continuous under-dosage.

Vaccine in Pertussis Therapy

Q.—*Is pertussis vaccine of value in the treatment of whooping-cough?*

A.—The consensus in this country is unfavourable to the use of vaccines in the treatment of pertussis. When given in the paroxysmal stage they may even cause an increase in the frequency and severity of the spasms (Begg and Coveney[1]). In America, too, Sauer[2] could find no amelioration of symptoms in either mild or severe cases treated with vaccine. Yet Madsen states that Danish doctors are practically unanimous in claiming that treatment with vaccine will shorten the disease and render it much milder. Some support for this view is given by Thompson,[3] when, following treatment with pertussis "endotoxin," he observed amelioration and shortening of the infection in a group of *early* cases, but no effect among those in whom the disease was well established. His findings were well controlled. Claims have lately been made for the Lederle detoxicated pertussis antigen in the treatment of pertussis, but in a small series of hospital cases Baker[4] failed to confirm any beneficial effects. In summary, it is suggested that vaccine therapy with 0.1 to 0.2 c.cm. doses at 2- or 3-day intervals should not be discouraged in children intimately exposed or in the early catarrhal stage of pertussis.

REFERENCES

[1] *Lancet*, 1936, **1**, 82.
[2] *J. Amer. med. Ass.*, 1933, **101**, 1449.
[3] *Lancet*, 1937, **2**, 733.
[4] *British Medical Journal*, 1943, **1**, 562.

Treatment of Gout

Q.—*What is the modern treatment of gout? Has the present-day patient any better prospects from a prognostic point of view than, say, his grandfather had?*

A.—The treatment of this acute condition has not changed, as reliance is still placed on colchicum. This is given in full doses of 15 minims of the tincture combined with 10 to 20 gr. of sodium salicylate and 20 gr. of sodium bicarbonate every 4 hours. This medicine should be kept in the house and given as soon as the joint begins to swell. The prognosis has greatly improved in the last 100 years, as various factors, like lead poisoning and septic foci, which are believed to favour attacks of gout, have been largely eliminated, and the preventive treatment is much improved. Various drugs—cinchophen, aspirin, and calcium aspirin—increase the output of uric acid in the urine. In a severe case 10 gr. of aspirin should be given 3 times a day 3 days each week until the joint has completely recovered. The dose should then be reduced to 2 days each week and later on to 1 a week. This dose may have to be continued indefinitely, or the dose may be reduced to once a month; but the patient should increase the dose as soon as he has any twinge of pain. If aspirin fails to prevent the attacks cinchophen should be used in the same way. It is more apt to cause unpleasant symptoms, like urticaria, nausea, or vomiting, and if these symptoms occur the patient should be told to stop taking it at once as he may develop a hepatitis and jaundice. Physiotherapy may be necessary to enable the joint to recover full movement. Patients should avoid sweetbreads, liver, kidneys, tripe, whitebait, sardines, sprats, and roes of all fishes; and red wines, champagne, and all malt liquors.

The National Bread

Q.—*What is added to wheat flour in the national bread? Is it more nutritious than the pre-war bread? And if calcium is added is this of any nutritive value?*

A.—During the past year several changes have been made in the ingredients of the national loaf. More English wheat is being used than a year ago, and at the present time it comprises 43.6% of the grist. Since Feb. 13 last, barley or a mixture of groats (dehulled oats) and barley has also been included. In May, 1942, calcium carbonate in the form of creta praeparata was added to the flour for the first time, at the rate of 7 oz. per sack of 280 lb., and at the end of April, 1943, approximately 89% of the national flour produced in the United Kingdom was so fortified. Since the middle of March, 1943, the addition of 2 lb. dried skimmed milk per sack has also been general, and over 90% of the flour is now fortified in this way. The chief difference that these additions have made is to the calcium. Pre-war white flour contained 16 mg. per 100 g.; unfortified national flour contained about 21 mg.; and the present flour with its calcium carbonate and skimmed milk contains 93 mg. The amount of calcium being added to the flour is just enough to combine with all the phytic acid in the bread and immobilize it, so that the calcium in the rest of the diet is available for absorption. It is unlikely that much of the calcium added to the bread is absorbed.

The present fortified national loaf is more nutritious than pre-war bread because it contains twice as much of vitamins B_1 and B_2, and a little animal protein from the added skimmed milk. It contains more iron, but it is still an open question whether this is available or not. It seems probable that it is present in the flour as the insoluble ferric phytate and is not absorbed.

"Morton's Metatarsalgia"

Q.—*Physical therapy having failed, will the symptoms of Morton's metatarsalgia continue indefinitely if untreated? Does operation provide a certain cure for this painful complaint?*

A.—Morton's metatarsalgia is not a diagnosis. Nevertheless in the majority of cases the underlying condition is an occupational strain. Physical therapy in all such lesions, though an important aid, is not often the fundamental method of approach. This requires careful search for and alleviation of the stresses to which the limb has been exposed; the removal of aggravating factors such as focal infection and other debilitating conditions; followed by the restoration of muscular control by re-education. The regulation of conditions of work and life, both physical and psychological, and attention to proper footwear, all are of importance. During the early stages of treatment relief to the metatarsal heads should be given by suitable pads applied directly to the feet, or by bars fixed to the soles of the shoes, immediately behind the metatarsal heads. Faradic foot-baths, graduated remedial exercises, etc., will then be more helpful in effecting a cure, which in chronic cases will often be hastened by manipulation under anaesthesia. No other operation should be necessary.

LETTERS, NOTES, ETC.

Sunlight and Desert Sores

Dr. W. J. BURNS SELKIRK (Birmingham) writes: Dr. Henderson (May 29, p. 657) may be interested in an observation by Dr. Eder, California. Children at his sanatorium subject to sunburn effects escaped these if given iron, though they were not anaemic (*Arch. Pediat.*, Dec., 1935, p. 833, quoted by *Med. Pr.*, Feb. 26, 1936).

A Spanish–English Medical Dictionary

Dr. M. G. MCELLIGOTT (Heathwood, Bushey Heath, Herts) writes to say that he has compiled a Spanish–English Medical Dictionary, which is now almost complete and of which the dedication has been accepted by an eminent Spanish surgeon. This work should fill a distinct need at the present time, but it awaits a publisher. Dr. McElligott would welcome any hints from Spanish-speaking readers which might make the dictionary more useful.

Welfare of Laboratory Animals

The Universities Federation for Animal Welfare (U.F.A.W.) is collecting information on: (1) anaesthesia of rats, rabbits, guinea-pigs, etc.; (2) methods of killing laboratory animals; and (3) living conditions, housing, diet, etc., of such animals. Views and suggestions should be sent to the Federation at its temporary address, 284, Regent's Park Road, N.3. A small panel of experienced persons will advise on the collected material. It is hoped that this pooling of the experience of those engaged in experiments on animals will enable the maximum of consideration to be given to the welfare of laboratory animals.

SUPPLEMENT TO THE

BRITISH MEDICAL JOURNAL

LONDON SATURDAY JANUARY 2 1943

MEDICAL PLANNING COMMISSION

VIEWS OF CONSTITUENT BODIES ON THE INTERIM REPORT

We publish below a summary of some views on the Interim Report of the Medical Planning Commission. It is hoped to publish an article in the SUPPLEMENT *each month on the work of the Commission.*

The bodies appointing to the Medical Planning Commission number 11. They include the British Medical Association, which took the initiative, the Royal Colleges and Royal Scottish Corporations, the Society of Medical Officers of Health, the Medical Women's Federation, the Faculty of Radiologists, and the Parliamentary Medical Committee. The 73 members of the Commission, however, have taken part in its work as individuals, and the appointing bodies are in no way committed to the interim report.

This fact makes the more interesting the observations of the various bodies, most of which have now submitted memoranda on the subject. On the "Questions for Decision" in the final section of the report, which were intended to focus attention on major points of principle, there is substantial agreement. The long debates at the Annual Representative Meeting of the B.M.A. last September and the much shorter debate at the Annual Conference of Local Medical and Panel Committees in November gave an indication of the mind of the general practitioners of the country. The Comitia of the Royal College of Physicians, the Council of the Royal College of Surgeons, and the executives of most of the other bodies have made in some cases extended commentary, especially on the parts of the report which deal with hospitals and with consultants and specialists, and it may be said that the plan as set out by the Commission for the co-ordination and integration of health services has been in broad outline approved.

Definitions and Basic Principles

Question 1.—The broad definition of the objects of medical service as set out in the first question is approved by all the bodies so far replying, except that two of them—the Royal College of Physicians of London and the Medical Women's Federation—demur to the phrase "positive health," and the Royal Faculty of Physicians and Surgeons, Glasgow, adds a third clause to the definition: "(*c*) to enable each individual thus provided with an adequate medical service to make his or her maximum contribution—spiritual, intellectual, and physical—to the life and well-being of the community."

Question 2.—All the bodies approve the principle of free choice of doctor and patient as an essential feature of any future service, although two introduce such a qualification as "where practicable," and the Royal College of Physicians calls for a limitation of panel lists. Some reservation as to free choice of consultants is mentioned by the Faculty of Radiologists.

Question 3.—Group practice is also generally favoured, but the Representative Body was anxious that it should not involve supervisory control in clinical matters, and that the group organization should not be imposed upon practitioners from the outside. On the other hand, the Royal College of Physicians, regarding group practice as synonymous with health centres, is of opinion that such centres should be provided by a statutory authority. The Royal College of Surgeons would restrict health centres to general practitioner services, holding that specialist services are the province of the hospital. The Royal College of Obstetricians and Gynaecologists strikes a cautious note. While describing the idea as revolutionary in British medicine, it is of opinion that health centres might be established in limited numbers as an experiment in carefully chosen areas. The Society of Medical Officers of Health agrees with the establishment of health centres, which it thinks should be provided and maintained by the local authority for both the preventive and curative sides of medicine. The whole-time staffing of such centres, however, can only be brought about gradually. In the transitional period the Society suggests that each local authority, after consultation with the local medical profession, should determine the methods of staffing most appropriate.

Question 4.—On the further question whether the provision of a medical service should be made by the Government for the whole community or for part of it only, it will be recalled that the Representative Body "went the whole hog" by the narrowest of majorities. On the other hand, the Annual Panel Conference expressed the view that the provision should be made only for persons compulsorily insured under the National Health Insurance Acts, with the dependants of such persons, and others of like economic status. The Royal Colleges of Physicians of London and of Edinburgh and the Royal Faculty at Glasgow favour provision for that section of the community within the income limit generally of National Health Insurance, and the Royal College of Obstetricians and Gynaecologists is of opinion that provision should be made for only a part of the community, but it is not prepared itself to draw the dividing line. The Medical Women's Federation reports much difference of opinion. The Faculty of Radiologists submits that the health services should be available to the whole community, but that any patient should be able at his own expense to employ the services of any doctor whose contractual obligations do not prevent him from rendering them. The contract under which practitioners work, the Faculty thinks, should be such that as many as possible are allowed to undertake private practice. The view of the Society of Medical Officers of Health is that all health services—hospital, medical, and allied—should be available to every member of the community without charge, with a chief medical officer in executive responsibility in each local government area. The services should be available to all who ask for them, and, within the organization provided, there should be maximum freedom of choice.

Central and Local Administration

Question 5.—A whole-time salaried Government medical service as the basis for the co-ordination and integration of health services was decisively rejected by the Annual Representative Meeting, and it has been turned down directly or by implication by most of the constituent bodies. The Society of Medical Officers of Health rejects a capitation or part-time salary basis in favour of a whole-time salary basis, which in its view has the dual advantages of administrative efficiency and the elimination of undesirable competition for patients, the conditions of all types of medical service to be determined by a suitable national body. The Socialist Medical Association, one of whose most able leaders is a member of the Commission, advocates that doctors and all other health workers should be employed as whole-time officers of an area council and appointed to the service of the area. A national salary and pension scheme would be instituted. The plan of proceeding by extension to dependants and others of the type of medical benefit available under National Health Insurance, but enlarged in scope, and making this the basis of the national health services does not appear to be favoured, unless a comment by the Royal College of Surgeons that medical services for the country should be built on existing foundations is taken as an endorsement.

Question 6.—Most of the bodies support, with certain modifications, the plan set out roughly in the interim report. This involves changes in central and local machinery, the setting up of medical advisory councils, the establishment of health centres where general medical work would be concentrated, the regionalization and unification of hospitals, the appointment of practitioners to a national service, presumably on a part-time salaried basis (with a variable element), compensation for loss of capital in a practice, and a gradual end to the buying and selling of practices.

The Representative Body preferred the central administrative machinery to take the form of a corporate body, as distinct from a Government Department in the usual sense, and referred the matter back to the Commission for further exploration. The Royal College of Physicians envisages a central body, predominantly medical in its composition, with executive and advisory functions, and established on a statutory basis. This would form a channel of communication between the Minister and the organized bodies of the profession. Local bodies might be set up after the same pattern. The Royal College of Surgeons holds that all health services should be directly under a single Minister, to whom a central medical advisory committee would have direct and regular access. The College has also certain specific proposals for local administration. The arrangement favoured for Scotland by the Royal College of Physicians of Edinburgh is a central medical authority under the Secretary of State with a predominantly medical committee to assist him, and, so far as local machinery is concerned, a council for each of the 5 regions into which Scotland should be divided. The Royal Faculty also favours regional governing boards constituted on an *ad hoc* basis.

The view of the Society of Medical Officers of Health is that the medical and health functions now distributed among several Government Departments should be brought together under one central Department, with health as its sole function and a Cabinet Minister as its responsible head, and that in local government areas, which should be enlarged to a suitable size, there should be a single authority for health purposes.

Hospitals and Consultants

On the subject of hospitals, their unification under a regional body is favoured by most of the councils or committees which have replied on the subject. The Representative Body urged the provision of beds for patients requiring nursing and medical attendance within the competence of the general practitioner, but not specialist investigation or treatment, such beds to be in the effective charge of the patient's own medical attendant. The Royal College of Physicians makes a number of recommendations: medical committees for all hospitals; methods of admission, except to teaching hospitals, to be co-ordinated; selection of senior staff by appointments boards with external assessors; adequate remuneration for all members of hospital staffs. The Royal College of Surgeons declares for the preservation of the voluntary hospital system, but would deny to patients with incomes above a certain limit admission to public wards.

All hospitals, voluntary and municipal, should be available for all members of the community on similar terms and conditions, according to the Society of Medical Officers of Health, and municipal hospitals should be included as teaching hospitals.

The Royal College of Physicians of Edinburgh also makes a series of recommendations: clinical posts in hospitals to carry salary and status no less than administrative posts; payment to members of medical staffs for services to persons coming in under the new scheme; appointment of members of medical staffs (other than to junior posts) by the regional authority on the advice of an appointments panel; all hospitals to be made available for the training of undergraduates. The Royal Faculty would give power to the regional boards to provide adequate accommodation for all cases requiring hospital treatment as well as diagnostic facilities for out-patients, to control the general finance of hospitals, and to co-operate in undergraduate and postgraduate teaching. Admission to hospitals and payment by patients for services rendered should be on a uniform basis throughout the region.

On the question of consultants, naturally, the Royal Colleges and Corporations have a good deal to say. The Royal College of Physicians would place consultants in three categories: whole-time with no private practice; whole-time with private practice in hospital only; part-time practice and part-time service in hospital. All these bodies are of opinion that the Royal Colleges might most suitably approve in some form or other the recognition of consultants and set up standards for consultant status, as well as conditions of service. The Royal College of Surgeons holds that specialists of consultant status should be more widely distributed, subject to adequate concentration in universities and other large centres.

The appointment of practitioners to the national service was the subject of several resolutions by the Representative Body, as, for instance, that all registered medical men and women should have a right to take part, that the conditions of service for men and women should be the same, together with a resolution affirming that satisfactory conditions of service were a necessary preliminary to acceptance of the scheme. The Medical Women's Federation believes that every practitioner should be eligible for appointment to the national service, and that there should be option so far as possible between whole-time and part-time service. Medical women should be given professional equality with men as regards opportunities, status, and remuneration, all appointments should be made with due regard to qualifications and efficiency, and there should be no discrimination merely on the grounds of sex or marriage. If the project of considering the family as a unit means that the same doctor must attend the whole family, the Federation disagrees.

The proposals relating to remuneration both of general practitioners and of consultants were referred back to the Commission by the Representative Body. Only two of the other bodies so far have mentioned the remuneration of general practitioners, and both of them—the Royal College of Physicians of Edinburgh and the Medical Women's Federation—approve the proposals in the report—namely, a part-time salaried basis, with some variation in proportion to the number of persons choosing a practitioner, also provision of pensions on retirement and provision for dependants on death of the practitioner.

Interim Changes

Question 7.—On the proposals for immediate post-war application, supposing the full adoption of the plan to be long delayed, all the bodies replying on the point approve some interim changes, with the exception of the Faculty of Radiologists, which considers that such changes would delay the adoption of the final scheme. The Representative Body was anxious that any interim changes should be so designed as to fit into the larger plan. The view of the Socialist Medical Association is that the Commission is unduly pessimistic in anticipating a long delay in initiating medical reform. Nevertheless, it calls for certain measures as of primary urgency—namely, the reconstruction of the Ministry of Health, to which should be transferred the civilian medical services in all their aspects; the reorganization of the Emergency Medical Service as a national service available to the whole population, without regard to local authority boundaries; co-ordination of hospitals; initiation of emergency domiciliary service as a means of organizing the work of general practitioners who remain in civil practice; direction of doctors into industrial medicine, and the encouragement of the supply of a greater number of doctors by a system of medical scholarships.

The two-way extension of National Health Insurance (to include dependants and others of like status, and to bring in consultant and specialist services) is approved by the Royal Colleges of Physicians of London and Edinburgh and by the Royal Faculty. The Medical Women's Federation feels that there should be no change in this respect while so many members of the profession are absent on service. The Representative Body passed no resolution on the subject, but the Panel Conference declared in favour of it. Other interim changes approved by all the bodies replying on this question included the setting up of regional hospital councils with executive or advisory functions and the establishment of experimental co-operative practice on voluntary lines.

The memoranda of the several of the bodies quoted, notably the statement of the Society of Medical Officers of Health, include many proposals and suggestions not strictly coming within the ambit of the seven questions, which will offer material for later comment.

A SCHEME FOR DIAGNOSTIC AND KEY HOSPITALS

BY

E. C. ATKINSON, M.B., B.S.

It would seem obvious that the building up of a more effective and efficient medical service for the future must start by improving the working conditions, the skill, and the status of the G.P. A State-controlled scheme in which the G.P.s exchange their practices for steady positions in health centres but suffer diminution of initiative, bureaucratic direction, and have no promise of materially better clinical opportunities, cannot improve their usefulness to the community.

The whole problem of increasing the efficiency of our medical service through the agency of the G.P. depends upon *maintaining* the standard of education and professional knowledge with which the G.P. is equipped when he leaves his teaching hospital and house appointments. This can only be done by affording him clinical opportunities and medical contacts such as he has been enjoying, but for the rest of his medical life. I say "maintained" because the scientific and clinical knowledge with which a newly qualified doctor leaves his house appointments should be sufficient for skilful conduct of general practice, provided he is given the opportunities to practise what he has learned. At present much of his learning becomes valueless through sheer lack of opportunity to exercise it. The existing system converts the majority of G.P.s into medical clerks, ushers, mere shop-walkers in specialists' stores. Unless the patient presents any but the simplest symptoms he is conveyed to a specialist department, left at the precincts, and not seen again until discharged.

What chance does this afford the G.P. of keeping up to date, or even of retaining the skill which he possessed on qualifying? His efforts to treat a number of his remaining patients are often so over-assisted by the public health organizations that he loses sight of what little interesting clinical material remains. Small wonder that after a time his diagnostic and therapeutic senses atrophy from disuse. Small wonder that specialists begin to doubt whether it is safe for him to pass a soft rubber catheter to relieve acute retention (*vide* recent correspondence in the *Journal*). And yet this is the man who, upon graduation, was patted on the back by the doyens of the profession, eulogized, and told: "Now you are a fully qualified medical practitioner; go into the world and prosper; you are the backbone of the profession."

All this is known, deplored, but left unremedied. Nor does the remedy seem to be forthcoming in the suggested plans of the interim report, as the limitation of G.P.s to health clinics with increased facilities for treatment of minor conditions still restrains them from instructive contact with interesting clinical material, which will go to key hospitals under exclusive specialist staffing and control.

Hospital Practice for the G.P.

The skeleton scheme suggested below of diagnostic and key hospitals would introduce all G.P.s into a hospital service providing them with the correct clinical material for postgraduate education without lowering the efficiency of that service. In many ways it is a cumbersome scheme, but that it is practicable and worthy of consideration is shown by the successful running in my district of a small hospital having many of the features of one of the hospital units described below. The scheme would work with but little difference in town or country. In country districts there would be a key hospital centrally situated, with the existing local hospitals as diagnostic units; in towns of large size it would sometimes be necessary to divide one big hospital into key and diagnostic sections.

Key Hospital.—This would be large and similar to the existing voluntary hospitals, staffed by specialists, and having all the usual departments and facilities. There would be house officers and a nurses' training school. Except in the case of teaching hospitals, patients would be admitted only on the written request of a doctor or upon transfer from a diagnostic hospital. There would be a far smaller out-patient department than usual, and out-patients would only attend for follow-up clinics and examination by special departments. None of the staff would engage in general practice.

Diagnostic Hospital

This would be a smaller institution altogether, with 100 or fewer beds according to the district. It would have public and private wards. There would be an *x*-ray diagnostic unit run by a radiographer, with a visiting radiologist, and a pathological unit in the charge of a technician directed by a visiting pathologist. Massage and electrotherapeutic units would be available for all patients, and, in industrial areas, there would be rehabilitation departments. Visiting consultants, who were junior members of the consulting staffs of the key hospitals, would attend regularly and constitute a supervising and advisory service to the hospital.

All the general practitioners in the district would be on the staff. They would admit their cases direct from their own practices. They would order all diagnostic procedures, without obtaining the leave of consultants, and when the diagnosis was complete the patient would be examined by the visiting consultant of the G.P.'s choice and the G.P. together. The consultant would advise, and if he agreed with the diagnosis would initial the case sheet, so that the patient would be (1) discharged, (2) transferred to a key hospital, or (3) retained at the diagnostic hospital for treatment. Surgical patients retained at the diagnostic hospital would receive treatment from the consultant, or from the G.P. if he had a surgical inclination. The amount of work deputed by the consultant to the G.P. would depend on the latter's ability. In medical cases the patient would be treated by the G.P. upon a plan agreed between him and the consultant and subject to a weekly review by the latter. Private patients would be solely in the G.P.'s care, and consultants would see them by invitation only.

The diagnostic hospital would in some instances receive back convalescent cases from the key hospitals to come under the care of the G.P.s who sent them. There would be an R.M.O. or senior student attached, who would carry out such duties as were allotted to him by the senior medical officer. Every year the G.P.s would select by voting one of their number to act as senior medical officer, who would direct the hospital policy, arrange the duties of the G.P.s, and act as superintendent. He would deputize for the consultant in his absence. The hospital would be run by a medical committee of the G.P.s.

The *x*-ray and pathological services would be available to the patients of the G.P. as out-patients, except for major procedures. Out-patients would not have to be seen by the consultant unless specially requested. For practical purposes the G.P.s' surgeries would be the out-patient department of the diagnostic hospital. Emergencies would be admitted to the diagnostic or key hospital direct according to the decision of the G.P. Practitioners not wishing to investigate their patients personally could admit them to the key hospital, or under the care of the R.M.O. at the diagnostic hospital. There could be frequent clinical meetings and demonstrations. G.P.s would be encouraged to develop specialties, and to act as clinical assistants at the key hospitals, to which they would always have admittance so that they might observe the progress of their patients. Those taking higher degrees would qualify for consideration for the junior consultant posts. Election to consultant position would be made by representatives of both key and diagnostic hospitals.

General Matters and Finance

All persons whose incomes qualified them for N.H.I. benefits would be admitted to the hospitals and to any out-patient treatment or investigation free of charge. Those with higher incomes would go into the private wards, and the total amount they would pay to hospital, consultant, and G.P. would be assessed by a committee investigating each case separately. All hospitals would be answerable to the State for their policies; they would be managed by their own committees otherwise.

Grants would be made by the Ministry of Health, which would draw funds from local taxation and the numerous societies into which insured persons pay their subscriptions. All consultants would be remunerated adequately for their hospital work, the salaries of the junior ones being sufficient to make them independent of private practice. G.P.s would be paid for their hospital services on the basis of the number of beds their patients occupied during the year. They would have their panels as before, health insurance having been extended to families of insured persons. They would be allowed private practice. The formation of central surgeries would be encouraged where the services, for example, of a nurse, dispenser, and secretary for medical notes could be shared, also certain equipment. G.P.s would draw the greater part of their remuneration from hospital and N.H.I. services.

Teaching hospitals would draw their patients from diagnostic hospitals, from G.P.s sending their patients direct, and from their own out-patient departments, which, for the benefit of students, would be run on a larger scale than in the key hospitals.

An Example in Cornwall

St. Michael's Hospital, Hayle, Cornwall, embodies many of the features of a diagnostic hospital with treatment facilities as already described. It contains just over 70 beds, and serves the districts of Hayle, Lelant, and St. Ives, and a large rural area; in all about 15,000 or more inhabitants in peacetime. There are 25 beds for males and 32 for females and 15 private rooms. There is a good diagnostic *x*-ray unit capable of all usual investigations. There is a modern, well-equipped massage and electrotherapeutic department providing short-wave diathermy, ionization, electric vapour baths, etc. The theatre is small, but well provided with all the apparatus found in a general hospital; there is a good sterilizing room. Pathological material is sent to the county pathologist, who charges a reduced fee.

The hospital is run and maintained by the lay and nursing Sisterhood of the Daughters of the Cross. Those not employed in nursing run the kitchen and laundry. One sister is a qualified doctor and acts as R.M.O., radiologist, and gives most of the anaesthetics. While certain G.P.s are on the permanent staff, any practitioner in the district can admit his patients, and either treat them himself or place them under the care of another doctor. As 4 of the active staff, of whom 3 are G.P.s, are Fellows of the Royal College of Surgeons there is no lack of specialist help. There is a visiting E.N.T. surgeon and a dental surgeon. A G.P. is at liberty to call in any specialist help that he considers desirable. There is a great spirit of co-operation among the members of the staff, and a complete absence of rivalry. Beds are allotted to patients and not to doctors. The Sister Superior is matron and controls the hospital. The ward sisters are all well qualified and the nursing is of a high standard. There is now a preliminary training school for nurses and no shortage of a good type of probationer. The nurses experience no difficulty in catering for the peculiarities of the several visiting doctors, and there appears to be no disadvantage in having more than the usual number of medical staff.

All the hospital's facilities are available to out-patients, but there is no out-patient department as such. All persons are admitted on their doctors' recommendations. There is no income limit, means test, or exhaustive inquiry by almoners. The word of the patient is accepted by the matron, and if the patient belongs to the H.S.A. the charges are covered, otherwise the charge is 2 gns., or as much of that as the patient can afford, or nothing. The private rooms are from 3 gns. to 5 gns.

The hospital has a rapid turnover of acute work. It has a very good reputation locally, and few people living in the district seek admission elsewhere, even for major procedures. The ready access to specialist help is a great attraction, and the knowledge that their G.P. will look after their immediate interests gives the patients confidence and banishes objection to the strange atmosphere of hospital. Through patients' gifts, payments, and allowances, the hospital is self-supporting and there is no existing debt.

To reproduce this hospital with additional improvements and alterations to bring it into line with the diagnostic hospitals would need State help at first. A lot would depend on the nursing staff, and the matron would have to be a very efficient and tactful woman, not only with administrative powers over the nursing staff, but vested with authority to act as hospital secretary and controller as at Hayle. Modifications would have to be introduced according to the locality, as, for example, special clinics in industrial areas for industrial injuries. As regards midwifery, each diagnostic hospital might have a small ward for straightforward cases where mothers who had no home facilities could be looked after by their own doctors under specialist supervision. Special hospitals — e.g., ophthalmic, E.N.T., and orthopaedic—might continue as they do now, but with much smaller out-patient departments and clinics; the routine procedure carried out at the clinics could be done by the G.P. at home. Public health organizations might assist in the administration of the hospital scheme, and their purely clinical personnel employed in preventive medicine. The child welfare, midwifery, and antenatal work could be undertaken by a rota of G.P.s at the diagnostic hospitals.

The three great advantages would be early diagnosis, better working conditions for the G.P., and greater readiness on the part of patients to enter hospital.

Correspondence

Free Choice of Doctor and Certification

SIR,—In the *Supplement* of Dec. 26 (p. 79) is an article by Dr. Buckley Sharp which seems to ask for criticism and challenge. It contains a number of assertions purporting to be statements of fact which are actually no more than the expressions of Dr. Buckley Sharp's opinion. He states: "Whenever a service is taken over, organized, and paid for by society as a whole (the State) the individuals lose their power to choose." This is surely not true. What the individual has lost is his power not to contribute. He is not under any compulsion to accept the service as ordered—e.g., he is still free to choose where his child shall go to school and may still be free to choose his doctor.

Then again: "The professional attributes most likely to lead to wide patronage and thus prosperity are an air of omniscience combined with a certain dogmatism, a sympathetic attitude to the patient and his complaints, and last, but not least, an uncritical readiness to issue certificates for the patient's material benefit." This is certainly not true. The doctor with a sympathetic attitude to the patient and his complaints, who knows his work, is easily able to be prosperous without either omniscience or dogmatism, and certainly without an uncritical readiness to issue certificates, etc.

Or yet again. "Hence the Workmen's Compensation Act has gained its title as a failed social experiment"; this is surely not more than Dr. Buckley Sharp's opinion.

Whether free choice, as we know it, will be a feature of the medical services of the future is and must be a matter for the public to decide. Doctors, after all, are much less interested in this than are the patients.

The main argument of Dr. Buckley Sharp's article on certification seems to rest on the assumption that the standard of honesty (or dishonesty) of the public and of the medical profession is such that neither together nor separately are they to be trusted to work a measure of greater social security. This, in my view, with a long experience of people and practice, is a false assumption. I suggest that the standard of honesty of the public and of the doctors is probably much the same. Experience tells me that for every person who would extend his period of incapacity improperly there are several who go back to work before they are really well. From this there emerges a standard of average honesty of both patients and doctors on which the success of any scheme of social security must depend. I have heard it stated that if every sick person drawing sickness benefit took one extra day of his benefit the scheme of National Health Insurance would become bankrupt. It is still very solvent.

In the social security scheme of Sir William Beveridge, when calculating the financial side, provision will require to be made for longer convalescence after illness. If the higher standard of health ("positive health") it envisages is to be attained no one must be allowed to return to work until health is properly restored. I suggest that anything up to a week may have to be added to the present experience of the average length of incapacity.

It is obvious that there is never in any illness an exact moment at which a patient is not fit to work and the next in which he is fit. It is a problem depending upon a number of factors beside the actual mental or physical condition of the patient, such as the nature of the work, the hours of work, distances to be travelled, etc. This has to be decided by the doctor and patient in honest agreement. Personally I am satisfied that the certification of incapacity can best be done by the patient's doctor as it is to-day. Dr. Buckley Sharp's fantastic suggestion that a second set of doctors—"certification doctors"—should be set up to examine the patient and to issue certificates of incapacity, following, I presume, the "treatment doctor" from house to house, is surely not meant seriously. Unfortunately it is always necessary to provide against dishonesty.—I am, etc.,

Birmingham. H. GUY DAIN.

The Ministry of Health has decided to remove the name of Dr J. J. Coghlan from the medical list of the Kingston-upon-Hull Insurance Committee as from Dec. 8, 1942.

REQUISITIONING OF CARS AND TYRES

In connexion with the recent census of laid-up cars, the B.M.A. has made the strongest representations to the Ministry of War Transport and the Ministry of Supply on the importance of doctors being allowed to retain their spare cars (with tyres) for emergency use and of doctors in the Services having a car (with tyres) available when they return to civil practice. The Ministry of War Transport has stated that if and when it is found necessary in the national interest to requisition laid-up cars from private owners, the Association's representations will be kept in mind Neither they nor the Ministry of Supply can give an assurance that in no circumstances will it be necessary to requisition cars or tyres belonging to doctors, but in no case will such cars or tyres be taken without the owner being notified and given an opportunity of appealing. The authorities concerned have been left in no doubt as to the serious consequences, especially in present circumstances, of a doctor being immobilized. Doctors are of course permitted, if they so desire, to keep two cars regularly in use, arranging for part of their petrol allowance to be allocated to the spare vehicle. This is the only method by which immunity from the risk of the second car (or its tyres) being requisitioned can be secured.

BRITISH MEDICAL ASSOCIATION

CORRECTION TO MINUTES OF A.R.M.

Attention is drawn to an error in the Minutes of the Annual Representative Meeting issued to members of the Representative Body. The motion proposed by Bradford (Minute 173) is stated to have been *withdrawn*. The motion was *carried*, as was correctly reported in the *Supplement*.

Diary of Central Meetings

JANUARY

7. Thurs **Journal Board,** 1 45 p m.

FEBRUARY

3 Wed. **Council,** 10 a m. *(change of date).*

Branch and Division Meetings to be Held

WEST SUFFOLK DIVISION.—At County Insurance Committee Office, Angel Hill, Bury St. Edmunds. Tues, Jan 5, 3 15 p m Election of officers, etc

WEEKLY POSTGRADUATE DIARY

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane Road, W—*Daily*, 10 a m to 4 p m., Medical Clinics, Surgical Clinics and Operations, Obstetric and Gynaecological Clinics and Operations. *Daily*, 1 30 p m., Post-mortems. *Mon.*, Course on Recent Advances in the Medical Aspects of War Injuries begins; 2 p m, Ear, Nose, and Throat Clinic *Tues.*, 10 a.m, Paediatric Clinic; 11 a.m, Gynaecological Clinic; 2 p m., Genito-urinary Clinic *Wed*, 11 30 a.m., Medical Conference *Thurs.*, 2 p m, Dermatological Clinic; 2.15 p m. X-ray Demonstration on the Oesophagus by Dr E. J E Topham. *Fri.*, 12 15 p m, Surgical Conference; 2 p m., Gynaecological Conference, 2 p m., Sterility Clinic.

DIARY OF SOCIETIES & LECTURES

ROYAL SOCIETY OF MEDICINE—*Wed.*, 2.30 p m Section of History of Medicine; 2 30 p m. Section of Surgery

ROYAL NATIONAL THROAT, NOSE AND EAR HOSPITAL, Gray's Inn Road, W.C—*Fri.*, 4 p.m Mr. S A Beards: Petrositis.

BIRTHS, MARRIAGES, & DEATHS

BIRTH

PARFIT.—On Dec 11, 1942, at the Union University, Chentgu, West China, to Jessie (*née* Browne), M.D, and Norman Parfit, B.M., B Ch, D.P H, a son

DEATHS

GIBB—On Dec 14, 1942, at 294, Great Western Road, Aberdeen, George Gibb, M.A, M.B, C.M, aged 81 years.

HUNTER.—On Dec 22, 1942, at Nottingham, Dr David Hunter, M A., M.B, B Ch, aged 72

PARK.—On Dec. 18, 1942, at the Rookery, Birkdale Susannah Openshaw Park; dearly beloved wife of the late Richard Lister Park, L.R.C P &S., and dear mother of Mary Park.

SUPPLEMENT TO THE

BRITISH MEDICAL JOURNAL

LONDON SATURDAY JANUARY 9 1943

MEDICAL STUDENTS IN CONFERENCE

VIEWS ON MEDICAL EDUCATION BY THOSE WHO ARE UNDERGOING IT

The British Medical Students' Association, which held its inaugural meeting last June, arranged a congress at B.M.A. House in London on Dec. 18 to 20, 1942. Nearly all the medical schools in the country were represented by an assembly of eager students, among whom there were many women, and the concise way in which they put forward their views and conducted their proceedings was a pattern to more senior gatherings.

Medical Students and National Service

At the opening session, which was presided over by Prof. A. V. Hill, F.R.S., an address was given by Mr. Ernest Brown, Minister of Health, who reviewed the position of medical students under the National Service (Armed Forces) Act. The reservation of male students, he said, was subject to periodical certification and satisfactory progress in their studies, and also to the performance of part-time service, though it was appreciated by the Ministry of Labour and National Service that students who had reached the clinical stage, and particularly those in their final year, might not be able to participate in such part-time service and could be recommended for exemption. Mr. Brown emphasized two points. If a student went to a university for his pre-medical studies, or was able to take them at a medical school, his acceptance must be completed before an enlistment notice was issued, but the procedure was usually of a routine nature. Secondly, periodical reports were furnished by vice-chancellors and deans on whether or not a student was making satisfactory progress.

The question of the opening of certain hospitals to women was under consideration by the Interdepartmental Committee on Medical Schools. With regard to the proposed increase in the quota of women in those hospitals already admitting them for the academic year 1942-3, the total quota for women was 308, and at present the acceptances had reached 323. The quota of the "mixed" schools was 1,036 (both sexes), and the acceptances for the present academic year numbered 916, so that there were still 120 vacancies for women students. The quota fixed for women might be exceeded to make up for a shortage of applicants within the men's quota. There was little opportunity for any immediate extension of existing facilities in teaching, which were affected by the absence of teachers on service as well as by the number of hospital beds and amount of laboratory accommodation.

At the conclusion of his address the Minister answered about forty questions put to him from the floor of the hall. He was asked his opinion with regard to a State Medical Service, and said in reply that he envisaged a comprehensive medical service such as was outlined in the Beveridge report.

Dr. Charles Hill, Deputy Secretary of the B.M.A., expressed a welcome from the Association, saying that it had no idea of interfering in the affairs of the student body, although it was available for help and advice, and the facilities of its house were at their disposal. The B.M.A. was anxious for a vigorous body of medical students because of the call for men and women of statesmanlike outlook in the future medical profession, especially when, as now, medical organization was on the eve of profound changes. He felt also that the stimulus for the recasting of medical education must in no small part come from medical students.

Reform of the Curriculum

Subsequent sessions were devoted to the consideration of a memorandum on medical education which had been prepared by a subcommittee of the association for submission both to the Medical Planning Commission and to the Interdepartmental Committee on Medical Schools set up by the Ministry of Health. All the medical schools in the country had been circularized, and the innumerable suggestions for the reform of the curriculum had been incorporated in so far as this was possible while preserving the coherence of the document. Some idea of the students' proposals may be gained from the summary of the suggested medical course:

School.
- Matriculation examination — including compulsory science.
- First year: General education in science, literature, economics, etc. Period of confirmation of choice of the profession.
- Second year: Travel, non-academic work, or remain at school, in which case take higher school certificate.

University or Medical School.
- First year: Pre-medical sciences and sociology. 1st M.B. examination.
- Second year: Pre-clinical sciences—anatomy and physiology, including histology, neurology, biochemistry, and pathology.
- Third year: As second year. 2nd M.B. examination.
- Next 33 months: Clinical studies; State qualifying examination.

The report was the subject of an animated debate, a long succession of students coming to the rostrum. Among the points made were the need for the wider use of municipal hospitals for teaching; the desirability of staff-student committees to discuss mutual difficulties; the benefits of a system of apprenticeship, if necessary compulsory, to general practitioners; the call for reservation of teachers; and the advantage of abolishing the long vacation and introducing a fourth term. One student thought that histology should be taught under physiology, being more interestingly assimilated under the general head of function than under that of structure. Another complained that the report mentioned sociology as a pre-medical subject, but did not recommend an examination upon it; he argued that if it were not made an examination subject little interest would be taken in it. Another wanted a more prominent place in the curriculum for industrial medicine, especially instruction in the chemicals used in the new industrial processes. Another criticized the shortness of the period—three months—allotted to clerking on a children's ward; in view of the fact that 40% of a general practitioner's patients were children, the period should be six months.

There was much debate on the admission of women. One student from Guy's expressed himself strongly against co-education in the medical schools, but the general feeling was in favour of it, and many men as well as women students urged that women should be admitted on exactly the same basis as men—not on an arbitrary method of selection, such as one woman to twenty men—and that women should have equality in respect of house appointments and postgraduate opportunities.

Away from Individualism

The closing address was given by Prof. J. A. Ryle, honorary president of the association. He declared that in the past the training and practice of members of the medical profession had been too individualistic. It had been directed too much to the intimate as opposed to the ultimate aspect of disease: to the tubercle bacillus rather than to the conditions under which tuberculosis continued to thrive. There had been too much separatism—of general practitioners from one another, of consultants from general practitioners, of hospital service from domiciliary service, of public health service from general practice, of research from all the rest. The student was also taught little about the subject of health though much about the departures from it. He had heard recently qualified men complain at the prospect of having to go into the R.A.M.C., because they would see no interesting cases. But on the contrary it would be a splendid opportunity to practise social medicine. It was a far greater function to be a battalion medical officer, keeping 800 men healthy, than to be a house-officer in charge of 40 beds, half of them filled with incurables. Prof. Ryle was heckled for over an hour at the close of his address.

Sir CHARLES WILSON addressed a private session of the Congress, and another session was devoted to discussing a programme for the association. A committee was set up to study the Beveridge report and to report to the next congress. Greetings were sent to students of Allied nations. The assembly passed a resolution whole-heartedly approving the acceleration of the medical curriculum in this time of national crisis, but approving also the maintenance of examination standards as recommended by the G.M.C. Other specific recommendations included the planned reservation of teachers in all medical schools, the greater use of women in teaching posts, the fullest possible use of all available hospital material in the vicinity of each medical school, and the setting up of efficiency committees covering lay and medical staffs and students with a view to improving hospital organization. The principle of equal admission of women was approved. A compliment should be paid to Mr. I. R. Clout (Westminster) and Mr. A. D. Bangham (University College), president and secretary respectively, on the way the congress was conducted.

HOSPITAL POLICY OF THE B.M.A.

A meeting of the Hospitals Committee of the B.M.A.—the first for more than a year—was held on December 8 under the chairmanship of Dr. Peter Macdonald. Mr. R. L. Newell of Manchester was elected, in his absence, chairman for the session, Dr. Macdonald not seeking re-election owing to his duties as chairman of the Representative Body. On the motion of Prof. Picken, Acting Chairman of Council, the committee placed on record its great appreciation of Dr. Macdonald's services in the chair for a period of more than 10 years. Dr. Macdonald said that his successor might have a more interesting period of office, for events in the hospital world were moving fast, but he could not have a pleasanter one than he had had himself, thanks to the good will of his colleagues and of "the two best secretaries in the country," Dr. Anderson and Dr. Hill.

The first matter to which the committee devoted attention was a hospital dispute which has arisen at a provincial town, where an endeavour has been made to deprive the visiting medical staff of membership of the committee of management. It was stated that the chairman of the committee and the secretary had arranged to visit the area on the following day to interview the management. The committee, which had before it all the correspondence that had taken place, approved the action of the secretariat and endorsed resolutions which had been passed by the Executive Committee.

A large part of the time of the meeting was occupied with a discussion on cottage hospitals in relation to the proposals of the Nuffield Trust. The matter had been raised by Dr. L. J. Picton of Cheshire, who attended the meeting by invitation. Dr. Picton said that in his opinion the Nuffield proposals for what might be called the de-grading of cottage hospitals threatened to destroy the work which those useful institutions were doing. In so doing they would also destroy the general practitioner who practised, as his plate proclaimed, as "physician and surgeon," and who in many cases carried out some excellent work, both emergency and routine major surgery. He gave an account of the excellent cottage hospitals of Cheshire and of the operations performed in them. A consulting surgeon was generally not available for emergency operations except in large centres. He was anxious that the cottage hospital should not be relegated to the position of a mere convalescent home, and that general practitioners should not become just surgical dressers to, perhaps, young consultants of less practical experience. One member of the committee said that the remark about non-availability of consultant surgeons did not apply in his own scattered rural area, where, although the county hospital was perhaps 25 or 30 miles away, the staff was always available day and night to go out to perform emergency operations.

The feeling of the committee, after hearing Dr. Picton's statement, was that no doubt his arguments applied with a great deal of force to Cheshire and to other parts of the country where cottage hospitals were well staffed by general practitioners of skill and experience, but that there were other districts where perhaps the cottage hospitals revealed a lower standard. The problem of the cottage hospital raised the whole question of rural institutional medicine and required decision, and it was agreed to refer the matter to the Institutional Committee of the Medical Planning Commission, with the suggestion that it might usefully co-opt Dr. Picton and perhaps others specially interested. Dr. Picton pointed out that the problem also concerned the General and Special Practice Committees of the Commission, having wide implications for rural practice in general.

The committee next considered a resolution of the Annual Representative Meeting concerning the principle that a committee of senior medical staff should be set up in all hospitals, with the medical superintendent as its chairman, through whom the resolutions of the committee should be transmitted to the hospital management. The hospitals in view were, of course, particularly council hospitals, where it has been considered that too much responsibility for internal administration is vested in the medical superintendent and too little in other members of the staff. In voluntary hospitals a medical staff committee is usually given full scope for initiative.

After a long discussion the committee, while fully endorsing the need for a committee of senior medical staff, found some difficulty concerning the position of medical superintendent in relation to it. It was felt that he must have the right to attend its meetings, whether he was a member of the committee or not; many matters which might otherwise require formal representation would in that way be resolved over the table. The point whether the medical superintendent should be chairman or not should be left to the discretion of each committee, but it was thought important that the committee should have the right of direct access, which would rarely need to be exercised, to the hospital management committee.

The principal remaining business was to consider a memorandum recently adopted by the Medical Superintendents Society on hospital planning and policy. Suggestions were made for revision or for greater clarity at certain points.

HOSPITAL REGIONALIZATION IN SCOTLAND

A Medical Planning Study Group was recently formed at a general meeting of the medical profession in Edinburgh, and as a result of six months' study it has put forward a memorandum on post-war hospital problems, particularly, of course, as they apply to Scotland. The view of the Study Group is that a co-ordinated hospital service should combine the best characteristics of the voluntary and of the local authority hospital. For example, in local authority hospitals the medical staff are paid, and there exists a regular system of payment by patients according to their means. In voluntary hospitals the medical staff have the inestimable opportunity of influencing directly and even determining the type and character of the work carried out. In the future hospital service these principles should be retained. The terms "voluntary" and "municipal," in the opinion of the Group, should disappear in favour of some such term as "regional."

The first of several recommendations is that the new hospitals built by the Government, and now administered by them as part of the Emergency Hospital Service, should be taken over and administered by regional health authorities established by a central authority. The number of regions in Scotland would be, conveniently, 5, and boards of management for these hospitals would be set up either through the agency of the regional authority or of the local authority within whose area the hospital is situated. On the regional controlling body all the interests concerned in different groups of hospitals—voluntary, local authority, and E.M.S.—should be represented adequately and with equity, with as little disturbance as possible of the immediate management of any hospital.

The Group suggests that the central authority, which would formulate national health policy and establish regional authorities, should be a corporate body, responsible in Scotland to the Secretary of State, and including, in addition to the Government representatives, representatives of hospital staffs, medical officers of health, general practitioners, and allied health services. Each regional health authority should consist of, say, 20 members: 7 from the medical profession, 6 from lay bodies (local authorities and boards of management), 1 from the nursing services, and 2 nominees of the Secretary of State, 2 of the Department of Health, and a chairman and secretary. In association with these authorities there should be a number of advisory councils, one of them a medical council consisting of all the medical members of the regional authority, and additional medical members from the hospital staffs and schools of the region, to make recommendations concerning appointments, schemes of research, and other matters. There would also be a regional medical bureau to arrange for admission of patients in conjunction with the general practitioners severally concerned, to organize regional transportation service, to review the needs of hospitals for special equipment, and so forth. The financial arrangements between voluntary hospitals and local authorities would be by allocation of moneys by the regional authority to the governing bodies and the local authorities according to the needs of their respective hospitals, as determined on the advice of an assessor. From the funds at its disposal the regional authority would be empowered to allocate sums for remuneration of medical staff, and the following scale is suggested: (1) Whole-time senior appointments, £2,000 to £2,500. (2) Part-time senior appointments pro rata, based on a full-time salary of £1,500 to £2,000. (3) Whole- and part-time appointments other than senior, pro rata, based on a full-time salary as follows: (*a*) assistant surgeons and physicians, etc., £1,000 to £1,500; (*b*) clinical assistants and tutors, £550 to £900. (4) Whole-time house appointments, with board, junior, £150 to £200; senior, £250 to £350. (5) Medical superintendents of key hospitals, £1,500 to £2,000, to be reduced pro rata when there are other emoluments.

It is added that all these figures are based on appointments carrying with them a pension graded according to years of service and to salary at time of retirement.

HEALTH PROPOSALS BY THE COMMUNIST PARTY

The Communist Party of Great Britain has issued a memorandum containing its proposals for health services. The proposals are not, however, of the radical and far-reaching character which is found in some other manifestos; the question of a State Medical Service is not mentioned, and the purpose of the memorandum is to urge an immediate increase of efficiency in health services in order to assist war production and to prepare for and assist the "second front." There must be, say the compilers, a drive to get all workers more "health-conscious," an improvement in wage and salary rates and in living and working conditions for health workers, especially nurses, and a wide extension of trade union organization throughout the health services. Workers are urged to take every opportunity of raising health questions in production committees, trades councils, trade union branches, and all sections of the Labour movement. In particular it is suggested that in all joint production committees and shop stewards and works committees, one or two workers, forming a "workers' health inspectorate," should be made responsible for knowing the Factory Acts and the rights of workers under them, for seeing that their respective committees discuss health matters, and that, when necessary, advice is obtained from the factory doctor, industrial nurse, or the welfare department.

Many suggestions are made for meeting the shortage of nurses, including better use of staff in all departments of hospitals; and an improvement in the living conditions of nurses. A 96-hour fortnight, exclusive of meal-times but inclusive of compulsory lectures, is regarded as the national maximum. While, naturally, the pamphlet has a strong trade-unionist bias, it acknowledges the services of the British Medical Association not only in securing adequate rates of pay and conditions of service for doctors but in shaping national policy on such questions as national health insurance, nutrition, treatment of industrial accidents, and physical education. With regard to general practitioners the memorandum says that in wartime many adjustments might be made between medical men in general practice and those employed in hospitals and in public services so as to fill up the gaps in medical man-power. By means of committees democratically elected from all the doctors within a given radius—if the B.M.A. organization or the Local Medical War Committee is not suitable—medical personnel could be directed to provide domiciliary services, to man the various local clinics, and to supply factory doctors, without overlapping and with the minimum of disturbance and travelling.

Correspondence

Free Choice of Doctor and Certification

SIR,—Insurance practitioners would, I am sure, have been highly amused at Dr. Sharp's description of medical practice if his remarks had been addressed to a purely medical audience. Unfortunately they will have reached a wider public, and some readers may have taken them seriously, though surely no one will accept the idea of the "super-certifiers."

As a member of a multiple partnership I can assure Dr. Sharp that when one member of the partnership is unavoidably absent his patients frequently leave the surgery and come again at the next session.

The professional attributes which Dr. Sharp thinks "most likely to lead to patronage and prosperity" are mostly wide of the mark. "A sympathetic attitude to the patient and his complaints" is, and must be, an essential factor in any sphere of practice. As for "an air of omniscience," that departed years ago; patients to-day want to know why. "An uncritical readiness to issue certificates"—what nonsense; a doctor who wishes to conduct a large practice and to command the respect necessary for the conduct of that practice must be critical in the issue of all certificates and firm in refusal of those for which there is no warrant. Weak knees cannot compete against a stout heart, nor complacency against honesty.—I am, etc.,

Birmingham. J. A. BROWN.

Industrial Medical Attendance

SIR,—The present emergency has called for an increased number of practitioners functioning as full-time or part-time industrial medical officers. Quite a large number of these men apparently have not the time to conform to the ethical rules and duties for industrial medical officers as laid down by the B.M.A., in that they are not giving emergency treatment in cases of industrial accident and subsequently referring the patient to his own doctor, but are providing follow-through treatment from first to last.

There are several factors concerned in this particular form of abrogation of the ethical rules as I see it: (*a*) There is a loss of N.H.I. benefit, as the employer does not stamp the card during a period of incapacity. This loss is provided against when the insured person receives his certificate of incapacity from his insurance practitioner. Incidentally the particulars of the accident are not entered on the medical card. (*b*) The individual is deprived of the opportunity of seeing his own doctor at the time of and after the accident. This could assume importance in a compensation claim. In the ordinary case the reverse procedure holds good: the patient in an industrial accident who is attended by his insurance practitioner is also immediately seen by a representative of the insurance company concerned. (*c*) Follow-through treatment could be construed in the case of part-time workers as utilizing the appointment to secure the individual as the medical officer's own patient.

Some officers are also assuming the onus of providing the necessary certificate of exemption from duty as required by the Ministry of Labour. Cogent reasons can exist why the medical officer finds it necessary to issue such a certificate, whereas the N.H.I. practitioner is free from any such obligation.—I am, etc.,

Tipton, Staffs. L. H. EUNSON.

Reinstatement in N.H.I. of Service Personnel

SIR,—The Minister of Health has again refused to grant a wartime increase in the insurance capitation fee, and it is obvious that this is part of a Government decision affecting salaries in general, and it would appear that it is a waste of time to pursue the matter further.

There is, however, another step which could reasonably be taken which would go a long way towards alleviating some of the financial difficulties of practitioners, and it surprises me that this has not been urged upon the Minister long ago. The step I suggest is the immediate reinstatement in insurance of all insured persons who have been removed through having "joined H.M. Forces." This large group of insured persons comprises almost exclusively the young and healthy section of the population who before the war required the minimum of medical attention, and who helped to pay for the older and more decrepit sections. The latter now constitute the entire panel, and that is why the amount of work required is out of all proportion to the remuneration.

I would further suggest that in return for this concession practitioners should assume responsibility for all Service personnel who happen to be on leave in their areas, thus saving the clerical work involved in claiming fees from the Services, and making it easier for men or women on leave to obtain any necessary treatment. If there are, say, 6,000,000 men and women in the Forces, the cost of this concession would be approximately £3,000,000 per annum, which would fall on the Service estimates, while half of this amount would return to the Exchequer in due course in the form of extra income tax. In this way the Minister could remove a constant feeling of grievance and obtain a more satisfied medical service without infringing the Government's decisions with regard to the stabilization of salaries.—I am, etc.,

Coventry D. MURRAY BLADON.

NIGHT MEDICAL SERVICE FOR LONDON

There have been reports from other areas of difficulty in obtaining the services of a doctor at night, but so far as London is concerned the Local Medical and Panel Committee has decided to establish a night medical service, which will provide for rosters of doctors who are prepared to answer night calls in their own neighbourhood. Briefly the details of the scheme are as follows: All practitioners in the London area are invited to join the service. They will be grouped, and the area they cover will depend upon the size of the group; but it will, if possible, be limited to 1 mile from the doctor's surgery. One or more members of the group will be on duty at a time during periods of about a week—e.g., in a group of 8 with 2 on duty at one time each member's duty period will be one week each month. Copies of the roster will be sent to members of the group and to organizations in the area likely to be affected, such as hospitals, etc. One member of each group will act as hon. secretary and be a member of the executive committee which will administer the service under the Panel Committee. As regards fees. members of the service will normally attend patients for each other, and it is presumed that the question of a fee will not arise. In other cases the doctor on duty will recover a fee from the patient or other appropriate source. Each doctor joining the service will be asked to pay an annual subscription of 5s. to defray costs.

The scheme has been carefully worked out and the details embodied in a circular letter which, with a copy of the rules of the service and a reply postcard, has been sent to every general practitioner in the Metropolitan area. This is a very real attempt to deal with a problem which has been accentuated by the war, and one which may well become worse as the war continues. It is hoped that London doctors will support this scheme and thus help to distribute fairly what is, perhaps, the most arduous part of a doctor's work. As has happened on many other occasions in this war, necessity has pointed the way to much-needed changes, and we note with interest that the secretary of the London Local Medical and Panel Committee, Dr. C. L. Batteson, hopes that the night medical service will not be a wartime measure only but will stay to be a boon to doctors after the war is over.

The Ministry of Supply, in a statement on the care of rubber, reminds car owners and drivers that excessive speed, overloading, incorrect inflation, misalignment, and braking are among the chief causes of a tyre failing to give maximum results. A private car should not be driven at more than 30 m.p.h., at which speed the rubber lost through wear is considered "normal" and not "wasted"; at 40 m.p.h. about 24% of the rubber lost is "wasted," and at 50 m.p.h. the waste figure is nearly double. Over- and under-inflation are equally bad for tyres, and the former will not compensate for overloading. Tyres should be examined regularly for cuts, embedded stones, etc., and should be submitted for replacement well before the fabric begins to show. Care in braking and attention to the alignment of the wheels are other ways of getting the best out of tyres, and doctors, whose cars are in such frequent use, are asked to give special attention to these points.

H.M. Forces Appointments

ARMY

Col. (Temp. Brig) R. B. Price, D.S.O., late R.A.M.C., having attained the age limit for retirement, is retained on the Active List, supernumerary to the establishment.

ROYAL ARMY MEDICAL CORPS

Lieut.-Col. (acting Col.) L. A. J. Graham, having attained the age for retirement, is retained on the Active List, supernumerary to the establishment

Major (Temp Lieut.-Col) T. S. Law to be Lieut.-Col

Capt. (Temp. Major) S. G. M. Lynch to be Major.

TERRITORIAL ARMY

Col. (Temp Brig) E. M Cowell, C.B., C.B.E., D.S.O., T.D., has been appointed Director of Medical Services, and has been granted the paid acting rank of Major-Gen

LAND FORCES: EMERGENCY COMMISSIONS

ROYAL ARMY MEDICAL CORPS

Majors (Temp. Lieut.-Cols.) J. B Woodrow and F T. Boucher from temp. commissions, to be Lieuts., retaining the temp. rank of Lieut.-Col. and War Subs. Major.

Major C M. Row, from temp. commission, to be Lieut., retaining the temp rank of Major and War Subs. Capt

War Subs Capts B J. Wilton, K W. Powell, and N M Segal have relinquished their commissions on account of ill-health and are granted the rank of Capt.

Lieuts G. B Stanford and O. L. Lander have relinquished their commissions on acount of ill-health and retain their rank.

To be Lieuts: G. J. Clarke, H Richards, W H Greany, A Cruickshank, H D. Fairman, J. L D Roy, J W. Scharff, J. M Barnes, J. B Tucker, J. Beggs, H Ferguson, W. Gibson, E. D. Allen-Price, R M Campbell, A. A. Martin, H. A. Raeburn, W. G. Swann, S. I. Arahams, A. R Allardice, W. Anderson, J. F R Bentley, R. H. Bowie, O. M Brewster, W E Brigg, G. G. Browning, J K A. Burn, M M. Campbell, M. Coburn, B. U Coffey, W. J. E Darling, E. B. Dawe, J De Larcy, N G. Douglas, G. W. Downes, P. A. Eyre, J N M Fairley, J. D. Fisher, G. A. Fitzpatrick, J A S. Forman, M. F Gallop, C. B. J. Glausher, R G. B Gilbert, E C. E. Golden, F. M. Gordon, S W. Grant, D Gregory, H. J Hale, C. R S Jackson, C. H. Jellard, I. F. B Johnston, R. Johnston, G B Jones, O. V Jones, L. G Kiloh, R. King-Brown, H. S Klein, W H Leake, H. G. Letcher, H McK. McDonald, J C McDonald, D. Martin, R. Meek, J P. Mitchell, R. M. Moore, L. F. Pearson, J S S Pollock, A. Potellakhoff, T. M. Pollock, C M C. Potter, J. B Raper, D C. Robb, W G Roberts, D. F. Ross, C. A Simmons, G Skinner, B J. Smith, H. J C. C Smith, S. L Smith, R. G. Spicer, M A. Stanton, J F Stokes, M E. Tapisuer, G E Thomas, A. B. Tompkins, C H Watts, J H Wildman, R. B Wilson, W. D Wilson, A C. Woodmansey, J. V. Ryan (*correction*).

WOMEN'S FORCES

EMPLOYED WITH THE R.A.M.C

The following M.O.s have been granted commissions in the rank of Lieut.: Ethel L. Deas, Jean C Nelson, Rona Price-Davies, Margaret I Ross, Mary A Saunders, Ellen G. O. Walsh, Gertrude A Willis.

ROYAL AIR FORCE

Wing Cmdr. R A G Elliott has resumed the rank of Group Capt on reverting to the retired list at his own request

ROYAL AIR FORCE VOLUNTEER RESERVE

H C Beccle to be Squad. Ldr (Emergency).

Fl Lieut. B. B. Botha has relinquished his commission on appointment to the S A M C

Fl Lieut F. T. Dodd has relinquished his commission on account of ill-health and retains the rank of Squad Ldr.

The notification concerning H. Avery in a *Supplement* to the *London Gazette* dated Nov. 24, 1942, p 5104, col 2, should have read Fl. Lieut and not Flying Officer

C. A. Lewis to be Fl. Lieut. (Emergency).

Flying Officers W B S. Crawford, J. W. Fleming, J. P Kelly, J. S Lane, W. M. Morgan, A. de W. Ranken, A. L. Alban, W. A. Glen, F. V A Bosc, W. Flynn, R. C Fuller, T Hardy, J. E Sharpley, D O. Wharton, R E. Dunn, G. H Boston, G. H. Cooper, A. Craig, A. Davis, J M Ferguson, A H. Hands, C. R. Sluming, M. L. Gaudin, T. B Russell, J. G Taylor, W. R. Barrington, R. U. Carr, J. F. Cartwright, W. T. S. McKean, P. G. McE G Jones, S. Gibson, A. A. Hill, P. H Bell, E. H B Hopkins, D. McCaw, R. W McDowell, Q St L. Myles, D Cowan, R. C Fraser, J. R. Slessor, A. Standeven, J M. Wilkin, J. L. Boyd, W. D Smith J E. Gilbert, M Gold, A R. Nettleton, A. D. McL. Douglas, and L Ross to be War Subs Fl. Lieuts

Flying Officer G B. Schofield has relinquished his commission on account of ill-health and retains his rank.

To be Flying Officers (Emergency): E. Barry-Smith, J. B. Pettigrew, R. A. Rutherford, J. S Boyd, D. W. F. Charlton, W. A. Clarke, J. R. Colville, J. H. Edgar, R. A. Moorehead, J. E. E Morgan, G. A. Powell-Tuck, G. Snowden, and B. McC Throne.

R.A.F.V.R.: DENTAL BRANCH

Flying Officer A G. Beaton, M.R.C.S., L.R.C.P., to be War Subs. Fl. Lieut.

A. T Wynne, M.B., Ch.B., to be Flying Officer (Emergency).

INDIAN MEDICAL SERVICE

Lieut.-Cols. S. L. Mitra and V. R. Mirajkar, O.B.E., have retired.

Capt. R. R. Prosser to be Major.

EMERGENCY COMMISSIONS

Lieuts (on probation) T. H S. Smith, F. Hunter, J A W. Bingham, M. J. Barry, C. Conway, J. W. Magner, C R. K. Carroll, F. A. H. Hall G. B. R. Walkey, N N Iovetz-Tereshchenko, R C. Hallam, G. Hannigan, H. V. Knight, S. E. Vincent, H. M I Davies, B. M Medley, T Stephens, A. J McG Cathro, W. E Owens, G. Quayle, D. Currie, J D Phibbs, C. G. R. Sell, A D A. Maconochie, W. J Aitken, A. M. Merriweather, A. Gray, I. L. H Hewlett, I D. Patterson, M. E. M. Fleming, and M. B. M. Blanden to be Capts. on probation.

POSTGRADUATE NEWS

A series of postgraduate lectures will be given in the West Medical Theatre of Edinburgh Royal Infirmary on Thursdays, Jan. 28, Feb. 4, 18, and 25, and March 4 and 11, at 4.30 p.m.

WEEKLY POSTGRADUATE DIARY

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane Road, W.—*Daily*, 10 a.m. to 4 p.m., Medical Clinics, Surgical Clinics and Operations, Obstetrics and Gynaecological Clinics and Operations *Daily*, 1 30 p.m., Post-mortems. *Mon.*, 2 p.m., Ear, Nose, and Throat Clinic. *Tues.*, 10 a.m., Paediatric Clinic; 11 a.m., Gynaecological Clinic; 2 p.m., Genito-urinary Clinic. *Wed.*, 11 30 a.m., Medical Conference. *Thurs.*, 2 p.m., Dermatological Clinic; 2.15 p.m., *X*-ray Demonstration on the Stomach by Dr. E J E. Topham *Fri.*, 12 15 p.m., Surgical Conference; 2 p.m., Gynaecological Conference; 2 p.m., Sterility Clinic.

FELLOWSHIP OF MEDICINE, 1, Wimpole Street, W—*London Homoeopathic Hospital*, Queen Square, W.C: Clinical surgery demonstration Wed afternoon (limited to 6). *National Heart Hospital*, Westmoreland Street, W.: Tues. and Wed., 10 a.m. Out-patient clinics.

DIARY OF SOCIETIES & LECTURES

ROYAL SOCIETY OF MEDICINE—*Tues.*, 2.30 p.m. Section of Pathology, at St. Mary's Hospital *Wed.*, 2 30 p.m. Section of Physical Medicine. *Fri.*, 3.30 p.m. Section of Obstetrics and Gynaecology; 4.45 p.m. Section of Radiology.

B.M.A.: Branch and Division Meetings to be Held

CITY DIVISION.—At Metropolitan Hospital, Kingsland Road, E., Tues., Jan. 12, 3 p.m., Dr. P Hamill: The Panel Pharmacopoeia and the Sulphonamides

GLASGOW AND WEST OF SCOTLAND BRANCH.—At Institution of Engineers and Shipbuilders in Scotland, 39, Elmbank Crescent, Glasgow, Tues., Jan 12, 3.30 p.m. Prof. J. M. Mackintosh: Nutrition and Medicine.

BIRTHS, MARRIAGES, & DEATHS

The charge for inserting announcements under this head is 10s. 6d. This amount should be forwarded with the notice, authenticated with the name and address of the sender, and should reach the Advertisement Manager not later than first post Monday morning to ensure insertion in the current issue

MARRIAGE

GILCHRIST—STOCKTON.—On Jan. 2, 1943, at Dulwich, Norman S. Gilchrist, O.B.E., M.D., of 21, Harley Street, W 1, and 3, Alleyn Park, S.E.21, to Elizabeth Stockton, of 6, St. Mary's Mansions, W.2

DEATHS

ALLEN.—On Dec 28, 1942, at Letchworth, Frank James Allen, M.A., M.D., formerly Professor of Physiology, Mason University College, Birmingham, late of Cambridge and Shepton Mallet, in his 89th year.

BOYD.—At Craighouse, Beith, Ayrshire, on October 18, 1942, Robert Boyd, M.D., of 322, Great Western Street, Moss Side, Manchester, aged 69 years.

WYLIE.—On Jan 2, 1943, Dr. James Wardlaw Wylie, sometime of Mayville, Cleland, Lanarkshire, and late of Mora, Larbert Road, Bonnybridge, Stirlingshire.

SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
LONDON SATURDAY JANUARY 16 1943

THE FUTURE OF THE COUNTRY'S MEDICAL SERVICES

BY
R. W. HARRIS
Chairman of the London Medical Service Sub-committee and sometime Assistant Secretary of the Ministry of Health

It was manifest from the outset that the labours of the Medical Planning Commission would not be restricted by its terms of reference, which were "to study wartime developments and their effect on the country's medical services both present and future." The Commission has proceeded to consider the whole question of the future of the medical services, whether as affected by wartime developments or otherwise. It is to be congratulated on an exceedingly interesting and well-balanced draft interim report, on the wisdom of publishing the report as a draft, and asking that it should be freely discussed by the profession. It is possible that the commentary of a layman—not without experience of administration—who has tried to keep himself informed of medical opinion over a period of years may be of some collateral value.

With the "broad definition of the objects of medical service in this country," as adopted by the Commission, there must be universal agreement. The differences of opinion begin when it is considered how the objects are to be attained.

The Case for Extension of N.H.I.

In paragraphs 47 and 48 of the draft report it is stated that the majority view is against a whole-time salaried Government service. It is contended that "the quality of individual service would not necessarily be improved by the replacement of a variable income by a fixed income or by the substitution of the State for the individual in the selection and employment of a doctor. . . . National Health Insurance has proved a greater success than was anticipated either by its supporters or by its opponents. . . . Its medical service contains features which have proved to be essentially sound, such as free choice of doctor, the minimum of interference by the State, and the central negotiation of terms and conditions of service."

As regards the question of the quality of the service being improved by the replacement of a variable income by a fixed income, it is surely unnecessary to say that no serious student of the subject has ever contended that an alteration in the method of remunerating the doctor would greatly affect the quality of the service which he gives. Has it not frequently been contended in support of the capitation system of payment under the N.H.I. scheme that a doctor will give as good a service when he is paid by a capitation fee as if paid a fee for each attendance or for each service rendered? But the question arises whether the objects of reform in medical practice as set out by the Commission are best attained and the best standard of medical service reached under a system of competition for patients, sale of practices, and all the financial troubles inherent in that system, particularly in the case of doctors wishing to establish themselves in practice. Criticisms offered by general practitioners themselves and summarized in the draft report form a grave indictment, but the gravity of the problem is by no means understated. The financial strain in many cases is becoming an increasingly serious menace to the efficiency of the medical practitioner.

Is it unfair to say that the medical profession has learned from industry the value of competition but has not to any large extent learned the value of organization? It is surely organization of medical practice which is necessary to procure the best results; the method of payment has not, or should not have, any real bearing on the question.

Employment of Doctor and Free Choice

The phrase "the substitution of the State for the individual in the selection and employment of a doctor" has about it a disarming air of rhetoric. Under the National Health Insurance scheme there is no selection of doctors for employment in the service; every registered practitioner can enter the service by signing his name, and it requires the operation of a very formidable piece of machinery to secure his removal.

It cannot be seriously thought by critics of any scheme of organized national medical service that any responsible body of persons is going to propose that the "State," through the agency of, let us say, the Civil Service Commission, is to select the men to be engaged in the medical service. The proposal which would command the most general assent would be that set out in para. 52 of the report, whereby a Central Medical Services Board "predominantly medical in its composition" would have "executive functions in regard to the entry of the profession into the service." The statement about selection of the doctor by the individual—as opposed to selection by the State—is difficult to understand, but it presumably refers to the free choice of doctor, which is, in theory, one of the cardinal features of service under the National Health Insurance scheme.

Is there not in this matter a wide difference between theory and practice? No one would deny the value of the principle stated on medical grounds; equally no informed person would assert that it is a vital factor under the National Health Insurance scheme with more than a small proportion of the patients. There is a constant change of population. Large numbers of people probably move every few years, and when they come into a fresh district they are faced with the choice of a fresh doctor. Is it seriously contended that any large proportion of them choose their doctor on any other grounds than proximity or the casual advice of a neighbour? Then, again, is not the recognition of the capital value of practices, so that they are bought and sold, in direct conflict with the idea that insured persons display any anxiety about the particular doctor who should attend them? It is not open to question that when a practice changes hands and the insured persons on the outgoing doctor's list are all notified they will automatically pass on to the list of the incoming doctor, unless they make a fresh choice; a quite insignificant number make such a fresh choice.

The right of a patient to choose his own doctor can be widely recognized under any scheme of national service, whether salaried or not, and there seems to be no inherent difficulty whatever in giving full play to the principle of free choice of doctor to the extent to which the choice is likely to be exercised. The experience of 30 years of insurance administration does not give any support to the view that a proportion of patients coming to a health centre would exercise the right of choice of doctor to such an extent as to create an embarrassment in the distribution of the patients among the doctors. At the outset, of course, there would have to be considered such questions as the right of the doctor coming under the scheme to bring with him, as it were, to the local centre his existing patients; indeed, this would be a common-sense beginning. If a doctor had an embarrassing number of patients, so that he would have an unfair share of the work, the difficulty could probably be met by informing the patients of the right they already enjoy to exercise a fresh choice. It may safely be predicted that the majority would have to be allocated, and naturally as many as possible would be left where they were.

Minimum of State Interference

There is always the danger of a certain amount of prejudice being introduced into these discussions by the use of the word "State," with its implications of State interference with the proper and normal functions of doctors and of a cast-iron discipline and control undermining the doctor's efficiency. These can be avoided at the outset of the establishment of a national service by the proper organization of the central and local administration, so that the medical profession has a clear and definite voice in those matters which affect the personnel and the quality and kind of the services to be rendered; and especially in the organization of the services at the health centres and with the content of those services.

Is the profession really satisfied with the present complications involved in having to deal with the title to benefit of an insured person and with the disciplinary machinery, even though it admittedly does not function to any large extent, this again being due very largely to the apathy of the insured persons?

Scope of a National Service

Those who press for the extension of the National Health Insurance medical service to the dependants of the present insured persons and to those of a "like economic status" often overlook the fact that the limit of £420 in the compulsory scheme is not a limit of total income, and that even as a limit of remuneration it does not apply to the great mass of the insured population—namely, those who are engaged in manual labour. The proposal bristles with such difficulties that it may well prove to be impracticable. Who is to decide? Are the income-tax authorities to come into the scheme? Can it be visualized what Parliament is likely to think of such a proposal?

And if an individual is held to be outside the scheme, is he to be debarred from the facilities afforded at the health centre, notwithstanding that as a taxpayer he has contributed to the cost? For in a national scheme, if gigantic complications and difficulties are to be avoided, there can be no datum line where people would cease to contribute towards the service. The health of the community is the first consideration of the community as a whole, and the time is not far distant when it will be recognized that everyone in the country must contribute to the service according to his ability to pay.

Would it be right or proper that one citizen should have some better kind of medical service than another, and is the citizen who is to be excluded from the benefits of the public service the one who, in fact, has made a larger contribution to the cost of the service than the citizen who is included? If the wealthy man has contributed to the medical service, according to his ability to pay he must clearly be granted the right, whether he wishes to avail himself of it or not, to all the facilities that are provided by the service.

Custom and tradition count for a great deal, and in a period of transition there must remain a large amount of private practice gradually and slowly dying; but if the same doctor is to take part-time salaried service under the national scheme based on a publicly provided centre, and concurrently carry on private practice from his surgery, confused and chaotic problems will persist. It would be idle to gloss over the fact that, however long the transitional period may be—and it may well prove to be much longer in consultant and specialist practice than in the case of the general practitioner—the days of private practice would eventually come to an end. For private practice would mean the right of a doctor and patient to come to an understanding as to the fees to be paid for a service for which the patient has already paid in full and which cannot be better than the best.

During the transitional period questions of compensation will have to be settled, probably in each individual case, by a court of arbitration. Parliament may well regard as worth while a generous scheme of compensation as part of the price of getting the best possible and most comprehensive service. This is not the place to examine the problems of the transitional period or the problems of compensation, but merely to recognize frankly that they are formidable. It is clear that a standing court of arbitration would have a long period of operations, dealing with individual cases in diminishing volume throughout the whole period of transition.

Central and Local Administration

With regard to administration, there should be whole-hearted approval for two statements in paras. 51 and 52 of the report. One central authority should be concerned solely with all the civilian medical and auxiliary services of the country, and this authority must be responsible through a Minister to Parliament. The Minister in the exercise of his powers would require, for the wider problems of administration (especially those relating to the co-ordination of the work of the various local authorities), a secretariat with the necessary financial, registration, and accounting arrangements; but the "Central Medical Services Board which is predominantly medical in its composition" which is visualized (although as an alternative to another scheme) in para. 52 is one that would command general assent. This Board, it is proposed, in addition to advising the Minister, would have "executive functions in regard to the entry of the profession into the public medical service, disciplinary machinery, superannuation arrangements, and possibly postgraduate and refresher course arrangements."

With regard to local centres of administration, the local authorities of this country as at present constituted are already greatly overworked, and it is the trend of modern legislation continually to add to their burdens. The proposal to link the existing public health services, including hospital administration, with the new public medical service would mean that the existing local authorities would have to be closely associated with or represented on any new authority that was established. But it does not seem open to question that new local authorities with large areas should be set up, and that in the schemes for establishing these authorities something like the counterpart locally of the Central Medical Services Board should be reproduced.

The questions relating to central and local administration are of the highest importance, but when the controlling authority has been decided upon, what really matters is the quality of the service ultimately provided at the local centres—that is the work of the practitioner himself. The controlling authority may be very efficient and wisely constituted, but it is the "delivery of the goods" by the individual doctor that matters. Parliament will decide, but will be guided very largely by those who will have to "deliver the goods."

Dr. J. H. Sequeira, F.R.C.P., F.R.C.S., well known in this country as physician in charge of the skin department of the London Hospital from 1903 to 1927, has recently returned from Kenya after a stay of 15 years. That he has taken an active part in the medical affairs of Kenya has been shown by the reports we have received and published from the Kenya Branch of the B.M.A. from time to time. He was president of the Branch in 1929 and 1933, and for 10 years edited the *East African Medical Journal*. He has also been consulting dermatologist to the East African Forces. The council of the Kenya Branch gave a farewell dinner for him early last year.

E.M.S.: PATHOLOGISTS' FEES

The scale of fees payable to pathologists at E.M.S. hospitals has been agreed with the Central Medical War Committee, and is the subject of the latest Ministry of Health circular (No. 2752) to county and county borough councils and other authorities with hospitals in the E.M.S. and all voluntary hospitals in the scheme. The following are the essential paragraphs from the circular.

Voluntary Hospitals on the Occupied-bed Basis

"2. A scale of fees, applicable only to Emergency Scheme work, has now been decided upon in agreement with the Central Medical War Committee. It will apply either where the pathologist is not in receipt of a whole-time salary or where, although receiving what is described as a full-time salary, he is not, at Dec. 31, 1942, precluded from undertaking pathological work for outside bodies or persons. The fee will be payable both for examining and reporting on specimens sent to the laboratory and where the pathologist makes an investigation and report upon a patient referred directly to him by an outside doctor. In the case of patients sent in the first place to a clinical specialist and subsequently referred by him to the pathologist, the proportion of the specialist's fee payable to the pathologist is a matter for local arrangement.

It has been agreed that the pathologist's fee shall be reckoned on the unit basis. The number of units to be computed for each investigation is shown on the Schedule to this circular. The maximum fee per unit is 1s. 6d., to include both professional fee and overhead expenses, but since there is much variation in the incidence of overhead expenses it has been decided to regard 1s. as the professional charge and 6d. as representing overhead expenses

As regards the professional charge, if more than one examination is carried out by a pathologist on the same patient the units will be aggregated subject to a maximum payment of one guinea.

3. *Financial Arrangements.*—The hospital should claim each month the full amount of 1s 6d. a unit and pay to the pathologist the specialist fee of 1s. a unit together with that part of the 6d. a unit agreed to be his share of overhead expenses. (The overhead expenses, as stated above, are reckoned at 6d. a unit, and if these are fully borne by the pathologist he may claim up to this amount from the hospital. When only part of the expenses is met by the pathologist the reimbursable amount will be reduced accordingly.) The claim on the Department should be in the form of a certified statement attached to Form E.M.S. 151A, setting out the number of investigations, the unit equivalent, and the amount claimed. The cases involved should be excluded from the number of out-patient attendances shown on the front of Form E.M.S. 151A or Form A.G., 136. If a retrospective claim is made under paragraph 4 it should be stated whether the out-patient attendances involved were excluded from the relative monthly returns.

The amounts claimed will normally be reimbursed monthly in full and final settlement. A sum equivalent to the hospital's own share, if any, of the 1s. 6d. units should therefore be excluded from Column (1) of Form A.G. 136. The form A.G. 136 will thus exclude pathological expenditure incurred in dealing with cases falling within the ambit of this circular.

4. The above-mentioned scale of fees will operate as regards pathologists in occupied-bed-basis hospitals as from Sept. 1, 1941, and claims for work done before that date

and not yet met can, if desired, be submitted on the unit basis.

Pathologists receiving Sessional Fees

5. It has been decided, with the concurrence of the Central Medical War Committee, to substitute the new scale for the sessional fees at present paid to pathologists on Class III contracts at hospitals other than those on the occupied-bed basis. The nature of the pathologist's work does not lend itself readily to the calculation of fees on a sessional basis, and it is felt that the charge per unit will be more appropriate. The pathologists concerned will be notified individually of the change in the method of remuneration. All work done by them on and after Jan. 1, 1943, in respect of patients under the Emergency Hospital Scheme, whether in respect of patients in the hospital or referred by outside doctors, will be chargeable on the new scale.

6. The pathologist will claim from the Department on the form which will be supplied—namely, at the rate of 1s. per unit—and will look to the hospital for payment of any sums in respect of overhead expenses borne by him. These payments will be made by the hospital out of the 6d. allowed for the purpose, which the hospital should claim from the Department. The claim should be made in the form of a certified statement as in paragraph 3 above, attached to Form E.M.S. 151A in the case of voluntary hospitals and to A.G. 138 in the case of municipal hospitals. A sum equivalent to the hospital's own share of the 6d. per unit should be excluded from Column 1 of A.G. 136 or Column 2 of A.G. 138 as the case may be."

Schedule

No.	Test	Units
1	Agglutination: for one antigen	3
	for each additional antigen	1
2	Blood, alkali reserve	6
3	,, Arneth count, ...	5
4	,, bilirubin, van den Bergh test, quantitative	4
5	,, calcium estimation	7
6	,, cell count, R.B.C. and haemoglobin	3
7	,, chloride estimation	4
8	,, cholesterin estimation	5
9	,, coagulation time	3
10	,, count (complete with differential film and haemoglobin estimation)	8
11	,, corpuscular and mean corpuscular volume	4
12	,, creatinine	5
13	,, culture	5
14	,, diastase estimation	5
15	,, fat estimation	7
16	,, film differential count only .	3
17	,, G.C. complement, deviation test ..	10
	For each additional serum ..	2
18	,, grouping (per blood)	1
19	,, haemoglobin estimation	1
20	,, Kahn test	2
21	,, for malaria or other parasites ..	4
22	,, matching for transfusion (per donor)	1
23	,, phosphatase estimation	15
24	,, phosphates estimation	6
25	,, plasma protein, total	7
26	,, platelet count	3
27	,, prothrombin index	4
28	,, red cell fragility test	5
29	,, reticulocyte count	3
30	,, sedimentation rate	3
31	,, sugar estimation	5
32	,, sugar tolerance (2½-hour curve), blood and urine tests	15
33	,, sulphanilamide concentration:	
	for first specimen	6
	for each additional specimen ..	3
34	,, urea estimation	5
35	,, uric acid estimation	6
36	,, Wassermann test .. .	10
37	,, white cell count only . ..	2
38	Cerebrospinal fluid, bacteriological, for T.B. Gram film and culture	5
39	,, ,, cell count, globulin, protein	3
40	,, ,, chloride estimation ..	2
41	,, ,, Lange gold curve, mastic, etc. . ..	4
42	,, ,, sugar estimation ..	5
43	,, ,, urea estimation ..	5
44	,, ,, Wassermann test (per fluid, one in a batch)	2
45	Calculi, qualitative chemical examination ..	5
46	Diphtheria, differentiation	6
47	Faeces, benzidine test for blood	1
48	,, culture for pathogenic bacteria ..	6
49	,, examination for T.B.	5
50	Faeces, microscopical exam. for ova, parasites, food residues	15
51	,, quantitative analysis of fats and fatty acids	15
52	Gastric contents, 1 sample, microscopical exam: acid and chloride estimations ..	4
53	Guinea-pig inoculation for T.B. and preliminary microscopy	10
54	Hair or scales for fungi	3
55	Pregnancy, Zondek-Aschheim or Friedman test for	10
56	Pus or fluid, Gram film only	2
57	,, ,, Gram film and culture:	
	aerobic	4
	anaerobic	6
58	,, ,, Gram film, culture and exam. for T.B.	6
59	,, for T.B only	2
60	Renal efficiency test (blood and urine tests)	15
61	Sections of tissues, routine (per block) ..	7
	When a series of "blocks" is examined for any one case—maximum	20
62	Sputum for culture	5
63	,, or fluid for malignant cells ..	10
64	,, for T.B	2
65	Swabs, throat, nasal, aural for diphtheria (culture only)	1
66	Swabs, as above, for film and culture (Vincent's and K.L.B.)	2
67	Test meal, full fractional	12
68	Treponema, serum examination for ..	3
69	Urine, calcium quantitative	8
70	,, chlorides quantitative	2
71	,, culture only	2
72	,, diastase estimation	4
73	,, or serous fluid, film of centrifuged deposit for T.B.	3
74	,, Gram film of centrifuged deposit for pus and organisms	2
75	,, lead, quantitative estimation ..	15
76	,, phosphate, quantitative	6
77	,, protein (quantity by opacity) ..	2
78	,, routine exam sp. gr., reaction, albumin, sugar, acetone or diacetic acid, and wet film for casts, etc.	3
79	,, sugar quantitative	2
80	,, urea estimation	2
81	Vaccines, preparation of autogenous (irrespective of nature or variety of organisms included)	20

Notes

1. An addition of two units is to be made to each complete examination when the patient comes to the laboratory or when the specimen is taken by the pathologist.

2. In the case of pathologists visiting patients at a distance, they should be paid the same mileage fees as are, or may be agreed upon for, other medical specialists.

DOCTORS' PETROL ALLOWANCES

In common with all other essential users of private cars, doctors are again to be called upon to effect economies in their use of petrol. Doctors' petrol allowances for professional purposes will be reduced by 10% for the 3-months period beginning Feb. 1, 1943, except in those cases where the reduction would result in an issue of less than 20 units, when the minimum allowance will be 20 units.

As a further necessary measure of economy, and in pursuance of the Government policy of discouraging the use of high-powered cars, allowances will be granted by Regional Petroleum Officers on the basis of a performance of not less than 20 miles per gallon, whatever the horse-power of the car. We are informed by the Ministry of Fuel and Power that during the year at least 400,000 cars of 12 h.p. or less have ceased to be licensed, so that there should be no appreciable difficulty in the way of changing cars of high h.p. for others that are less expensive of petrol. The Regional Petroleum Officer will give sympathetic consideration, however, to those cases where the continued use of high h.p. cars is clearly necessary, as, for example, for the regular transport of surgical equipment, or for a short period only while a change of cars is being arranged.

A reasonable saving in the consumption of petrol is the inescapable obligation of all petrol users at the present time, when increasing quantities have to be provided for the fighting Forces and replenishment of the nation's stocks becomes increasingly difficult. Doctors will, no doubt, examine most critically the use to which they put their cars with the objects of eliminating all unnecessary mileage and of contributing in full to the conservation of petrol. It is still the policy of the Ministry of Fuel and Power not to refuse petrol genuinely needed for essential medical work, and where a doctor can show, after a reasonable trial, that the reduction in his allowance will curtail his essential medical activities the Regional Petroleum Officer, in consultation with the Medical Liaison Officer, and, if necessary, the Local Medical War Committee, will make such restoration of the 10% cut as may be considered necessary in the public interest.

In the *Supplement* of May 23, 1942, we stated that a doctor who has established his claim for a given allowance will receive that amount in one lot, but it should be realized that the present general reduction will automatically reduce any previously agreed figure.

Correspondence

Free Choice of Doctor and Certification

SIR,—Dr. H. Guy Dain (*Supplement*, Jan. 2, p. 4) makes some comments and criticisms of my article on this subject which appeared in the previous issue. His first complaint is that a number of assertions made appear as statements of fact and are not prefaced in each case by the words, "in my opinion." Facts are for the most part no more than widely held opinions based on evidence that at the time appears to be conclusive; thus the facts of to-day may be untrue to-morrow (e.g., that the earth is flat). I cannot say how many share my views, but those who do appear to be numerous judging by my post-bag and other communications. The assertions complained of have been based on an extensive experience of the medical world from many angles. I was born and bred in a general practice. Since then, having worked in a considerable number of hospitals for a considerable number of years, I have been in frequent contact with many general practitioners, and for more than twenty years with the practical application of the Workmen's Compensation Act and with medical jurisprudence in general.

As regards free choice of doctor by patient for therapeutic purposes, I am entirely in favour provided there is a direct contract between the two. If medicine should become entirely or mainly a State-run social service with hospital treatment included, the preservation of free choice even at its present limited level is doubtful. It does not exist in the Services, and the analogy of schooling does not negative this prognostication. State-provided elementary education gives no choice to the vast majority and is compulsory, except for the minority who can afford to make their own private arrangements.

On the question of the attributes that lead to the greatest measure of patronage and thus of prosperity in medical practice, surely it is axiomatic that pure professional knowledge and skill play a minor role. To quote the memorandum of the Medical Practitioners' Union: "Patients like or dislike particular doctors for a great variety of reasons, most of which have very little to do with the skill which the doctor places at their service."

The description "failed social experiment" as applied to the Workmen's Compensation Act, as it has operated in practice up to the present time, is a quotation; and I am certainly not alone in so regarding it, judging by the amount that has been said and written on the subject.

I retract nothing of what I have said on certification. But Dr. Dain misinterprets my remarks into a general charge of dishonesty, disregarding the more subtle mechanisms of motivation. I maintain that doctors should not be put in the invidious position of having to give or withhold from their own clients certificates upon which the receipt of benefits from society depends. From inquiries I am satisfied that many practitioners would be glad to be relieved of this. An acquaintance in general practice has recently told me that the majority of those attending at his surgery nowadays call only to obtain some kind of war certificate, many being complete strangers to him. As a rule he issues the certificate demanded without undue hesitation, satisfying his mind with the thought that the Ministry of —— will not take much notice of it and also by refusing to accept a fee. In support of my thesis is the fact that the Ministry of Labour in consultation with the Ministry of Health has found it necessary to establish a system of independent medical referees to decide the merits of applications on medical grounds for release from scheduled employment or from taking up employment under direction in any case where a medical certificate submitted by the worker does not make it clear beyond all doubt that he is suffering from a specific illness or disability that clearly renders him unfit. Of course, frank dishonesty does occasionally come to light. Recently a hospital out-patient told me that he had had "six weeks' holiday on the panel" while admittedly in good health. Dr. Dain thinks that a satisfactory compromise is arrived at by there being several persons who return to work before they are really well for every one who would extend his period of incapacity improperly—i.e., two wrongs make a right. Surely we should aim at two "rights," even if it costs the public more. I am concerned with principle and not with cost; and the suggestion that the National Health Insurance scheme might become bankrupt if each sick person drawing benefit took one extra day of his benefit, though hard to credit, is irrelevant. Social service contributions are based on claims experience, and social service schemes are not in danger of being allowed to go bankrupt.—I am, etc.,

London, W.1. B. Buckley Sharp.

Sir,—Dr. Buckley Sharp (*Supplement*, Dec. 26, p. 79) describes an uncritical readiness to issue certificates as one of the attributes most likely to lead to prosperity. Dr. H. Guy Dain (*Supplement*, Jan. 2, p. 4) asserts that this is not true. May one ask Dr. Dain for a plain "yes" or "no" in answer to this question: All other things—competence, sympathy, and so on—being equal, is the doctor who is uncritically ready to issue certificates likely to prosper more than his colleague whose issue of certificates is rigidly guided by his knowledge that such certificates are cheques drawn upon other people's money?—I am, etc.,

Donald M. O'Connor.

Brenchley, Kent

Scheme for Diagnostic and Key Hospitals

Sir,—May I support the broad principles in the article on this subject (*Supplement*, Jan. 2, p. 2), and confirm their real practicability as in the example quoted. Personally, after some years in a London practice, where one's knowledge and skill were slowly diminishing from lack of facilities to join in hospital work, it was refreshing to find here such facilities, and the chance of adding to one's ability through them. Bureaucratic medicine and surgery appear today to aim at taking away from the G.P. more and more of the things which he "qualified" to do: to take them away not because he cannot do them properly, given facilities, but simply in order to give more work to "specialists." Such bureaucracy forgets that the higher the practical skill of the G.P. on the average, the better will be the health and happiness of the community.—I am, etc.,

Hayle. W. H. Palmer.

POSTGRADUATE NEWS

The Fellowship of Medicine announces Week-end course in rheumatism at Rheumatic Unit, St Stephen's Hospital (L C C), on Sat and Sun, Feb 27 and 28; revision course in anaesthetics, April 5 to 17, lectures daily at Royal Cancer Hospital, and practical demonstrations at various London hospitals.

WEEKLY POSTGRADUATE DIARY

British Postgraduate Medical School, Ducane Road, W—*Daily*, 10 a m to 4 p m, Medical Clinics, Surgical Clinics and Operations, Obstetrics and Gynaecological Clinics and Operations. *Daily*, 1 30 p m. Post-mortems *Mon.*, War Course on Special Problems in War Surgery begins; 2 p m., Ear, Nose and Throat Clinic. *Tues*, 10 a m, Paediatric Clinic; 11 a.m., Gynaecological Clinic; 2 p m, Genito-urinary Clinic. *Wed*, 11 30 a.m., Medical Conference. *Thurs*, 2 p m Dermatological Clinic; 2.15 p.m., *X*-ray Demonstration on the Duodenum and Small Intestine by Dr E J. E Topham. *Fri*, 12.15 p.m, Surgical Conference; 2 p m, Gynaecological Conference; 2 p m, Sterility Clinic.

Felllowship of Medicine, 1, Wimpole Street, W.—*London Homoeopathic Hospital:* Wed. afternoon (limited to 6), Clinical Surgery Demonstration *National Heart Hospital:* Tues. and Wed., 10 a m, Out-patient clinics.

DIARY OF SOCIETIES & LECTURES

Royal Society of Medicine.—*Tues.*, 4 p m General Meeting of Fellows. *Thurs.*, 2 p m. Section of Dermatology. *Fri.*, 2 30 p m. Section of Disease in Children; 2.30 p m. Section of Epidemiology and State Medicine. *Sat.* (Jan. 23), 10 a m., Section of Neurology, at National Hospital, Queen Square, W C.

Medical Society of London, 11, Chandos Street, W.—*Mon.*, 4 p m. Discussion: Defective Nutritional Deficiencies during Pregnancy and Lactation and the Influence on the Mother and Child, to be introduced by Prof. James Young and Dr. T. Izod Bennett.

B.M.A.: Diary of Central Meetings

February

3. Wed **Council**, 10 a m (*change of date*).

B.M.A.: Branch and Division Meetings to be Held

Perth Branch.—At Perth Royal Infirmary, Thurs, Jan. 21, 8 30 p m Dr W. D. Chambers: Psychopathic States.

Corrigendum.—In the summary of the views of constituent bodies on the report of the Medical Planning Commission in the *Supplement* of Jan. 2 the words "Royal College of Physicians" in the last line of column 1 should read "Royal College of Obstetricians and Gynaecologists" It was the latter body which called for a limitation of panel lists.

MEDICAL WAR RELIEF FUND

FORTY-FIRST LIST

Amount previously acknowledged, £47,711 2s. 9d. and £100 3½% Conversion Stock and £40 3% Defence Bonds

Individual Subscriptions

£10 10s.—Mr J Bastow, Bath.

£5 5s.—Mr A R Brinsden, St. Albans.

£2 2s.—Surg. Lieut A L. Lankester, R N.V.R; Col. W. O'S Murphy, I M S., (ret.) (2nd donation), Dr. R. Willcocks, Chelmsford (2nd donation); Dr. G. R Wilson, Ongar (2nd donation)

£1 1s.—Major W. Happer, I M S, and Mrs. Happer (15th donation); Dr. G. A. Quinnell, Milborne Port.

£1.—Lieut. G. D Denlow, R A.M C. (2nd donation)

£38 16s.—Lincoln Division—per Mr G A Bagot Walters (amount already sent £288 15s) Drs T. W. and P Chapman, £10 10s. (2nd donation); Dr. D. F. Menzies, £5 5s; Dr E. W. Woodbridge, £1 (2nd donation); Dr A S. Green, £2 2s (2nd donation); Dr. K. M. Monteith, £1 1s; Mr J. A Hadley, £3 3s (2nd donation), Dr. L T Dean, £5 5s. (2nd donation); Dr. W P. Roe, £2 2s. (2nd donation); Dr. B. Sweeten, £2 2s; Dr. F. G Ashton, £1 1s; Dr J C. Gray, £1 1s (2nd donation), Dr F. W. Shegog, £2 2s. (2nd donation); Dr. A Picken, £2 2s (2nd donation)

£33.—North Northumberland Division—per Dr. D. T. McDonald (amount already sent £57 9s. 9d): Dr. V. E. Badcock, £3 3s. (2nd donation); Dr. R S. Smart, £1 1s.; Dr. H F Park, 10s. (2nd donation); Dr. A. N. Bousfield, £2 2s. (2nd donation); Dr. Scott Purves, £1 1s (2nd donation); Dr. F. B. Macaskie, £1 1s (2nd donation); Dr. T. G. Wilson, £1 1s; Dr. A. M Reid, £1 1s, Dr. I. A. H Jaboor, £1; Dr. J. A Macleod, £1 1s.; Dr J A. Small, £5 5s. (2nd donation); Dr D. T McDonald, £3 3s (3rd donation), Dr. Jas. McDonald, £3 3s. (2nd donation); Dr. W. M. P McDonald, £3 3s. (2nd donation); Dr. P. W. Maclagan, £1 1s. (2nd donation); Col H. M. Morton, £1 1s (2nd donation); Dr. J C. D Mitchell, £1 1s (2nd donation), Dr W G. Scott, £2 2s (2nd donation)

£27 14s. 9d. ($124.00).—Canadian Medical Association (amount already sent, £1,406 4s. 1d). Saskatchewan Division.

£10 10s.—Leyton Medical Board No. 1—per Dr W. M. Fairlie (amount already sent £100): Dr. S. N Forbes, £1 1s (2nd donation); Dr R Spears, £1 1s (2nd donation); Dr. J. S. Daver, £1 1s (2nd donation), Dr L. W Batten, £1 1s (2nd donation); Dr. W Dobbin, £1 1s (2nd donation); Dr. D. J Cochrane, £1 1s. (2nd donation); Dr J. F. Broughton, £1 1s. (2nd donation); Dr. P Mitchell, £1 1s. (2nd donation), Dr. W. M Fairlie, £2 2s. (2nd donation).

£5.—Medical Society of Plymouth—per Mr. Elliot Square (amount alreadyy sent, £5)

£1 1s.—Perth Branch—per Dr D. B. Low (Dr. C. A. Herron)

Local Medical and Panel Committees

£32 4s. 6d.—Midlothian (9th donation).

£29 11s. 7d.—Clackmannan (5th donation)

£20 7s. 6d.—Dumbarton County (8th donation).

Total—£47,936 13s. and £100 3½% Conversion Stock and £40 3% Defence Bonds

Cheques, payable to the Medical War Relief Fund, should be sent to Dr. G. C Anderson, Honorary Treasurer of the Fund, British Medical Association House, Tavistock Square, London, W C.1.

BIRTHS, MARRIAGES, & DEATHS

The charge for inserting announcements under this head is 10s 6d. This amount should be forwarded with the notice, authenticated with the name and address of the sender, and should reach the Advertisement Manager not later than first post Monday morning to ensure insertion in the current issue.

BIRTHS

Mackenzie Crooks—On Jan 4, 1943, to Gwy, wife of W/C L. Mackenzie Crooks, a brother for Elizabeth and David, at Red House, Wendover,

Milligan—On Jan 6, 1943, at Adlington Hall, Cheshire, to Margaret (*née* Ellis), wife of Capt. A. B. Milligan, R A M.C (over-seas), a son

Montgomerie—On Dec 13, 1942, at Bow Bells, Bawbrook, Shrewsbury, to Nora, wife of Major James Montgomerie, R A.M C, over-seas, the gift of a sister for Jamie.

Page—On Jan. 2, at Dunstall House Nursing Home, N W 3, to Margaret (*née* Moore White), wife of Lieutenant L G M. Page, R.A.M C., a son

Thompson—On Jan 5, 1943, to Dorothy, wife of Brian Connor Thompson, M.D., of 7, Marchwood Crescent, W 5, a daughter

Tomkinson.—On Dec 20, 1942, at Dorset House, Cheslyn Hay, Staffs, to Dr. Agnes Tomkinson (*née* Sutherland), wife of Dr. O. W. R Tomkinson, a daughter.

SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
LONDON SATURDAY JANUARY 23 1943

MEDICAL WAR RELIEF FUND

THE SECOND YEAR'S WORK

The Medical War Relief Fund was established in Sept., 1940, for the assistance of British medical practitioners and their dependants who are temporarily in financial straits as a direct result of war conditions. The audited Statement of Account of the Fund for the twelve months ended Aug. 31, 1942, is published below. Although the greater part of the sum subscribed remains unspent, the committee hopes that the steady flow of subscriptions will continue, for it must be anticipated that the demands on the Fund will increase as the offensive phase of the war develops. Cheques, payable to the Medical War Relief Fund, should be sent to the Honorary Treasurer of the Fund at B.M.A. House, Tavistock Square, London, W.C.1.

Generous Contributions

The Committee of the Fund wishes to express sincere thanks for the continued support of many generous donors—individual medical practitioners and groups of practitioners, local units of the British Medical Association both at home and throughout the Empire, Local Medical and Panel Committees, and other medical societies and institutions. Subscriptions have come from doctors in every continent, from doctors confined in enemy prison camps, from doctors serving in His Majesty's ships on the high seas. The committee would refer in particular to the most generous help given by Australia and Canada, notwithstanding their own difficulties and anxieties. A final contribution from the profession in Australia brings the amount received through the Australian Federal Council of the B.M.A. to the magnificent total of approximately £A.4,500, while during the period under review nearly £1,400 has been transmitted from Canada through the Canadian Medical Association. Contributions have come from outside the Empire and from outside the medical profession. Grateful acknowledgment is made of a donation of £265 from the North Pacific Society of Internal Medicine, Seattle, and a donation of £250 from the Mufulira War Funds Committee, Northern Rhodesia.

Awards to Applicants

The amount distributed is somewhat less than during the first year, the decrease being attributable to the diminution in the number and severity of the air attacks on the home front. During the twelve months covered by this report thirty-six awards were made, including two awards to applicants who had previously received assistance from the Fund. The total amounts of the gifts and loans voted by the distribution subcommittee are shown in the financial statement below. Twenty-eight applicants received gifts, six were given loans, and in two cases both gifts and loans were awarded. The gifts vary in amount between £550 and £30, four exceeding £250 and thirteen exceeding £100. The highest amount granted as a loan is £220 and the lowest £22. The awards made between the date of the inauguration of the Fund and Aug. 31, 1942, amount to £13,029, the gifts totalling £8,967 and the loans £4,062, and the number of beneficiaries being seventy-three.

Acknowledgments

The Committee of the Fund wishes again to place on record its indebtedness to the Royal Medical Benevolent Fund for its valuable co-operation, particularly in the administration of awards payable in instalments over a period of months or years. Special thanks are due to Mr. E. C. Pennefather, secretary of the R.M.B.F., who has generously relinquished the honorarium voted to him as secretary of the distribution subcommittee and now gives his invaluable services wholly voluntarily. The committee acknowledges also with gratitude the help freely given by members of the staff of the B.M.A. and the generosity of the Association in providing accommodation for meetings.

Illustrative Cases

The following brief case summaries illustrate the variety of the circumstances which have resulted in appeals for assistance during the year.

Dr. N. had served at sea as a medical officer in the R.N.V.R. and had lost valuable medical equipment when his ship was bombed. On being invalided out of the Service he required help to re-establish himself in his considerably reduced practice, and he received a suitable gift for this purpose. Later he applied for, and was granted, a loan for the purchase of new apparatus.

Dr. O., a comparatively young widower, was killed during an air raid while on duty at a first-aid post, leaving two orphan children. His small practice realized a very modest sum. The children are being cared for by relatives whose income, supplemented by the small Government pension, is insufficient to provide suitably for their maintenance and education. The necessary help has been given in the form of a gift, payable in instalments over a period of years.

Dr. P. was a victim of a double raid on a cathedral city. The first raid ruined his house and the second destroyed his surgery and all its contents. He obtained other accommodation but needed assistance to enable him to pay for repairs, furniture, instruments, and drugs. The required amount was provided as a gift.

Mrs. Q. sailed under Japanese bombs from Singapore, where her husband was in civil practice. She had decided to remain with him, but was ordered to leave and could take few possessions with her. On arrival in England she lost no time in securing employment, but she was in need of a small loan, which was readily granted.

Mrs. R.'s husband held a public medical appointment in the Far East. When he retired on pension he did not return home but joined the R.A.M.C. in Malaya, where he was reported missing. Mrs. R. has obtained work that enables her to support herself, but the educational expenses of her son presented a problem which has been solved by a gift from the Fund.

Mrs. S. is unable to take up remunerative employment as she has a young child under her care. When her husband was killed while serving in the R.A.F. she was in no immediate difficulty apart from certain debts, only some of which were covered by a grant from the R.A.F. Benevolent Fund. The additional sum required was provided in the form of a gift.

MEDICAL WAR RELIEF FUND

Statement of Account for the twelve months ended August 31, 1942

	£	s.	d.	£	s	d
To Balance brought forward:						
£7,000 3% National Savings Bonds, 1955-65	7,000	0	0			
£9,000 2½% National War Bonds, 1946-48	9,000	0	0			
500 National Savings Certificates	375	0	0			
£100 3½% Conversion Stock	96	0	0			
£40 3% Defence Bonds, P.O. Issue	40	0	0			
Cash at Bank on Current Account	3,783	16	7			
Cash at Bank on Deposit Account ..	4,000	0	0			
Deposit with P O Savings Bank	1,000	0	0			
Petty Cash in hand	4	13	10			
				25,299	10	5
,, Donations				13,763	13	8
,, Interest on Investments				258	13	10
,, Interest on Bank Deposit				40	7	6
,, Accrued Interest on P O. Bank Deposit				19	15	10
				£39,382	1	3
By Loans during year	1,022	0	0			
Less: Repayments during period ..	145	0	0			
				877	0	0
,, Gifts				4,684	16	0
,, Petty Cash				9	6	2
,, Printing, Stationery, and Postage				10	5	9
,, Honorarium to Secretary of Distribution Subcommittee				100	0	0
,, Clerical Assistance—Royal Medical Benevolent Fund				6	6	0
,, Brokerage incurred on Purchase of Stock				12	16	0
,, Balance Forward at August 31, 1942:						
£7,000 3% National Savings Bonds, 1955-65	7,000	0	0			
£14,000 2½% National War Bonds 1946-48	13,985	18	9			
500 National Savings Certificates	375	0	0			
£1,000 3% Defence Bonds, P.O. Issue	1,000	0	0			
£100 3½% Conversion Stock	96	0	0			
Deposit with P.O. Savings Bank and accrued interest..	2,019	15	10			
Cash at Bank on Current Account	5,199	9	1			
Cash at Bank on Deposit Account	4,000	0	0			
Petty Cash in hand	5	7	8			
				33,681	11	4
				£39,382	1	3

Examined with Books and Vouchers and found correct

PRICE WATERHOUSE & CO (Signed),
Honorary Auditors,
Chartered Accountants.
3, Frederick's Place,
Old Jewry,
London, E.C 2

January 1, 1943.

Notes: (i) Gifts voted amount to £4,907, but in three cases certain instalments amounting to £222 4s. remained unpaid (ii) Since the inception of the Fund, loans to the total amount of £4,062 have been made; of this sum £370 was repaid prior to August 31, 1942.

H.M. Forces Appointments

ROYAL NAVY

Surg. Capt. H. R. B. Hull to be Surg. Rear-Admiral.

Surg. Cmdrs. C N. Ratcliffe, K. A. I Mackenzie, and F. L H. Macdowel to be Surg. Capts.

Surg. Cmdr. P. N. Button, O.B.E., has been placed on the Retired List with the rank of Surg Capt.

Surg. Lieut.-Cmdr. A. E Flannery to be Surg. Cmdr.

Acting Surg. Lieut.-Cmdr R A. C. Herron has been transferred to the Emergency List.

Surg. Lieut. R. A. Stenhouse has been transferred to the Emergency List.

ROYAL NAVAL VOLUNTEER RESERVE

Surg Lieut. R. T. Jones to be Surg. Lieut.-Cmdr

Prob. Surg Lieut. C. C. Evill to be Surg. Lieut.

Prob. Temp. Surg. Lieuts F. B. Norrish, M. L. H. Evans, C. G. Whiteside, L. S D. Cama, G. Buchanan, T. P. Mann, D. V. Milward, J C. de R Sugars, J. L. Ballantyne, D. Leslie, J. A. MacFarlane, W. A. C Glennie, J. Frame, T. Partington, J. M. Gold, W. E Clarke, J. D. A. M. Smart, J. L. B. MacFarlane, E. P. Abson, M. Q. Birkbeck, J. A. F. Roberts, R. M. Chalmers, R. D N Bisset, D. G. Clitheroe, A. H McCrea, and W. S. Lewis to be Temp. Surg. Lieuts.

ARMY

Temp Lieut.-Col. (acting Col) E. R Boland, Consulting Physician, has been granted the local rank of Brig.

Lieut.-Col. (Temp. Col) R. W. Galloway, D S O, from R A M C., to be Col.

ROYAL ARMY MEDICAL CORPS

Major-Gen. J W. West, C B., C.M G., C B E, retired pay, has been appointed Colonel-Commandant in succession to Major-Gen. H. Ensor, C.B, C M.G., C.B.E, D S O., retired pay (deceased).

Lieut.-Col W. E. Adam, M.C., retired pay, has reverted to the rank of Major at his own request whilst so employed.

REGULAR ARMY RESERVE OF OFFICERS

ROYAL ARMY MEDICAL CORPS

Major E. L Reid, M C, R.A.M.C, to be Lieut.-Col., and, having attained the age limit of liability to recall, has ceased to belong to the Reserve of Officers.

Capt. (Brevet Major) F. K. Tomlinson has ceased to belong to the R.A.R.O on account of ill-health.

Capt. (Temp Major) M. McG. Russell to be Brevet Major, under the provisions of Article 168, Royal Warrant for Pay and Promotion, 1940.

TERRITORIAL ARMY, R.A.M.C.

General List—Lieut. A. S. Anderson, from 6th Bn. H L I., T.A., to be Lieut.

LAND FORCES: EMERGENCY COMMISSIONS

ROYAL ARMY MEDICAL CORPS

War Subs. Capt. G. D. Edwards has relinquished his commission on account of ill-health and is granted the rank of Major.

War Subs. Capts. M. M. Lewin, G. A. Buggle, P A. Dobb, J. B. Stauffer, J. Fielding, and D. E. Yarrow have relinquished their commissions on account of ill-health and are granted the rank of Capt.

War Subs. Capt. M. R. Simon has relinquished his commission.

Capt. M. Good has relinquished his commission.

War Subs. Capt. H. J. Dismorr has been placed on the half-pay list.

Lieuts. W. M. Aslett and J. H S Whyte have relinquished their commissions on account of ill-health and retain their rank.

To be Lieuts.: W. F. Jepson, A. S Brown, D. G. B. Bennett, S. Smith, J. C. R. Weir, J G. U. O. Alexander, J. L Arthur, J. Aspin, G. A Barclay, W. Barlow, D V Bateman, R. H. Beer, N. E Bennett, J. W. Bishop, J. L. Bradley, D H. Brown, D. R. Brown, H. Bolton, M. R. Bull, D. H W. Cameron, J. M. Cook, W. Craw, J C. F. Cregan, J. H. St B. Crosby, R. A. Craig, W. A. Clark, M. H. Dale, I S. Dalton, D. G. Davies, E. F. D Dawson-Walker, C N. d'E Eastes, D. H. Edwards, A. T. Elder, H. G. Farquar, G L. Feneley, G. Firth, J. C. Firth, J. L. Fison, D. G-R. Fox, H. Franks, J. T. A. George, T. W. F. Gemmell, C. W Gillespie, R. P. Gillespie, R. D Glaister, E. H Granger, M.C, D. L. Griffiths, J. H. G. Halliday, C. W. Hamilton, L. B. Hardman, J. D. Hay, A. H. Hayson, A. W. Hind, Q. J. G. Hobson, G. R. Holtby, R. M. Howson, A. Hulme, J. M. Jefferson, D. R. M. Jones, A. T. L. Kingdon, H. M. Lawson, C. E. Lacey, N. H. Leask, R. G M. Ledingham, A G. Leishman, W. H. Longsdale, D. McAnally, L. A McDowell, J. McKimmie, H. G. McQuade, I. W. Macfarlane, I. A Marriott, D. T. Milnethorpe, A. G. H. Mitchinson, W. K. S. Moore, M. A. Motagalli, R. A. Palmer, J. W. B. Paton, J. C Penton, E. S. Perkins, J. A. Petrie, E. C. Poulton, A. C. R. Rankin, S. C. Raw, P. Sainsbury, G. B. D. Scott, J. Simon, J. F. P. Skirmishire, A. M. L. Smith, E. A. Spriggs, R. McC. Stamp, A. Stanworth, L. Stone, P. B. Stones, D. Sutton, R. P. Tanham, S. Thomson, D. C. Thursby-Pelham, J. E. Tinne, V. F. Tyndall, J. K. Wagstaff, A. Walker, E J. E. Webb, N. C. Welply, M. H. West, E. N. Whitley, V. P. Poonoosamy (*correction*), A. Adam, J. C. Aitkin, E Anderson, A. Le P. Avenell, D. J. Avery, A. H. Banton, A. d'A. Bellairs, N. Bennie, N. L. Bennie, H E. C. Bentley, A. W. Blackwell, P. F. Borrie, H. K. Bourns, J. Brims, J. D Bruzaud, W. Brydone, J. P. Bull, L. J. H. Burton, H. S. Bury, J. Cardis, N D. Compston, C. C. Cuthbert, J. S. Davidson, B. T. Davis, B. Devlin, D. F. Edmiston, H. P Ferreira, G. S. Forrester, C. E. Gautier-Smith, C. N. Gibb, R. Gibb, G. W. Gibbs, H. B. Giles, C. D. C. Golding, J Gray, H. J Hagger, N. H. R. Hatfield, A. A. M. Heap, C. J. C. Hinnrichs, G. M. Holme, J. N. Horne, E. H. Horton, W. E. Hunt, A. R. James, I. H. Jenkins, R. G. Joyce, J. M. S Knott, B. Kustow, J. R. Kyles, M. B Leitch, M. L. Levinson, P. R. Lowns, W. H McGillivray, D J. S. McIlveen, J. R. Mackenzie, C. M. McLean, A. Mair, J. B. Maling, A. F. J Maloney, R. W T. Mason, B. B. Milstein, G. C. Myddelton, D F. Nicholson, S. C. St. G C. Parry, H. G. Phillips, L. Philips, A. L. Philmister, W. J. R. Pickles, G. C. Pritchard, P. M. M. Pritchard, P. K. Renshaw, T. W. Renton, L. C. Robson, J. R Rook, L. Rose, H. M. Rose, C. D. Rosenwald, G. T. Rutherfoord, W. Sagar, A. G. Shanks, C H. Shaw, D. McQ. Sibbald, J. Simpson, A. R. Smith, E. B. Smith, P. R. Stephens, B. F. Swynnerton, D. C. Thomas, S. W. Thomson, J. M. Walker, D C. Watson, A. Watson-Jones, F. T. Wheeldon, E. O. Williams, G. H. Wright, G. S Norris, T. Anderson, J. N. Aston, V. Blackman, R. H. Blazeby, V M. Borrelli, A. M Bowler, J. W. Bradbury, R. T. Brooks, I. W. Buirski, A. W. H. Challis, P F. Chandler, D. M. H. Cogman, G. V. Cole, S. A. Cohen, M. H. Cree, R. E. Danckwerts, J. Davidson, M. Deshmukh, C. O. Edwards, B. B. Evans, A H. Ferguson, W. G. Ferguson, G. W. Forbes, R. Franey, J. C Fulford, R. MacK. Fulton, G. Gimmack, E. S. Gray, A. M. Greenshields, G. Gremson, N. Harris, E J. Harrison, D. S Hayton-Williams, H. J. R. Henderson, D. H. Hiley, A. N. Hobbs, P. W Hopper, G. Howells, D. J. Jones, E. J. Jones, E R. Jones, A. C Kendall, H. B. Kilroe, W. Y. Laidlaw, H. Lawrence, F. H. Lloyd, W. C. D Lovett, C. S. R. Lowdon, D. W. Macartney, J. L. Markson, J. C. Meek, T H. Meek, C. Muir, F. J. A. Murray, C. O'Donovan, S. P. C O'Reagain, R McC. Paton, J H. C. Phillips, A. C Porteous, H C Price, H. D. Pyke, R. D. Richards, R. P. G. Sandon, R. H. Scott, A. F. Shpetner, C. C. K. Smith, L. Smith, H. Stead, D. Struthers, E Taylor, M. Thompson, D H Turnbull, L. Walden, K. W. W. H. Walton, H G. Williams, H. I. Winner, J. C. Winteler, H. B. Wright, H. A. Friedlander, N. H Reichman, J. J. H. Lowe, Y. Schrager, A. L. Stalker, R. M. Ainsworth, F. G. Alexander, T. D. Apivor, J Atkinson, B. B. Carroll, D H. Crook, A. A. Dalby, T. M Daniel, A. Dodd, H. R. Dugdale, D. H. Douglas, J. Dundas, W. Fleming, J Fairy, A. J. Goldman, A. B. Griffiths, R. C. Hanson, T. O. Hughes, J. R. Hunter, K. D. Hunter, N. M. James, H. A. Jolley, E. O W. Jones, R. S Kay, J. McG. McKay, C. M. MacGeoch, J. McWhirter, K. R. Minto, A. G. Mitchell, A J. Nairn, M. H. Pappworth, H. M. Parsons, J. Renwick, H. A. Ripman, R. Roderick, M. S. Ross, J. H. Smitham, H. B. Stoner, H. A. W Stormont, M. Swerdlow, R. D. St. G. Tucker, J. D. Atwell, D. A. K Black, T G. Boyle, J. G. Brockis, A. S. Clark, J. G. J. Coghill, V. L. Cooper, M D. Da Fano, S. G. Dean, E. G. Dryburgh, G. H. Eagles, H. H. A Elder, E W. Gibbs, H. J. Gilbert, S. Gould, W. S. Hall, H Hannesson, H. N. Heffernan, H. W Horne, F. S. Hubbersty, R. Jackson, C. James, G. Krasner, A. R. Laurence, G. Lee, M. P. Lewis, A. J. Lomax, A. Lyell, J. McGlone, A. A. Miller, K. C. Morris, P. J. L. Mumford, S. A. O'Hagan, D. J. O'Meara, T. M. Park, D. J. H. Payne, R. J. N. Pellow, J. W. Pickup, H. Rees, W. G. Roper, C. F. Ross, J. Scully, E M. Shackel, J. H. Shann, J. A. E. Stewart, R. G. Sykes, E H Tomlin, W. J. D. Twort, G. N Tyler, D. Whitaker, J. E. Williams, T. McS. Wilson, R. W. Windle, D. Yates.

WOMEN'S FORCES

EMPLOYED WITH THE R.A.M.C.

The following M.O.s have been granted commissions in the rank of Lieut.: Rachel P. Manchanda, Mary W. Bowen, Mary F. Brownlie, Mary H. Chadderton, Gertrude M. Child, Menna O. C. Jones, Margaret S. B. Langton, Bertha A. McDougall, Elizabeth M. F Tolmie, Dorothy K. Williams, Joan M. Cheale, Lorna M. M. Davies, Valerie M K. Davies, Mary B. Graham, Allison J. McNairn, Susan D. D. McMurray, Jean M. Markham, Eveline Moffett, Muriel L. Newhouse.

INDIAN MEDICAL SERVICE

Capts. F. C. Leach and R. D. Scriven, M.C., to be Majors.

EMERGENCY COMMISSIONS

Capt M. Seager has relinquished his commission on acount of ill-health.

The services of Lieut. D. J. Gilbert have been dispensed with on acount of ill-health.

To be Lieuts.. E. B. Weeks, J. W. Lusk, and Creina Shephered.

BRITISH MEDICAL ASSOCIATION

Physical Medicine Group Committee

The following have been elected members of the Physical Medicine Group Committee of the B.M A. for the three years 1943-6: Dr. J. Cowan (Stockport), Dr. C. B. Heald (London), Dr. G. Holmes (Matlock), Dr. P. Bauwens (London), Dr. C. W. Buckley (Buxton), Sir R. Stanton Woods (London).

Diary of Central Meetings

FEBRUARY

3 Wed. **Council**, 10 a.m. (*Change of date*)

POSTGRADUATE NEWS

The Medical Society for the Study of Venereal Diseases has arranged a series of general meetings to be held at 11, Chandos Street, W, on Saturdays, Jan. 30, Feb. 27, March 27, April 17, May 29, June 26, and July 24 (annual general meeting), at 2.30 p.m Details will be published in the Diary of Societies column of the *Supplement* for the appropriate weeks.

WEEKLY POSTGRADUATE DIARY

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane Road, W.—*Daily*, 10 a m. to 4 p m., Medical Clinics, Surgical Clinics and Operations, Obstetrics and Gynaecological Clinics and Operations *Daily*, 1 30 p m, Post-mortems. *Mon.*, 2 p m., Ear, Nose, and Throat Clinic. *Tues.*, 10 a m, Paediatric Clinic; 11 a m., Gynaecological Clinic; 2 p m, Genito-urinary Clinic *Wed.*, 11 30 a m., Medical Conference; *Thurs.*, 2 p m., Dermatological Clinic; 2.15 p m., X-ray Demonstration on "The Colon" by Dr E J E. Topham. *Fri.*, 12 15 p m, Surgical Conference; 2 p.m, Gynaecological Conference; 2 p m., Sterility Clinic.

FELLOWSHIP OF MEDICINE, 1, Wimpole Street, W.—*London Homoeopathic Hospital:* Wed afternoon (limited to 6), Clinical Surgery Demonstration *National Heart Hospital:* Tues. and Wed., 10 a m, Out-patient Clinic.

EDINBURGH POSTGRADUATE LECTURES.—At Edinburgh Royal Infirmary, *Thurs.*, 4.30 p m. Prof. C. McNeil: The First Month of Life—the Scope and Significance of its Clinical Problems.

DIARY OF SOCIETIES & LECTURES

ROYAL SOCIETY OF MEDICINE.—*Mon.*, 4.15 p m Section of Odontology; 4.15 p m. Section of Medicine: *Thurs*, 4.30 p m Section of Urology

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES, 11, Chandos Street, W.—*Sat.* (Jan. 30), 2.30 p.m., Major Paul Padget, U S. Army Medical Corps: Contact Investigation in Venereal Disease Control

BIRTHS, MARRIAGES, & DEATHS

The charge for inserting announcements under this head is 10s 6d. This amount should be forwarded with the notice, authenticated with the name and address of the sender, and should reach the Advertisement Manager not later than first post Monday morning to ensure insertion to the current issue.

BIRTHS

BIRCH.—On Jan. 1, 1943, at Hillside Nursing Home, Faversham, to Diana, wife of Dr. R. G. Birch of Sittingbourne, Kent, a daughter (Diana Kathryn)

ROBINSON.—On Jan. 6, 1943, to Jo. (*née* Liddington), wife of Dr. H. D. Robinson, Great Missenden, Bucks, a son.

SEXTON.—At 35, Drumsheugh Gardens, Edinburgh, on Dec. 27, 1942, to Betty (*née* Cook), wife of Dr. J. P. Sexton, Colonial Medical Service (Nigeria), a son (John Michael)

Rubber Gloves.—The Ministry of Health (Circular 2740) states that for 1943 the maximum purchase of rubber gloves by a doctor will be 6 pairs. Booklets of six certificates, each certificate for 1 pair of gloves, will be issued, as last year, by the Central Medical War Committee. Applications for "supplementary rations" should continue to be made to the regional office of the Ministry of Health for the area in which the doctor lives; and should be accompanied by a statement of the grounds on which the application is made.

SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
LONDON SATURDAY JANUARY 30 1943

Correspondence

National Ophthalmic Medical Service

SIR,—With the publication of the Beveridge Report the question of providing an efficient ophthalmic medical service for the whole of Britain as part of a national medical service open to all may become a leading one. Even if it does not, it is almost universally advocated that dental and ophthalmic benefits should be made statutory forthwith for the present insured population.

Although no definite data are available as to the actual number of patients to be treated annually for eye troubles of all kinds, including prescription of glasses, it has been asserted that there are not enough ophthalmic medical practitioners to cope with the work. I have contended for years that this is not so, provided there is proper distribution of practitioners throughout the country.

It is generally stated that in 1942 20,000,000 persons were entitled to the insurance medical service. It is a matter of common knowledge that about 10,000,000 of these get ophthalmic benefit. Though all pay the same contributions there is no uniformity or guarantee of the continuance of this or any other additional benefit, because of the reasons given in the Beveridge Report.

As all the Approved Societies are free to give any one or other of the benefits in part or in whole, it would be safe to conclude that on an average the societies spend at least 11s. 9d. per person who gets ophthalmic benefit. (According to Appendix G of the Beveridge Report (Cmd. 6405, p. 60) in the year 1940 the number of claims for ophthalmic benefit was 156,259, and the amount paid was £91,529 approximately, an average of 11s. 9d. per person.)

Again, according to the report for 1938 of the Chief Medical Officer of the Ministry of Health £449,000 was for ophthalmic benefit, and under the fifth valuation of Approved Societies the annual allocation for ophthalmic benefit is £630,000—i.e., for the 10,000,000 insured entitled to this benefit. Thus in the year 1943, for which the allocation is £630,000 at the rate of 11s. 9d. per person, over 1,000,000 individuals may get this benefit. Even if we work on the basis of at least 500 ophthalmic medical practitioners available for service, owing to the war, and if we take it that they will work 250 days in a year, each of them would have to attend 9 to 10 patients on each working day.

On the other hand, if the State decided to make this benefit uniform and statutory for the whole country (which could not be before 1945), it would give ample time for enlisting increased numbers of trained medical men and women on the B.M.A.'s approved list for this purpose. When the war is over most of the 1,000 ophthalmic medical practitioners on the existing B.M.A. list should be available for this work. If the Beveridge Report is adopted, and if we take 48,000,000 as the maximum population during and after 1945, then on the basis of 10% of the total population needing ophthalmic treatment we should have about 5,000,000 people to be attended to in each year. By that time—i.e., 1945-50—it should not be difficult to have 2,000 ophthalmic medical practitioners available for this work, and thus in each year the individual practitioner would have to attend 10 patients a working day, which surely cannot be too heavy a burden.—I am, etc.,

Doncaster M. D. THAKORE.

N.H.I. Disciplinary Machinery

SIR,—In an article on the future of the country's medical services (*Supplement*, Jan. 16, p. 9) Mr. R. W. Harris states that the disciplinary machinery does not function to any large extent, this being due very largely to the apathy of the insured persons. Unless one is inclined to split grammarian's hairs this can only mean that, in Mr. Harris's opinion, if the insured persons were not apathetic the machinery would function to a large extent. May I raise an indignant voice as an insurance practitioner at this statement? May I ask on what grounds Mr. Harris makes this remark? It seems to me that this statement, coming as it does from the chairman of the Medical Services Subcommittee, explains the feeling that comes to the unfortunate practitioner appearing before the committee that his case has been prejudged. It also explains the reason for the profession feeling that there is no one so disliked by the Ministry of Health as the insurance practitioner. May I also protest against this remark appearing without any editorial disclaimer as to agreement, in view of your circulation outside the profession?—I am, etc.,

London, S.W.1. A. HARBOUR.

The Beveridge Report

SIR,—The Beveridge Report is pointing the way to a State Medical Service for all in the near future, whatever political power holds sway in the post-war era. The medical profession must realize that the fate of medicine in this country is in the hands of the people and not in the hands of a few voluble committees or commissions, and the people applaud the Beveridge Report. Many of us, who are citizens as well as doctors, will welcome a clear-cut decision to sweep the slate clean of hypocrisy and myopic conservatism, and make a service for every citizen a reality. I have attended many a meeting in Pickwickian atmosphere, and listened to some earnest Tupman voicing his fears—loss of freedom and initiative, etc. But metabolizing mouthfuls until we are mouldy won't mould public opinion. We should acquaint the public with our ideas of a State service in the form of an attractive pamphlet, and the form of this pamphlet might well be a subject for a B.M.A. prize once we are agreed upon matters of remuneration, etc. Then, if and when the time comes to discuss terms with the Government, the public will be under no illusions as to what we doctors want if we are to function happily and efficiently, and not as disgruntled dupes. We have a great opportunity, but "time is not on our side." Sir William Beveridge has given us a warning.—I am, etc.,

Birmingham. A. WISEMAN.

CONDENSED MILK FOR INFANTS

Acting on the advice of the Food Rationing (Special Diets) Advisory Committee of the Medical Research Council, the Ministry of Food has arranged for extra supplies of sweetened or unsweetened condensed milk to be available for (*a*) premature infants, and (*b*) infants who have had an operation on the mouth, throat, or gullet, or an abdominal operation not more than one month previously. Permits, which will be for a period of four weeks, will be issued by local food offices on application supported by a medical certificate. Those for premature infants will be renewable at four-weekly intervals on production of further medical certificates until the infant is six months old. For group (*b*) the permit will cover a period between the date of application and four weeks after the operation.

Applications for extra condensed milk for other children under six months will be considered individually by the Ministry's medical advisers, but each must be accompanied by a doctor's certificate giving details of the infant's condition, age, weight at birth and at time of application, and whether milk or any milk preparation other than condensed milk has been tried and found unsuitable. If applications are approved the permits will be for a period of four weeks, renewable on production of further medical certificates at four-weekly intervals until the child is six months old. When extra sweetened condensed milk is allowed the child's sugar ration, any authority to obtain National dried milk, and the priority allowance of liquid milk will be stopped for the relative period.

From Jan. 3, 1943, the following soap preparations will cease to be rationed if supplied against a doctor's prescription: *B.P.*—sapo animalis, sapo durus, and sapo mollis; *B.P.C.*—sapo kalinus, sp. saponatus, sp. saponis kalini, liq. saponis aethereus, liq. saponis antisepticus, liq. saponis olei cocois; and medicated soaps containing not less than 1% of mercuric iodide, not less than 4% of ichthyol, 2% of salicylic acid, 2% of resorcin, or 5% of sulphur.

H.M. Forces Appointments

LAND FORCES: EMERGENCY COMMISSIONS

ROYAL ARMY MEDICAL CORPS

War Subs. Capt. W. C. Cockburn has relinquished his commission on account of ill-health and has been granted the rank of Major.

War Subs. Capts. E Alderson, D.S.O., T.D., and J. A. A. Duncan have relinquished their commissions and have been granted the honorary rank of Major.

War Subs. Capts. J. P. Stallard, W. H. Peden, W. G. Tregea, and R. W. Bone have relinquished their commissions on account of ill-health and have been granted the rank of Capt.

Capt. J. G. T. Lunn to be Lieut., temporarily relinquishing the rank of Capt.

Lieuts. J E. H Griffiths and H. M. S. Stanley have relinquished their commissions on account of ill-health and retain their rank.

TERRITORIAL ARMY

ROYAL ARMY MEDICAL CORPS

War Subs Major W. E. Pycraft has relinquished his commission on account of ill-health and has been granted the rank of Major.

Supernumerary for service with Edinburgh University Senior Training Corps (Medical Unit): S. A Smith to be Lieut

ROYAL AIR FORCE

Air Commodores F C. Cowtan, A. E. Panter, and A. Grant, C.B.E., to be Air Vice-Marshals (Temp.).

Group Capts. R. H. Knowles, K Briggs, M.C., and R. W. Ryan to be Air Commodores (Temp.).

Group Capt. (temp. Air Commodore) W. A. S. Duck, O.B E (retired, but re-employed on the active list) has relinquished voluntarily the temporary rank of Air Commodore and has reverted to that of Wing Cmdr.

Wing Cmdr. (Temp. Group Capt.) W J. G. Walker to be Group Capt.

Wing Cmdrs. J. B. Gregor and R. H Stanbridge to be Group Capts. (Temp.).

Squad. Ldrs (Temp. Wing Cmdrs.) C. Crowley, G. O. Williams, and G A. M Knight to be Wing Cmdrs.

Squad. Ldrs J. S. Carslaw, T. D. L. Bolan, J. H. Cullinan, J. L. Walsh, J. F. Dales, L. S. Everett, W. P. Stamm, I. MacKay, and H. Bannerman to be Wing Cmdrs (Temp.)

Fl. Lieuts. C. W. S. Marris, E. H Lamb, R Maycock, D. C Light, S. J. Walsh, C G. G. MacKay, and H. S. Samuel to be Squad. Ldrs. (Temp.)

Fl. Lieut Emmie D Fenwick to be Squad. Ldr.

RESERVE OF AIR FORCE OFFICERS

Fl Lieuts. J. S. Richardson and E. J. Jenkins to be Squad. Ldrs. (Temp.).

AUXILIARY AIR FORCE

Fl. Lieuts J D. Crerar, A. M. Boyne, J. S. Gourlay, J H Pool, J K. H. Scott, S. E. Osborne, R. J. H. Raines, L. Stone, E O Walker, and H. J. Riley to be Squad. Ldrs. (Temp.).

ROYAL AIR FORCE VOLUNTEER RESERVE

Wing Cmdrs. R. D. Gillespie and S. Cade to be Group Capts (Temp.).

Squad. Ldrs. J. Tate and C. Barton to be Wing Cmdrs. (Temp.).

Fl. Lieuts. R. J. Owen, J. C. Adams, B. B. Bridges, O. Scarborough, A. M. G. Campbell, J. Scholefield, J. V. Quinn, T. D Spencer, J. A Lennox, R. A. Wilson, R. F. Dawson, J. Park, G A Fraser, J. S. Brocket, J. A. Chalmers, J. A. Currie, H. R. Arthur, T P. Pitts, A. D. Gill, D. A. Davies, W. E. F. Evans, J. P. Sewell, E. K. Brownrigg, R. G B. Wigoder, A. L. Knipe, H. S. Baker, F. H. Coleman, W. Mackie, M. J. Cahalane, G. R. Gunn, P. S. Clouston, J. V. Macgregor, B. T. Thorne, A D. D. Broughton, A. G. Moore, R J. O'Connor, S. Ball, G. T. James, W. C. Baird, W. K. Stewart, H. W. Toms, A. S Simpson, C. C. Harvey, T C. Henry, G. K. Burr, J. Hughes, I. H. Mathieson, and W. G. Hutton to be Squad. Ldrs (Temp.).

Fl. Lieuts. R. H. Moore and D. M. Roberts have relinquished their commissions on account of ill-health and have retained their rank.

E. H Kitching to be Squad. Ldr. (Emergency).

E. Williams to be Fl. Lieut (Emergency)

Flying Officers C. M Liddell, S. T. Winter, W. McK. Bonnar, A. H. Lankester, J. H. MacL. Munro, C. Phillips, J D. Bryne, I. L. R. Evans, T. J Evans, S L Jones, M. R. J. Snelling, R. Cunningham, A. F. Harbinson, N. S. Gordon, D Nixon, G. F. Panto, E. Saphier, I. A. Macdonald, A. J. F Eberle, D McD. Kenny, C. L. O Macallister, G. Wilkinson, L. Chalmers, G. G France, R. M. Glass, W. G. Bridges, J C. Day, J D Cambrook, M J. Conlon, R. A. Smart, H. W. Bradford, D. T. Thomas, and R. A. Thatcher to be War Subs. Fl. Lieuts.

To be Flying Officers (Emergency): J. A. Judson, J. N. Banks, P Beattie, R. E. Brandon, H. B. C. Carter-Locke, H. W. McC. Dunn, J. D. Frame, R. Judson, T. R. Mallory, L. E Morris, S A. Scorer, G. R. Stark, P. R. Stringer, A. K. P. Tobin, J. F. H. Wood, W. V. Glasgow, M. Y. Paget, L. D Robertson, R. V. Robinson, A. B. H. Taylor.

B.M.A.: Branch and Division Meetings to be Held

NORTHERN IRELAND BRANCH.—Joint meeting with Ulster Medical Society at Queen's University, Belfast, Thurs., Feb. 4, 4.30 p.m. Short papers and demonstrations.

B.M.A.: Meetings of Branches and Divisions

ABERDEEN BRANCH: CITY OF ABERDEEN DIVISION

At a meeting of the City of Aberdeen Division, held at Aberdeen on December 10, 1942, with Dr. C. B. GRIEVE in the chair, Prof. JOHN GLAISTER gave an address on "Some Reflections on Medico-Legal Practice."

Prof. Glaister referred to forensic medicine as the "Cinderella" of medical teaching and to the poor recognition given to this subject in universities. He said the lack of facilities in the mortuary system in Britain for the standard of work required was a disgrace. Centralization—a chain system of suitable laboratories, necropsy theatres, etc., with modern equipment—was needed. The lot of a medico-legal witness was not an easy one. He had to be able to stand up to detailed cross-questioning by experts, and had no excuse for omissions, however inadequate the conditions under which he had to carry out his work. The training of lawyers in medical matters concerned with legal practice was very detailed. Police instruction also had reached a high standard. A very heavy onus was placed on the Crown to prove its case beyond all reasonable doubt. There were really very few unsolved mysteries; although the information never became public, there was police knowledge of the probable perpetrator of a crime, but it had been impossible to obtain the proof required to secure a conviction. Much criticism was offered by the "man in the street" on the expenditure of public money on legal cases, but a great deal depended on the unexpected in investigation. Circumstances did not lie but witnesses did, and a panel of jurists must have a completely open mind. It was unwise to attempt to put oneself in the position of the accused, as the psychology and mentality of accused persons were so different. In conclusion, Prof. Glaister showed lantern slides of the laboratory and microscopical examination of hairs and tissues.

The lecture was greatly appreciated, and on the proposal of Mr. A. C. MORRISON, Emeritus Professor of Conveyancing of the University of Aberdeen, a hearty vote of thanks was accorded to Prof. Glaister for his address.

B.M.A. LIBRARY

The following books were added to the library during October and November, 1942:

Ashman, R., and Hull, E: Essentials of Electrocardiography. Second edition. 1941.

Bertwistle, A. P: Descriptive Atlas of Radiographs. Fifth edition. 1942.

Boyce, F. F.: Role of the Liver in Surgery. 1941.

Cameron, A. T.: Textbook of Biochemistry. Sixth edition. 1942.

Conybeare, J. J.: Textbook of Medicine. Sixth edition. 1942.

Cyriax, J: Massage, Manipulation and Local Anaesthesia. 1941

Darlington, C. D, and La Cour, L. F.: Handling of Chromosomes. 1942.

Davies, H. M., and Coope, R.: War Injuries of the Chest. 1942.

Dobson, M.: Binocular Imbalance. 1942.

Eggleston, C.: Essentials of Prescription Writing Seventh edition. 1942.

Emerson, C. P., and Taylor, J. E.: Essentials of Medicine. Fourteenth edition. 1940.

Fairbrother, R. W.: Textbook of Bacteriology. Fourth edition. 1942.

Frost, W. H.: Papers of Wade Hampton Frost, M.D. (Edited by K. F. Maxcy.) 1941.

Garceau, O.: Political Life of the American Medical Association. 1941.

Gifford, S. R.: Handbook of Ocular Therapeutics Third edition. 1942.

Glaister, J.: Medical Jurisprudence and Toxicology. Seventh edition 1942.

Goodall-Copestake, B. M: Theory and Practice of Massage and Medical Gymnastics. Sixth edition. 1942.

Hale-White's Materia Medica. Twenty-fifth edition. By A. H. Douthwaite. 1942.

Halliburton, W. D., and McDowall, R. J. S. Handbook of Physiology and Biochemistry Thirty-seventh edition. 1942.

Hess, J H, and Lundeen, E. C: Premature Infant. 1941.

Hewer, C. L.: Recent Advances in Anaesthesia and Analgesia. Fourth edition. 1942.

Johnstone, R. W.: Textbook of Midwifery. Eleventh edition. 1942.

Kovacs, R.: Electrotherapy and Light Therapy. Fourth edition. 1942.

Kugelmass, I. N.: Blood Disorders in Children. 1941.

Lewis, K. M.: Fractures and Dislocations. 1941.

Libman, E., and Friedberg, C. K.: Subacute Bacterial Endocarditis 1941.

Lichtwitz, L.: Functional Pathology. 1942.

Macy, I. G.: Nutrition and Chemical Growth in Childhood. Vol. I. 1942.

Neil, J. H.: Ear, Nose and Throat Nursing. Third edition. 1942.

Newman, H.: Twins and Super Twins 1942

Newman, H. W.: Acute Alcoholic Intoxication: A Critical Review. 1941.

Pearn, O. P. N.: Mental Nursing (Simplified). 1942.

Pye's Surgical Handicraft. Thirteenth edition. 1942.

Rosenberg, H. R.: Chemistry and Physiology of the Vitamins. 1941.

Sears, W. G.: Anatomy and Physiology for Nurses. 1941.

Segal, J.: Diseases of the Respiratory Tract 1941.

Stitt, E. R.: Diagnosis, Prevention and Treatment of Tropical Diseases. Sixth edition 2 vols. 1942.

Vannotti, A., and Delacheur, A.: Eisenstoffwechsel und seine klinische Bedeutung 1942.

Whitby, L. E. H., and Britton, C. J C: Disorders of the Blood. Fourth edition. 1942.

Wilson, G. S: Pasteurization of Milk 1942

Wintrobe, M. M.: Clinical Hematology. 1942.

POSTGRADUATE NEWS

The Fellowship of Medicine announces the following courses: Rheumatism, at Rheumatic Unit, St. Stephen's Hospital (L.C.C.), on Sat and Sun, Feb. 27 and 28, and revision course in anaesthetics at Radcliffe Infirmary, Oxford, March 15 to 26.

WEEKLY POSTGRADUATE DIARY

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane Road, W.—*Daily*, 10 a.m. to 4 p.m., Medical Clinics, Surgical Clinics and Operations, Obstetrics and Gynaecological Clinics and Operations. *Daily*, 1 30 p.m., Post-mortems. *Mon.*, Course on War Surgery of the Nervous System begins; 2 p.m., Ear, Nose, and Throat Clinic *Tues.*, 10 a.m., Paediatric Clinic; 11 a.m., Gynaecological Clinic; 2 p.m., Genito-urinary Clinic. *Wed.*, 11.30 a.m., Medical Conference; 2 p.m., Inflammation—2, Localization, by Prof. W. G. Barnard. *Thurs.*, 2 p.m., Dermatological Clinic; 2.15 p.m., *X*-ray Demonstration on Pneumonia and Bronchitis by Dr. E. J. E Topham. *Fri.*, 12.15 p.m., Surgical Conference; 2 p.m., Gynaecological Conference; 2 p.m., Sterility Clinic.

FELLOWSHIP OF MEDICINE, 1, Wimpole Street, W. —*London Homoeopathic Hospital*, Queen Square, W.C.—Wednesday afternoon, Clinical Surgery Demonstration (limited to 6). *National Heart Hospital*, Westmoreland Street, W.—Tues and Wed., 10 a.m., Out-patient Clinics.

EDINBURGH POSTGRADUATE LECTURES.—At Edinburgh Royal Infirmary, *Thurs.*, 4.30 p.m. Prof. J. R. Learmonth: Reflex Vasodilatation in Surgery.

DIARY OF SOCIETIES & LECTURES

ROYAL SOCIETY OF MEDICINE.—*Tues.*, 2 p.m., Section of Orthopaedics; 4 p.m., General meeting of Fellows. *Wed.*, 2 30 p.m., Section of History of Medicine; 2 30 p.m., Joint meeting of Sections of Surgery and of Urology. *Fri.*, 10.30 a.m. Section of Otology; 2.15 p.m, Section of Laryngology; 2.30 p.m., Section of Anaesthetics

ROYAL NATIONAL THROAT NOSE, AND EAR HOSPITAL, Gray's Inn Road, W C.—*Fri.*, 4 p.m. Mr N. Asherson. Acute Emergencies in Ear, Nose, and Throat

BIRTHS, MARRIAGES, & DEATHS

BIRTHS

MACDONALD.—On Jan. 14, 1943, at 34, Kimbolton Road, Bedford, to Joyce (*née* Walters), wife of Squad. Ldr. D. MacDonald, a son.

MAINGAY.—On Jan. 12, 1943, at Park House Nursing Home, Liverpool, 22, to Hope, wife of Surg. Lieut.-Cmdr. Hugh C. Maingay, R.N.V.R., a daughter.

MARRIAGE

CROSS—WHEELER.—On Jan. 11, 1943, at St Botolph's Church, Shenley, Flying Officer William George Cross, B D.S Lond., M.R.C.S, L.R.C.P., R.A.F.V.R, elder son of Mr. and Mrs W. M Cross, of Elstree, Herts, to Mary Lucy, elder daughter of the Reverend and Mrs. Wheeler, Shenley, Herts.

DEATHS

AINSCOW.—On Jan. 12, 1943, at his daughter's home, 152, Birmingham Road, Wylde Green, Warwickshire, James Allen Ainscow, M.D., D P H.

PARRY.—On Jan. 22, 1943, at 33, Wildcroft Manor, Putney Heath, London, S.W.15, Robert Henry Parry, F.R.C.S.Ed., late of Glasgow, aged 84.

SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
LONDON SATURDAY FEBRUARY 6 1943

BEVERIDGE REPORT: A PLAN FOR SOCIAL SECURITY

To help Study Groups we publish below those paragraphs from Sir William Beveridge's report on Social Insurance and Allied Services with which they are most concerned. The figures in parentheses denote the paragraphs in the report from which the extracts have been taken.

Guiding Principles (Paras. 6–10)

1. Any proposals for the future, while they should use to the full the experience gathered in the past, should not be restricted by consideration of sectional interests established in the obtaining of that experience.

2. Organization of social insurance should be treated as one part only of a comprehensive policy of social progress.

3. Social security must be achieved by co-operation between the State and the individual.

Summary of Plan (Paras. 17–19)

The main feature of the Plan for Social Security is a scheme of social insurance against interruption and destruction of earning power and for special expenditure arising at birth, marriage, or death. The scheme embodies six fundamental principles: flat rate of subsistence benefit; flat rate of contribution; unification of administrative responsibility; adequacy of benefit; comprehensiveness; and classification.

The main provisions of the plan may be summarized as follows:

The plan covers all citizens without upper income limit, but has regard to their different ways of life; it is a plan all-embracing in scope of persons and of needs, but is classified in application.

In relation to social-security the population falls into four main classes of working age and two others below and above working age respectively, as follows: (1) employees—that is, persons whose normal occupation is employment under contract of service; (2) others gainfully occupied, including employers, traders, and independent workers of all kinds; (3) housewives—that is, married women of working age; (4) others of working age not gainfully occupied; (5) below working age; (6) retired above working age. All classes will be covered for comprehensive medical treatment and rehabilitation.

Every person in Class 1, 2, or 4 will pay a single security contribution by a stamp on a single insurance document each week or combination of weeks. In Class 1 the employer also will contribute.

Medical treatment covering all requirements will be provided for all citizens by a national health service organized under the health departments, and post-medical rehabilitation treatment will be provided for all persons capable of profiting by it.

A Ministry of Social Security will be established, responsible for social insurance, national assistance and encouragement, and supervision of voluntary insurance, and will take over, so far as necessary for these purposes, the present work of other Government Departments and of local authorities in these fields.

Principal Changes Involved (Paras. 30–32)

All benefits will be obtainable by single weekly contribution on a single document.

Unification of social insurance and assistance in respect of administration in a Ministry of Social Security with local security offices within reach of all insured persons.

Supersession of the present system of approved societies giving unequal benefits for equal compulsory contributions.

Supersession of the present scheme of workmen's compensation, and inclusion of provision for industrial accident or disease within the unified social insurance scheme, subject to (*a*) a special method of meeting the cost of this provision, and (*b*) special pensions for prolonged disability and grants to dependants in cases of death due to such causes.

Separation of medical treatment from the administration of cash benefits, and the setting up of a comprehensive medical service for every citizen, covering all treatment and every form of disability under the supervision of the health departments.

Transfer to the Ministry of Social Security of the remaining functions of local authorities in respect of public assistance, other than treatment and services of an institutional character.

Transfer to the Ministry of Social Security of responsibility for the maintenance of blind persons, and the framing of a new scheme for maintenance and welfare by co-operation between the Ministry, local authorities, and voluntary agencies.

Ministry of Social Security and Local Authorities (Paras. 161–165)

The Poor Law, founded originally on the obligation of every parish to prevent destitution, was, until comparatively recently, the basic service for meeting need. But during the past 40 years there has been a strong trend away from the Poor Law and in favour of contributory State insurance and assistance administered on a national basis. The proposals in this Report (extending State insurance to new classes and new needs, raising rates of benefit, and prolonging the period of benefit) will considerably reduce the scope both of public assistance and of the Assistance Board. There can be no case for maintaining two or more large organizations performing precisely the same functions (payment of assistance according to needs) in respect of a reduced and declining number of recipients. It is therefore proposed that there should be one authority administering assistance on the basis of a uniform means test. It is essential to the logic and aims of the Plan of Social Security that this authority should be national and part of the Ministry of Social Security.

It is clear that the administration of the Ministry of Social Security must be decentralized, so that its local officers are in intimate touch with the problems and circumstances in their localities. This can be secured without making these officials servants of and subject to the control of the local authority. The present important function of the relieving officer of giving relief in cases of sudden and urgent necessity will in future have to be performed by the equivalent local officer of the Ministry of Social Security. There is no difficulty in practice in arranging for local administration by local officials of a central department. But to make such officials servants of the local authority means either that the local authority has discretion in spending money to which it does not contribute in any way and in which, therefore, it has no motive to economize, or that it has no discretion, in which case the local authority becomes an agent without responsibility. It is neither desirable for the strength of local democracy that local authorities should have to administer a service without discretion and according to detailed rules, nor compatible with a national minimum and a national Plan of Social Security that people should be given assistance according to a scale and conditions which vary from place to place.

The abolition of the Poor Law will still leave in the hands of local authorities the important and growing task of organizing and maintaining institutions of various kinds for treatment and welfare. In view of the increasing number of old persons there is probably considerable scope for experimentation with and development of services concerned with the recreation and welfare of the old, including special housing facilities. The domiciliary Poor Law Medical Service will presumably be merged into the comprehensive health service which is Assumption B of the Report, and in which local authorities will continue to play a very important part. Local authorities also will have a vital part to play in the other fields of social welfare, such as housing, education, and the recreative and cultural services. But these services will not be provided as part of the Poor Law. The Poor Law code will, it is proposed, be abolished. The many-sided activities of local authorities in relation to social security will be organized either as part of the different main social services, under the appropriate committees for public health, education, and so forth, or under a special social welfare committee concerned with or co-ordinating such cash-aid functions as rent rebates, or cheap or free school meals, to which a single means test would be applied.

The proposal in the Report, in accord with the views expressed by the English local authorities, is that responsibility for assistance should be transferred to the Ministry of Social Security, while provision for institutions will in general remain with the local authorities, who will be empowered to give cash payments which are incidental to institutional treatment. The precise dividing line and the details of the transfer, including the consequential financial adjustments, will have to be worked out in consultation with the local authorities. But one thing is clear: there will be need for continuous and friendly collaboration between the proposed Ministry of Social Security and the local authorities. Both central and local government have in their different ways a contribution to make to the future security and welfare of the people of this country.

Transfer of Functions to Ministry of Social Security (Paras. 171–175)

The precise form of departmental organization to be adopted for administration of social security cannot be determined finally without reference to the general organization of the work of the Government. There will clearly, however, be a considerable transfer of functions from other Departments to the proposed new Ministry of Social Security—e.g., (1) Assistance Board; (2) Customs and Excise Department: non-contributory pensions; (3) Ministry of Labour and National Service: unemployment benefit, employment services; the Ministry of Labour and National Service will continue to deal with labour questions generally, including training, for which it will provide institutions and post-medical rehabilitation. There must be co-operation between the Ministry of Social Security and Departments responsible for administration of the Mines- and Factory Acts and the prevention of accident and disease; (4) Ministry of Health: health insurance; (5) Home Office: workmen's compensation.

The Ministry of Social Security will not be responsible for medical treatment, which will fall within the sphere of the Health Departments, but there will be a joint committee of the Ministry of Social Security and of all Departments concerned in health and welfare for promotion of measures designed to prevent disease and reduce the burden on the Social Insurance Fund.

Estimate of Expenditure (Paras. 268–271)

The expenditure on health and rehabilitation services is estimated at £170,000,000 in 1945 and the same in 1965. The Report states that the figure given for the cost of the health and rehabilitation services is a very rough estimate requiring further examination. No change is made in this figure as from 1945 to 1965, it being assumed that there will actually be some development of the service, and as a consequence of this development a reduction in the number of cases requiring it. The estimate assumes that hospital treatment with all other treatment is included in the health service in virtue of the compulsory social insurance contribution—that is, without further voluntary contributions or charge on treatment; this proposal is subject to the further inquiry suggested in para. 437.

Taxation and Contributions (Paras. 272–280)

On the suggestion that social security should be financed only by taxation the Report says: "The suggestion is put, or can be put, in two alternative forms. One is that social security should be financed wholly from general taxation—that is, should become completely and formally non-contributory. The other is that social security should be financed by particular taxes assigned to this purpose. This suggestion in either of its forms breaks with the contributory principle, and logically, as is seen by some of its advocates, involves dropping the term "insurance." The advantages that can be claimed for the second form of this suggestion over the first form are that it maintains some connexion between paying and receiving, and may make it possible to widen the basis of taxation. It might, for instance, appear easier to reconcile wage-earners to income tax if the proceeds were earmarked for some purpose in which wage-earners had a personal interest, just as at one time a tax on petrol was introduced specifically to improve roads for the users of vehicles driven by petrol. But the arguments against assignment of taxes to particular purposes are strong; assignment is a method rightly unpopular with those who have responsibility for framing the general budget, and it is difficult to believe that it could prudently be applied to any part of a tax so fundamental as income tax. Moreover, as the experience of the Road Fund shows, there is no assurance that the earmarking of a tax to its original purposes will be respected. But it is unnecessary here to discuss the relative advantages or disadvantages of the two forms of the suggestion to abandon insurance contribution entirely in favour of taxation according to capacity. From the point of view adopted in this Report and advocated by the great majority of the organizations and persons who gave evidence to the committee, the suggestion involves a departure from existing practice for which there is neither need nor justification and which conflicts with the wishes and feelings of the British democracy. The scheme of social insurance which forms the centre of the Plan for Social Security is based on maintenance of the contributory principle—that is to say, of the principle that a material part of the total cost of maintaining income under the plan shall be met from moneys contributed by citizens as insured persons, on the basis of each individual paying the same contribution for the same rate of benefit. Contribution means that in their capacity as possible recipients of benefit the poorer man and the richer man are treated alike. Taxation means that the richer man, because of his capacity to pay, pays more for the general purposes of the community. These general purposes may, and in practice they must, include bearing a part of the cost of social security; if security is to be based on the contributory principle, they cannot include bearing the whole cost.

As regards division of the joint contribution in Class 1 between insured persons and their employers, the view taken here is that it is reasonable for the cost of unemployment, of disability other than that covered by industrial levy in industries scheduled as hazardous, and of retirement pensions and widowhood to be divided equally between the two parties, for employers to continue to make a contribution towards the cost of medical treatment for their employees, for the insured persons to be charged with funeral, marriage, and maternity grant and the bulk of the insurance contributions for medical treatment.

Social Policy (Para. 409)

Any plan for social security in the narrow sense assumes a concerted social policy in many fields, most of which it would be inappropriate to discuss in this Report. The plan proposed here involves three particular assumptions so closely related to it that brief discussion is essential for understanding of the plan itself. These are the assumptions of children's allowances, of comprehensive health and rehabilitation services, and of maintenance of employment. After these three assumptions have been examined, general questions are raised as to the practicability of taking freedom from want as an immediate post-war aim and as to the desirability of planning reconstruction of the social services even in war.

Health and Rehabilitation Services (Paras. 426–439)

426. The second of the three assumptions has two sides to it. It covers a national health service for prevention and for cure of disease and disability by medical treatment; it covers rehabilitation and fitting for employment by treatment, which will be both medical and post-medical. Administratively, realization of Assumption B on its two sides involves action both by the Departments concerned with health and by the Ministry of Labour and National Service. Exactly where the line should be drawn between the responsibilities of these Departments cannot, and need not, be settled now. For the purpose of the present Report the two sides are combined under one head, avoiding the need to distinguish accurately at this stage between medical and post-medical work. The case for regarding Assumption B as necessary for a satisfactory system of social security needs little emphasis. It is a logical corollary to the payment of high benefits in disability that determined efforts should be made by the State to reduce the number of cases for which benefit is needed. It is a logical corollary to the receipt of high benefits in disability that the individual should recognize the duty to be well and to co-operate in all steps which may lead to diagnosis of disease in early stages when it can be prevented. Disease and accidents must be paid for in any case, in lessened power of production and in idleness, if not directly by insurance benefits. One of the reasons why it is preferable to pay for disease and accident openly and directly in the form of insurance benefits rather than indirectly is that this emphasizes the cost and should give a stimulus to prevention. As to the methods of realizing Assumption B, the main problems naturally arise under the first head of medical treatment. Rehabilitation is a new field of remedial activity with great possibilities but requiring expenditure of a different order of magnitude from that involved in the medical treatment of the nation.

427. The first part of Assumption B is that a comprehensive national health service will ensure that for every citizen there is available whatever medical treatment he requires, in whatever form he requires it, domiciliary or institutional, general, specialist, or consultant, and will ensure also the provision of dental, ophthalmic, and surgical appliances, nursing and midwifery, and rehabilitation after accidents. Whether or not payment towards the cost of the health service is

included in the social insurance contribution, the service itself should (1) be organized, not by the Ministry concerned with social insurance, but by Departments responsible for the health of the people and for positive and preventive as well as curative measures; (2) be provided where needed without contribution conditions in any individual case.

Restoration of a sick person to health is a duty of the State and the sick person, prior to any other consideration. The assumption made here is in accord with the definition of the objects of medical service as proposed in the Draft Interim Report of the Medical Planning Commission of the British Medical Association: "(*a*) to provide a system of medical service directed towards the achievement of positive health, the prevention of disease, and the relief of sickness; (*b*) to render available to every individual all necessary medical services, both general and specialist, and both domiciliary and institutional."

428. Most of the problems of organization of such a service fall outside the scope of the Report. It is not necessary to express an opinion on such questions as free choice of doctor, group or individual practice, or the place of voluntary and public hospitals respectively in a national scheme. It is not necessary to express an opinion on the terms of service and remuneration of doctors of various kinds, of dentists, and of nurses, except in so far as these terms may affect the possibility of diminishing and controlling sickness and so may affect the finances of the Social Insurance Fund. Once it is accepted that the administration of medical treatment shall be lifted out of social insurance to become part of a comprehensive health service, the questions that remain for answer in this Report are, in the main, financial. Shall any part of the cost of treatment, and if so what part, be included in the compulsory insurance contribution? But, though that question is in itself financial, the answer to it may affect the organization of the service and may therefore depend in part upon views as to organization.

429. In dealing with this financial question it is desirable to consider separately domiciliary treatment, institutional treatment, special services like dental and ophthalmic treatment, and subsidiary services such as supply of medical or surgical appliances, nursing, and convalescent homes.

430. Domiciliary treatment is now paid for by persons subject to health insurance, for themselves by compulsory contributions, for dependants either by a charge for treatment when it is given, or, more rarely, by voluntary contribution through associations for public medical service. There is no obvious reason, apart from a desire to keep the insurance contribution as low as possible, why insured persons should be relieved of this burden wholly in order that they may bear it as tax-payers. If importance attaches to preserving the contributory principle for each benefit, it attaches also to contribution for medical treatment. There appears to be a case for including part of the cost of domiciliary treatment in the insurance contribution. This means that a proportion of the receipts of the Social Insurance Fund would be paid by the Fund to the Health Departments as a grant towards the cost of the medical service. The administration of this money would rest with the Health Departments.

431. But one consequence of this suggestion has to be noted. The Report proposes a compulsory social insurance scheme without income limits. Its contributing Classes 1, 2, and 4, though they pay different contributions according to the cash benefits for which they insure, are not income classes; each contains rich and poor. Any contribution for medical treatment must apply to all these classes, to every one in each of them, and must cover their dependants in Class 3 (housewives) and Class 5 (children). If a contribution for medical treatment is included in the insurance contribution, contributions will cover, not 90% of the population (the present insured persons and their dependants), as is assumed in the Draft Interim Report issued by the Medical Planning Commission, but 100% of the population. This will not, of itself, put an end to private practice. Those who have the desire and the means will be able to pay separately for private treatment, if the medical service is organized to provide that, as they may pay now for private schooling, though the public education system is available for all. But no one will be compelled to pay separately. The possible scope of private general practice will be so restricted that it may not appear worth while to preserve it. If, therefore, it is desired to preserve a substantial scope for private practice and to restrict the right to service without a charge on treatment to persons below a certain income limit, it will not be possible to include a payment for medical service in an insurance contribution which all are required to pay irrespective of income.

432. Institutional treatment is not included in the present health insurance contribution except to a small extent as an additional benefit. It is obtainable by any citizen in a public hospital subject to recovery of the cost—that is to say, to payment according to his means, or free if he has no means. It is obtainable in a private hospital, as a rule, either in virtue of previous voluntary contribution through a hospital contributory scheme, or on payment according to means as agreed with the hospital almoner. The growth of hospital contributory schemes in the years just before this war has been remarkable. They are stated to cover now more than 10,000,000 wage-earners, and they produce more than £6,500,000 a year for the voluntary hospitals; the cost of collecting this money is put at about 6%; in London and some other parts of the country contribution to a hospital saving association qualifies the contributor for free treatment either in a voluntary hospital or in a public hospital as may best suit his case. The Ministry of Labour Family Budgets in 1937-8 showed an average payment to hospital saving associations of 3½d. a week in every industrial household and 3d. a week in every agricultural household. British people are clearly ready and able to pay contributions for institutional treatment. Should a payment for this purpose be included in the compulsory insurance contribution and be passed on as a grant from the Social Insurance Fund to the Health Departments towards the maintenance of the institutions? The answer to this financial question, like the answer to the similar question as to domiciliary treatment, involves problems of organization as well as finance. If a payment for institutional treatment is included in the compulsory insurance contribution, there will be little or nothing left for which people can be asked to contribute voluntarily, and an important financial resource of the voluntary hospitals will come to an end. It will then be for the Health Departments to use the grant that they will receive from the Social Insurance Fund in whatever way best fits their hospital policy. If it is not included, people of limited means will have the choice, as at present, of contributing voluntarily beforehand or of paying at the time of treatment according to means.

433. The main considerations relevant to the choice between these alternatives are:

(1) The importance of securing that suitable hospital treatment is available for every citizen and that recourse to it, at the earliest moment when it becomes desirable, is not delayed by any financial considerations. From this point of view previous contribution is the ideal, better even than free service supported by the tax-payer. People will take what they have already paid for without delay when they need it, and they pay for it more directly as contributors than as tax-payers. But it can be argued that, under the present system, people do not in practice delay taking hospital treatment when they need it; their general practitioner will advise going to hospital as soon as it becomes necessary, and if they are not voluntary contributors they will be asked to pay only according to their means. It is possible that the main practical reasons which now delay recourse to hospital after it has become desirable are not difficulties about paying for the treatment, but either (*a*) deficiency of accommodation or (*b*) unwillingness or inability to give up work or household duties in order to be treated.

(2) Hospital policy, particularly in relation to the place of voluntary hospitals, the terms of service and pay of their staffs, and the desirability or the reverse of allowing arrangements whereby individuals, whether through membership of a voluntary association or by special payment, can get choice of specialists or hospitals or special treatment in them.

(3) Financial policy, and particularly the question of the optimum size of the insurance contribution and of the Security Budget in relation to the ordinary budget.

434. A minor question in the relations of the social insurance scheme and the finance of hospitals is whether persons in receipt of disability benefit on entering an institution should be required to make any payment towards the cost of their board as "hotel expenses." With the small benefits provided by National Health Insurance hitherto, this question could hardly be raised. But if the social insurance scheme is to provide benefits in future designed to cover the food and fuel requirements of the insured person and his dependants, it may appear reasonable that, while such a person is getting his food and fuel in a hospital and not in his home, the money provided for that purpose should be directed to the hospital. The point is not perhaps of great importance to the finance of institutional treatment; a sum of, say, 10s. a week is the most that could fairly be regarded as saved in the home by the temporary absence of the insured person in hospital. But if it appears equitable to make such a charge, it may be expedient to make it, if only in order to avoid making it appear profitable to the patient to stay in the hospital when he could go home.

435. Dental and ophthalmic treatment and appliances are now overwhelmingly the most popular of the additional treatment benefits under National Health Insurance. That is to say, they are being paid for in part by compulsory contributions and for the rest mainly by a charge when treatment is given. There is a general demand that these services should become statutory benefits available to all under health insurance. There appears to be ground for regarding a development of preservative dental treatment as a measure of major importance for improving the health of the nation. This measure involves, first, a change of popular habit from aversion to visiting the dentist till pain compels, into readiness to visit and be inspected periodically; it involves, simultaneously with creation by these means of a demand for a larger dental service, the taking of steps to organize a larger supply of the service. That the insurance title to free dental service should become as universal as that to free medical service is not open to serious doubt. The only substantial distinction which it seems right to make is in the supply of appliances. To ensure careful use, it is reasonable that part of the cost of renewals of dentures should be borne by the person using them. This might possibly be extended to the original supply. The same holds true of optical appliances.

436. Surgical appliances, convalescent homes, and nursing are less widely provided as additional benefits, but are essential to a comprehensive health service. Decision as to making these subsidiary services contributory or non-contributory for the individual depends on the line taken in regard to the major problems of domiciliary and institutional treatment. It is reasonable that insured persons should contribute something for such services, as they have shown themselves able and willing to do in the past; in regard to appliances of all kinds, the terms of supply and renewal must be such as to give an incentive to careful use. But it would be anomalous to require compulsory contributions for special and subsidiary purposes if the main services were non-contributory.

437. This review of some of the problems involved in establishing a comprehensive medical service makes clear that no final detailed proposals, even as to the financial basis of this service, can be submitted in this Report. It suggests the need for a further immediate investigation, in which the finance and the organization of medical services can be considered together, in consultation with the professions concerned and with the public and voluntary organizations which have established hospitals and other institutions. From the standpoint of social security, a health service providing full preventive and curative treatment of every kind to every citizen without exceptions, without remuneration limit, and without an economic barrier at any point to delay recourse to it, is the ideal plan. It is proposed accordingly that, in the contributions suggested as part of the Plan for Social Security, there shall be included a payment in virtue of which every citizen will be able to obtain whatever treatment his case requires, at home or in an institution, medical, dental, or subsidiary, without a treatment charge. It is proposed that the sums derived from these payments shall be transferred to the Department or Departments concerned with the organization of the health service to most part—it can only be part—of the total cost. But these proposals are provisional only, subject to review in the light of the further inquiry suggested, in which organization and finance can be dealt with together. The primary interest of the Ministry of Social Security is not in the details of the national health service or in its financial arrangements. It is in finding a health service which will diminish disease by prevention and cure, and will ensure the careful certification needed to control payment of benefit at the rates proposed in this Report.

438. Assumption B covers not only medical treatment in all its forms but also post-medical rehabilitation. In regard to the latter, as in regard to the former, it would be inappropriate here to discuss details of organization. During the preparation of this Report the practical problems of rehabilitation have been under consideration by the Departments concerned, and it is hoped that practical measures will follow. Rehabilitation is a continuous process by which disabled persons should be transferred from the state of being incapable under full medical care to the state of being producers and earners. This process requires close co-operation between the Health Departments and the Department concerned with employment—that is to say, the Ministry of Labour and National Service. Whether this co-operation can be secured best by the setting up of an executive organ representative of both sides or by allocation of specific duties to each Department is a problem of departmental organization on which it would be inappropriate here to express an opinion. It is sufficient to put forward three general propositions:

(*a*) That rehabilitation must be continued from the medical through the post-medical stage till the maximum of earning capacity is restored, and that a service for this purpose should be available for all disabled persons who can profit by it irrespective of the cause of their disability.

(*b*) That cash allowances to persons receiving rehabilitation service should be the same as training benefit, including removal and lodging allowances where required.

(*c*) That the contributions paid by insured persons should, as in the case of medical treatment, qualify them for rehabilitation service without further payment.

It will be consistent with the proposals made here to include part of the cost of post-medical rehabilitation of men injured in scheduled hazardous industries in the industrial levy of these industries—that is to say, to add a contribution towards the cost of this service to the amount of the levy.

ACTUARY'S MEMORANDUM

Contribution Rates (Para. 34)

The rates of contribution proposed to be paid for all classes include a contribution towards the cost of health services—namely, 10d. for an adult man and 8d. for an adult woman, with reduced sums of 8d. for a young man aged between 18 and 21, and 6d. for young persons aged between 16 and 18 and young women aged between 18 and 21. In all these contributions the employer's share has been taken as 1½d., this being approximately the contribution which employers now pay towards the medical benefit of their employees under the present National Health Insurance scheme.

Health and Rehabilitation Services (Paras. 61–64)

61. The second of the three assumptions stated in the Report to be essential to the institution of the Plan of Social Security is: comprehensive health and rehabilitation services for prevention and cure of disease and restoration of capacity for work, available to all members of the community. The general principles underlying this assumption are given in Part VI of the Report, but it is there indicated that most of the problems of organization in such a service fall outside the scope of the Report. The cost of such a comprehensive scheme clearly cannot be estimated with precision until the proposals have taken more definite shape. It is proposed that the cost should be defrayed out of public funds, subject to a substantial grant-in-aid from the Social Insurance Fund.

62. As indicated in para. 34, the sum available for allocation out of the contributions at the rates proposed is 10d. a week for each adult male contributor in Class 1, 2, or 4, and 8d. for each adult woman in these classes, the corresponding rates for contributors under age 21 being 6d. for a boy under age 18, 8d. for a young man of 18 and under 21, and 6d. for a girl or young woman under age 21. I estimate that the annual income from contributions at the rates stated will amount to about £40,000,000 in 1945. On the basis described in para. 34 relating to the division of the total contributions in Class 1 between employers and workers, it is estimated that about £6,000,000 will be paid by employers, about £26,000,000 by employees in Class 1, and the remainder, about £8,000,000, by contributors in Classes 2 and 4.

63. While, as indicated above, a precise estimate cannot be framed of the gross cost of a comprehensive scheme of the services in question, it is essential at the present stage, in order to measure broadly the liabilities of the Exchequer and other parties arising under the Social Security Plan as a whole, to include an estimate in the Social Security Budget, where the expenditure arising among the various heads is brought together. After consultation with the Ministry of Health and the Department of Health for Scotland, a round figure of £170,000,000 a year has been taken as a suitable measure for this purpose. Assuming a grant-in-aid from insurance contributions of £40,000,000, the net annual cost to public funds would thus be in the neighbourhood of £130,000,000, or rather over three-quarters of the total expenditure.

64. In view of the fundamental changes involved in the substitution of a comprehensive health service, covering the whole population of all ages, for the present arrangements under which, apart from the medical benefit provided for the insured persons themselves, but not their dependants, under the National Health Insurance scheme on the one hand and the various public health services on the other, medical treatment is secured under private arrangements, it is not thought appropriate in the present memorandum to attempt a financial comparison of the two systems. In considering, however, the proposed charge on public funds it is necessary to have regard to the existing charges on the national and local exchequers in regard to analogous services. Before the war the charges on public funds for the services in question may be put at about £45,000,000 to £50,000,000. Making some allowance for development

and for increased prices, it is thought appropriate for comparative purposes to put the cost of the existing services at about £60,000,000 in a post-war year. The net increase in the cost to public funds is thus of the order of £70,000,000.

INSURANCE ACTS COMMITTEE OF THE B.M.A.

A "Beveridge" Special Conference?

A meeting of the Insurance Acts Committee was held on Jan. 21, under the chairmanship of Dr. E. A. Gregg. Dr. T. H. Bates of Newcastle was elected to fill a vacancy on the Committee, and Dr. C. H. Gregory of Rugby and Dr. F. A. Roper of Exeter were welcomed as new members.

One of the principal purposes of the meeting was to discuss certain aspects of the Beveridge Report, in particular the assumption that the medical service envisaged under the scheme will cover the entire population, not 90% (the present insured persons and their dependants) as is assumed in the draft interim report issued by the Medical Planning Commission. It was deemed to be the more urgent to arrive at some expression of opinion on this point in view of the resolution of the recent Annual Panel Conference declaring for 90%. It was decided that a special conference should be called, perhaps jointly—subject to the decision of the Council of the Association—with a Special Representative Meeting.

Capitation Fee: Answer to Deputation

The Committee received a report of a further interview which an appointed deputation had had with the Minister of Health to press the case for a wartime increase in the capitation fee in view of additional work and shift of insurance risk. The Minister had refused the request, stating that increased work was taken into consideration when his previous decision was announced last October. It was contrary to Government policy to recognize additional work as establishing a case for a war bonus. Postponement of payment by way of post-war credit, which had been suggested as an alternative, did not affect the general principle which the Government had felt bound to adopt. On another point which the deputation had strongly pressed—namely, the advantage of the Protection of Practices Scheme as an aid to recruitment of doctors for the Forces—the Minister, while recognizing the importance of the scheme, did not feel that this again afforded ground for an alteration in the Government's general policy.

It was the feeling of the Committee that, faced with this final refusal, the only recourse was to make the public aware of the fact that doctors were giving a large amount of additional service and incurring a perpetually heavier obligation while they were refused any recognition of it in the form of payment, present or prospective. In this connexion an interim report of the Organization Subcommittee was opportunely presented. It contained several recommendations, which were agreed to, for stimulating the formation of group committees, covering a number of Panel Committees in adjacent areas, together with such organization of areas that the views of every insurance practitioner can be ascertained in the shortest possible time, and every practitioner can be informed, with equal expedition, of what his colleagues in general are thinking, and of what is proposed locally and at headquarters. It was also agreed to prepare in leaflet form for distribution to practitioners a statement of the method of election of the Insurance Acts Committee. The Committee is as democratic a piece of machinery as was ever invented, but democracy is largely thwarted if the enfranchised do not know how the machinery works.

More Publicity

A matter further considered was the means which would ensure the regular presentation in Parliament of the views of the profession, and advance information of any intended Parliamentary action in matters in which the profession is concerned. The sponsoring of the candidature of a medical man for the House of Commons was regarded as the most useful method. It was felt also that it was advisable to revive the public relations department, which had been in suspense in wartime, the cost to be shared by the National Insurance Defence Trust and the British Medical Association. A proposal was made at the Annual Conference that an association of insurance practitioners should be formed, the membership and administration to be confined to those engaged in panel practice, but this was turned down alike by the Organization Subcommittee and the Insurance Acts Committee, whose policy is strongly against separatism or what may be called "adjectivism" in the description of members of the profession.

The Deputy Secretary made a report on a discussion with representatives of the Ministry of Health with regard to payment for medical treatment of members of H.M. Forces who have been discharged on medical grounds. He said that it was proposed to pay for such patients 16s. 6d. per annum, exclusive of drugs and mileage—in other words, this amount must be compared with the ordinary capitation fee of 9s. 9d.

BEQUESTS FOR MEDICAL CHARITY

Two generous bequests to the B.M.A. for medical charity were considered at the last meeting of its Executive Committee. The late Dr. B. R. Rygate bequeathed £500 to the Association for this purpose, in addition to making a similar bequest to the Royal Medical Benevolent Fund; while the late Dr. T. Connel Craig left a one-third share of his residuary estate, the total value of which is approximately £20,000, to the Association's Charities Trust Fund. It has been decided to add the names of Dr. Rygate and Dr. Craig to the list of Benefactors of the Association which is displayed at B.M.A. House.

Members who wish to include in their wills legacies for medical charity and who prefer that the money should be paid to the Association and handed over, at its discretion, for administration by one or more of the benevolent funds of the profession, are asked to note that such legacies should be bequeathed to the Charities Trust Fund of the Association, which is not itself a medical charity but merely a collecting and distributing agency. On the other hand, when a member wishes to benefit a particular medical charity he should arrange for that charity to be named correctly in his will. Such vague descriptions as "the benevolent fund of the British Medical Association" are liable to lead to confusion as to the intention of the testator, and much difficulty will be avoided if exact titles are given.

FEES FOR NATIONAL DEPOSIT FRIENDLY SOCIETY MEMBERS

It will be recalled that the Council of the B.M.A. in 1941 recommended general practitioners to increase their private fees, including contract fees, by not less than 20%, and discussions have recently taken place with the National Deposit Friendly Society with a view to securing an increase in the fees paid by this society for the medical treatment of its members. The society agreed that there was justification for an increase in medical charges, but maintained that the scale of benefit allowed to its members was not intended necessarily to conform to the actual charges made by practitioners, although the scale was originally designed to be sufficient to satisfy the normal charges applicable to the working-class community. The society pointed out that the scale of fees now paid was the maximum which its funds would at present allow.

It was suggested to the society that there should be included in its scale of medical fees a statement that the fees paid by the society for the treatment of its members were "grants-in-aid" only, and that they might have to be supplemented by the members themselves. The society agreed to amend its forms by substituting "scale of allowances to members" for "scale of charges." The General Practice Committee of the B.M.A. recommends members of the Association to accept the society's scale of fees as a "grant-in-aid" towards the cost of medical treatment, charging ordinary private fees with a wartime increase of 20%.

INCREASE IN FEES

As a result of representations made by the General Practice Committee of the B.M.A. the following medical fees are announced:

Ministry of Labour Trainees.—The Department has agreed to the following scale for treatment of trainees in respect of whom the Ministry accepts financial responsibility:

(*a*) Doctor's visit (to lodgings), with medicine (first and subsequent visits), 5s.; (*b*) attendance at surgery, with medicine, 3s. 6d.; (*c*) doctor's visit (to lodgings), with medicine, in urgent or dangerous cases between the hours of 8 p.m. and 8 a.m., 10s. 6d.

Women's Land Army.—The Ministry of Agriculture and Fisheries has agreed to pay a fee of 5s. for volunteers who are required to undergo medical examination.

N.A.A.F.I. — This corporation has agreed to pay a fee of 5s. for the medical examination of candidates.

Doctors are especially warned that under Board of Trade Regulations motor cars *if used at any time* for professional purposes, even if now laid up, should be insured under the Business Scheme of the War Damage Act, 1941. They are not covered under the Private Chattels Scheme. This does not apply to doctors serving in the Forces or holding full-time public appointments. The Medical Insurance Agency will be pleased to give all information and effect policies.

Correspondence

Industrial Medical Attendance

SIR,—The letter from Dr. L. H. Eunson (*Supplement*, Jan. 9, p. 7) calls for a brief reply. The attention given by an industrial medical officer to his casualty cases varies greatly according to aptitude, facilities, and time available from many other claims, but the majority regard the care of these cases as the most important part of their job. He sees the patient from the time of injury, has the advantage of a trained nursing staff, and is closely in touch with hospitals most suitable for treatment of industrial injuries. Also his knowledge of the work to which the workman will return often means that he can conserve days and weeks of working time, a factor of the utmost moment at present. The injured workman is quick to seize on the slightest variation of comment as he passes through the hands of panel, industrial, and compensation doctor, and there is much to be said for combining these multiple functions.

The difficulties set forth are imaginary rather than practical, and disappear when an attitude of co-operation and understanding is cultivated on both sides. To take the points raised: (*a*) Of course the patient must have an N.H.I. note. Most M.O.s use the green certificate provided by the B.M.A. This fulfils two functions: it can be stamped as a compensation case by the employing firm admitting liability (a course which saves the patient being pestered by a long questionary from his Society), and, in covering his stamps, commencement of incapacity is certified with exactitude. (*b*) Every workman clearly understands that he is free to consult his panel doctor at any time. The usual practice is to give him a note. The very fact that an industrial M.O. has assumed treatment of an injury is surely presumptive evidence that he is dealing with a compensation claim. (*c*) Few part-time men can supervise follow-through treatment. The suggestion that, where they do so, they would use this zeal to feather their own nests is a little ungenerous and, I am sure, unjustified. I am afraid that I do not grasp the implications of Dr. Eunson's last paragraph on "exemption from duty."—I am, etc.,

Smethwick A. H. DRIVER.

Compensation for Civilian Doctors

SIR,—The case of "Dr. O." quoted in the *Supplement* of Jan. 23 (p. 13) is surely a sad reflection on the inadequacy of the pension offered to the dependants of a hero killed while serving his country in a professional capacity. It is good to learn that, thanks to our Fund, his orphaned children will be suitably provided for, but they owe no debt to anyone. On the contrary, the country as a whole is in their debt, and it is ridiculous for us to talk of social security while these two children mutely accuse the central authorities of a scandalous failure. —I am, etc.,

Gateshead JAMES GRANT.

*** The B.M.A. has made repeated representations to the Government for higher pension rates for dependants of civilian doctors who lose their lives owing to enemy action, but without success.—ED., *B.M.J*

Views on the Panel Conference

SIR,—At a recent meeting of the Somerset Local Medical and Panel Committee my report on the Panel Conference was received. My committee was of the opinion that the views expressed in this report would be of interest to other Local Medical and Panel Committees who may be holding meetings at which the report of their own representative will be received.

The points brought out in my report were as follows. The attendance was very good considering the awful weather, and proves an increasing interest in medical politics. The agenda was again most unsatisfactory—three agendas, with 112 resolutions, amendments, etc. This points to the fact that the agenda committee does not do its work. Many of the amendments and even resolutions could have been cut out if this committee had got in touch with the local panel committees before the conference. If resolutions had to be in one clear month, and all amendments two clear weeks, before the Conference, it would allow many to be withdrawn before making up the final agenda, and would also give local panel committees time to instruct their representatives. It would also allow proper discussion of all resolutions on the Conference agenda. As a profession we are as ununited as ever, and still appear to have no wish to co-operate with other medical bodies against a common foe. Much too much time of the Conference was taken up by the chairman of the I.A.C. or by resolutions put forward by the I.A.C. at the expense of other resolutions put forward by local panel committees. The I.A.C. is beginning to alter its tone in its dealings with the Ministry of Health—a very healthy sign which wants encouraging.

These views are expressed with the idea of increasing the value of the Panel Conference and not in any way to hamper the actions of the I.A.C.—I am, etc.,

Williton C. F. R. KILLICK.

B.M.A.: Branch and Division Meetings to be Held

GLASGOW AND WEST OF SCOTLAND BRANCH.—At Institution of Engineers and Shipbuilders in Scotland, 39, Elmbank Crescent, Glasgow Wed, Feb. 10, 3 30 p m Prof. J. M. Mackintosh. The Social Factor in Disease

B.M.A.: Meetings of Branches and Divisions

VICTORIAN BRANCH

Although the report for the year ending Dec., 1942, of the Victorian Branch of the B M.A. and the Medical Society of Victoria is a much slimmer publication than usual, it reflects a very busy year with increased membership. Scientific meetings were held as follows: Aug., a symposium on "Lymphogranuloma Inguinale," at which the speakers were Dr. H. F. BETTINGER, and Lieut-Col. W C. MCCALLY, Capt. F. MCDONALD, and Lieut. H. JOHNSON, of the U.S. Army; Sept., an address on "Foodstuffs and Feeding" by Col. Sir STANTON HICKS; Oct., the ninth Sir Richard Stawell Oration on "The Principles of Nerve Surgery as Taught by Research in Nerve Regeneration" by Dr. BASIL KILVINGTON; and Nov, the fourth Embley Memorial Lecture on "Anaesthesia in Military Hospitals" by Lieut-Col. W. B. PARSONS of the U.S. Army. The provision of medical men for the Forces engaged the close attention of the Branch Council during the year, and with the establishment of the Emergency Civil Medical Practitioner Service steps were taken to prepare lists of those doctors who could most readily be spared from civil practice. Other matters considered by the Branch Council were the proposals of the Federal Council for a general medical service for Australia (*Medical Journal of Australia*, Nov. 1, 1941) and of the National Health and Medical Research Council for the establishment of a salaried medical service (ibid., Aug. 16 and Dec. 20, 1941). Familiar notes are struck by references in the report to petrol rationing, election to provisional membership of doctors holding licences under the National Security (Alien Doctors) Regulations, and certification for sickness absence from work. The report also includes a list of medical casualties among the members of the Branch; reference to these will be found in "The Services" column of the *Journal*.

H.M. Forces Appointments

ROYAL NAVY

Surg. Cmdrs. J. C Kelly, D S C., and A. C Anderson have been placed on the retired list with the rank of Surg Capt.,

ROYAL NAVAL VOLUNTEER RESERVE

Prob Temp Surg Lieuts. R. R Wethered, A Campbell, A. W. Hetherington, and J. MacDonald to be Temp. Surg. Lieuts.

LAND FORCES: EMERGENCY COMMISSIONS

ROYAL ARMY MEDICAL CORPS

War Subs. Capt. N E. Challenger has relinquished his commission on account of ill-health and is granted the honorary rank of Capt.

Lieut A S Craner has relinquished his commission on account of ill-health and retains his rank.

ROYAL AIR FORCE

Temp. Squad. Ldrs H. D-Conway, D. J Sheeham, and J B Wallace to be War Subs Squad Ldrs

ROYAL AIR FORCE VOLUNTEER RESERVE

Temp. Squad Ldrs. H. A. Graham, D. M Anderson, and J. G L Brown to be War Subs Squad. Ldrs

Fl Lieut. P. J W. Mills has relinquished his commission on account of ill-health

Flying Officers J. Jones, D. H. Lambert, and J L Greaves to be War Subs. Fl Lieuts.

To be Flying Officers (Emergency): W. M Bennett, E. J. Grierson, A. J B McFarland, J. C C. Poole, A McC Russell, E. G. Saint, R B Tulk-Hart, A. C Turner.

POSTGRADUATE NEWS

The Fellowship of Medicine announces: (1) Week-end course in rheumatism at Rheumatic Unit, St. Stephen's Hospital (L C C) on Sat. and Sun., Feb 27 and 28; (2) Revision course in anaesthetics at Radcliffe Infirmary, Oxford, March 15 and 26; (3) Clinical surgery, Sat, Feb 27, 2 30 p.m, at London Homoeopathic Hospital, examination of cases and tutorial; demonstration of cases every Wed. afternoon; (4) Fundus oculi demonstration (M R C.P) Wed, March 3, 1 30 p m, at West End Hospital for Nervous Diseases, I.P Dept; (5) M.R C.P course in neurology, Tues and Fri., 3 p.m., March 9 to April 2 at West End Hospital for Nervous Diseases. Detailed syllabuses may be had from the Fellowship of Medicine

WEEKLY POSTGRADUATE DIARY

FELLOWSHIP OF MEDICINE, 1, Wimpole Street, W.—*Brompton Hospital* · Tues and Thurs, 4 30 p m (limited to 6), M R C P course in chest diseases *London Homoeopathic Hospital:* Wed afternoon (limited to 6), Clinical surgery demonstration *National Hospital for Diseases of the Heart:* Tues. and Wed, 10 a m, Out-patient clinics.

BIRTHS, MARRIAGES, & DEATHS

BIRTHS

APPLEYARD—On Jan 20, 1943, at the Buckingham Nursing Home, Leeds, to Jeanne (*née* Garner), wife of Flying Officer O B Appleyard, M A., M B., B.Chir (Cantab.), M R C S, L R C P., a son (Terence Neil).

MASSIE—On Jan 27, 1943, at Mayday Hospital, Croydon, to Fl. Lieut and Mrs. F E. Massie, a daughter (Carol Ann).

TETTMAR—On Jan 26, 1943, at Danbury Park Maternity Home, to Betty, wife of Capt Peter Tettmar, R A M.C (over-seas), a son.

DEATHS

HUNTER.—On Jan 22, 1943, in India, as the result of an accident, Captain Fred Hunter, I M S., of 7, The Steyne, Worthing, Sussex

MACNISH.—On Jan. 21, 1943, at Prestatyn Golf House, North Wales, David MacNish, M A., M D, J P; in his 83rd year. Interred at Prestatyn, Saturday, Jan 23

SUPPLEMENT TO THE
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LONDON SATURDAY FEBRUARY 13 1943

British Medical Association

PROCEEDINGS OF COUNCIL

ACTION ON THE BEVERIDGE REPORT

A meeting of the Council of the Association was held on Feb. 3, Prof. R. M. F. Picken, Acting Chairman, presiding. There was a full attendance, and the meeting lasted from 10 a.m. to 5 p.m.

PERSONAL

The deaths were reported of five former members of Council and of two sitting members (Dr. J. G. McCutcheon and Dr. A. M. Watts). The Chairman was authorized to forward letters of condolence to the families.

Congratulations were accorded to 24 members of the Association, the recipients of recent honours.

The Boyd Bequest

The Chairman drew attention to the bequest of the late Dr. Robert Boyd, formerly chairman of the Manchester Division, who had left, subject to life interests, the residue of his estate to the Association for the endowment of a B.M.A. House in the district of Manchester for the use of doctors practising in Manchester and its surroundings, the management of the House to be vested in the committee of the local Division.

Mr. R. L. Newell said that Manchester members of the Association greatly appreciated this handsome gift, which answered a long-felt want. He had attended Dr. Boyd during his last illness, but Dr. Boyd gave no intimation of his intentions; but the welfare of the Association was always uppermost in his mind, and his chief concern had been to get well enough to attend the Annual Representative Meeting last September, when he had some contentious resolution to propose.

The Council placed on record its grateful appreciation of the legacy.

Services of Mr. Bishop Harman

At a later stage, in introducing the report of the Executive Committee, the Chairman said that it was felt that this was a suitable occasion to refer to the noteworthy services of Mr. Bishop Harman, who was now no longer a member of Council. His work had already been recognized by the award of the Gold Medal in 1931, but in the years following as well as for many years before that he had been a tower of strength to the Association. In the conduct of debate, where he gave and took thrusts with evident enjoyment, he always showed perfect courtesy, and in his dealings with colleagues and juniors much kindness. In the design of the Gold Medal and in various matters of decoration in the Association's House he had displayed great artistic skill and knowledge. He had been a generous benefactor to the Association, and Mrs. Bishop Harman had established the prize which bore her name.

A resolution placing on record the grateful appreciation of the Council of the unremitting and valuable services rendered to the Association by Mr. Bishop Harman during his continuous membership of the Council from 1915 to 1942, and especially during his fifteen years' (1924-39) tenure of office as Treasurer of the Association, was carried unanimously and with enthusiasm.

THE BEVERIDGE REPORT

The Question of 100% Inclusion

The Chairman said that the report of Sir William Beveridge on social insurance and allied services, including a comprehensive medical service for the whole community, was so important and revolutionary that it was thought desirable for the Association to arrive at some conclusion without delay on the proposal to provide, as a right, medical services for 100% of the population. The Executive Committee held a meeting to which the chairmen of all the standing committees concerned were invited, but on further consideration it seemed desirable that each of the standing committees should meet to consider the matter for itself. The various group committees were also called. The result was that a number of resolutions were now placed before Council, all of the same purport, though differing in phrase. The chief difference was that in some of the resolutions some such wording was used as "would not resist the inclusion of 100%," while in others it was stated that the Association would, in the public interest, "be willing to accept such a scheme"—in each case with certain provisos. The situation was further complicated by the decision arrived at by the Annual Representative Meeting, which by a very small majority decided that provision should be made by the Government for the whole community, although a whole-time salaried Government medical service was rejected. On the other hand, the Annual Panel Conference expressed the opinion that any extension of services should be limited to the present insured, their dependants, and those of like economic status. All this, of course, was prior to the Beveridge Report. It was important to seek as large a measure of agreement in the profession as possible; any considerable minority would be a serious handicap in negotiations with the Government. That was the reason why this long and laborious procedure had been followed.

Each of the chairmen of the standing committees then gave to the Council some account of the feeling of his committee on this subject. Mr. Newell, for the Hospitals Committee, said that if the public considered that what was held out to them was a complete insurance it would mean the end of voluntary subscriptions. He thought that private practice would continue for a considerable period. To debar the State doctor from private practice would create a special section of doctors who did private practice and nothing else, which would be unfortunate. Prof. A. H. Burgess said that the Special Practice Committee considered that if Parliament, after consideration of the Beveridge Report, decided to initiate a scheme for comprehensive health services, available to all members of the community, the Association should be willing to co-operate provided that the terms and conditions of service were determined by agreement with the profession, and that when a beneficiary under the 100% scheme decided to obtain medical services privately he should be free to do so at his own cost, and any practitioner rendering such service should not be precluded, although a member of the scheme, from accepting fees. Dr. Gregg said that the Insurance Acts Committee proposed to submit to the Panel Conference a similar resolution, but the result was by no means a foregone conclusion, and he rather regretted the tendency to bow the head before an alleged public opinion.

The view of the Scottish Committee, put forward by Dr. G. MacFeat, was that even though a 100% service were started on a part-time basis it would develop into a full-time one. In order to maintain a high standard of medical service for the citizen, State-provided service and private practice should be continued concurrently, each acting as a spur to the other. The Government should be informed that it was in the public interest to limit any State-provided service to that section of the community who could not reasonably be expected to afford an adequate medical service out of its own resources. Dr. J. B. Miller, for the Public Health Committee, said that if Parliament decided on a scheme applying to 100% it would be a losing battle to oppose it, but he could not help recalling the situation in 1912-13, when the Association won a great victory, although it never recognized the fact. In all these negotiations there was a substantial minority with more advanced views, and the minority had a large influence in the final settlement. Dr. S. Wand summarized the very long discussion which had taken place in the General Practice Committee, where a recommendation was carried similar to the others and with the same proviso, but using the phrase "would not resist the inclusion of the 100%."

In some general discussion Dr. W. M. Fox said that he thought the Council should welcome the Beveridge Report as a satisfactory extension of present services, but should set up a committee to go into the economics of the subject so far as doctors were concerned in order to be ready for the time when such a service was introduced by the Government.

Dr. A. S. GOUGH said that the acceptance of the 100% was a serious step, but one which must be taken; he thought that the absolute right of the patient to choose a private doctor if he desired, and the right of the practitioner to engage in private practice, should be safeguarded. this must not be relegated to a secondary consideration. Dr. G. W. MILLAR was doubtful whether it was possible to accept the principle of 100% and at the same time demand the continuance of private practice.

Continuance of Private Practice

The PRESIDENT (Sir Beckwith Whitehouse) drew attention to a reference in the report of the Scottish Committee that

> "a differentiation might well be made in the provision of the domiciliary or family doctor service and the institutional and specialist service, and [the Committee] considers that the section of the population above an agreed income limit should be able to pay for their family doctor service, but that the more expensive institutional and specialist service might with advantage be provided for the whole community from the contributions proposed in the Beveridge plan."

He asked whether the Committee had it in mind that the more expensive special services were to be paid on the basis of the elimination of private practice or to be provided by means of grants in aid. He thought the profession would be well advised to accept the 100% without further argument. Dr. MACFEAT replied that the Committee had in mind the class of people who had difficulty in paying for institutional and specialist treatment. Under the Beveridge plan, if the contributions provided £40 million and the State £130 million there might be allocated out of the smaller sum grants to meet the real hardship of the middle class.

Dr. PETER MACDONALD said that the matter of the 100% was for the community to decide, and the chances of the profession influencing the community were small. He was not in favour of grudging acceptance. If Parliament decided in favour of the plan there should be an offer of willing co-operation. He did not agree that the acceptance of the 100% would cut out private practice, which would continue for at least the present generation. Dr. P. INWALD agreed that if Parliament decided on a 100% scheme the profession ought not to be found in opposition, but he thought it would mean the disappearance of private practice. Much private practice had already gone with the inclusion in National Health Insurance of people up to the £420 income level. Mr. MCADAM ECCLES said that personally he would like agreement on 100%, but only provided that the character and terms of service were framed in agreement with the medical profession. He noticed that in his report (para. 428) Sir William Beveridge said:

> "Most of the problems of organization of such a [health] service fall outside the scope of the Report. It is not necessary to express an opinion on such questions, as free choice of doctor, group or individual practice, or the place of voluntary and public hospitals respectively in the national scheme."

Mr. Eccles felt that if the proviso were made a real lever on which the 100% scheme were accepted a great service would be done for the profession.

Dr. N. E. WATERFIELD said that it must not be forgotten that some of their constituents had intimated their unwillingness to accept 100%, and it was very desirable to get unanimity. It would be most unfortunate to have two classes of doctors, one inside and the other outside the State scheme. Dr. WAND pointed out that if the Government decided that payment should be made by means of a stamp which covered a number of items, including the amount for medical services, it would be impossible to dissect that amount away and therefore the 100% would have to be agreed to; but if it provided one stamp for medical services only the position would be entirely different. Dr. F. M. ROSE said that the Council would have to follow the instructions of the general body of Association members, and such instructions would be given in due course. Meanwhile, however, a lead must be given, and he hoped that it would be for the acceptance of the 100%. Dr. P. MACDONALD pointed out that there were sections of the profession which would take strong exception to anything directed to the medical services only; their agreement was dependent upon the approval of the Beveridge Report as a whole.

Resolution and Amendments

The CHAIRMAN then submitted for discussion the following draft resolution which he suggested might form the basis of a recommendation to the Representative Body:

> 1. That if Parliament, after consideration of the Beveridge Report, decides to give general approval to the principles of the Report, taken as a whole, and to initiate a scheme for comprehensive health and rehabilitation services for prevention and cure of disease and restoration of capacity for work, available to all members of the community, the Association would be willing to co-operate in the preparation of such a scheme, provided that the character, terms, and conditions of the medical service are determined by agreement with the medical profession.
>
> 2. That those members of the community who decide not to avail themselves in part or in whole of the benefits of the service open to them should not be precluded from obtaining the medical service they desire from doctors within the scheme, paying for such service privately, with the necessary safeguards to prevent abuse.

Dr. H. W. POOLER moved an amendment to delete the words "to give general approval to the principles of the Report," and to substitute "to put into operation the recommendations of the Report." Dr. F. GRAY asked whether it was the business of the Association to say that it would agree to the medical scheme only if Parliament adopted the Report as a whole. Dr. J. A. BROWN disagreed with the suggestion that these other matters were not their business. He did not believe that the comprehensive health policy would achieve its object unless the other provisions of the Report were carried out.

Dr. Pooler's amendment was carried with two dissentients, and discussion then took place on the phrase "willing to co-operate" as opposed to such phrases as "would not resist." Dr. WAND thought that the phrase "willing to co-operate" would set up in the mind of the Government the idea that they had got the profession where they wanted them. The words "willing to co-operate" were supported by Major SCOTT STEVENSON, Mr. ZACHARY COPE, and Dr. H. G. DAIN, the last-named pointing out that the co-operation was in respect of the preparation of the scheme, not necessarily, should the scheme prove unsatisfactory, co-operation in its working.

An amendment to substitute the phrase "would not oppose" for "would be willing to co-operate" was lost by a very large majority.

Dr. H. B. MORGAN said that it was very important that the public should not get the impression that once again the organized profession was adopting a defensive attitude and preparing for another rearguard action. They should say that they were willing to co-operate and negotiate on any scheme. The important point of the resolution was in the proviso. It seemed to be taken for granted that the Beveridge Report recommended a scheme for a comprehensive medical service; actually this was not a recommendation in the Report, but one of three assumptions.

After some further discussion it was agreed on Dr. MORGAN'S motion that the last phrase of the first section of the resolution should read: "determined by negotiation and agreement with the medical profession." On the motion of Dr. DAIN, seconded by Dr. MACDONALD, the proviso at the end of the resolution was made a double one, the first part concerning agreement with the medical profession as to the conditions of service, and the second part the question of private practice as set out in the second paragraph of the resolution. Dr. Dain said that he regarded this latter as an essential statement of freedom of patient and doctor. The freedom of the patient to go where he liked for his medical attendance, and of the members of the profession to take part in practice outside the scheme, must be protected in this enlarged national medical service.

The recommendation as finally agreed to was in the following form:

> That if Parliament, after consideration of the Beveridge Report, decides to accept the assumptions of the Report, and to put into operation the proposals of the Report, taken as a whole, including a scheme for comprehensive health and rehabilitation services for prevention and cure of disease and restoration of capacity for work, available to all members of the community, the Association would be willing to co-operate in the preparation of such a scheme, provided (*a*) that the character, terms, and conditions of the medical service are determined by negotiation and agreement with the medical profession, and (*b*) that those members of the community who decide not to avail themselves in part or in whole of the benefits of the service open to them should not be precluded from obtaining the medical services they desire from doctors within the scheme, paying for such services privately, with the necessary safeguards to prevent abuse.

Dr. WAND suggested that in the preamble, when the resolution went out to the Divisions, it should be made clear that this did not mean a whole-time State salaried service. Dr. I. D. GRANT said that in Scotland they were very much against a whole-time salaried service, but he would be content if a statement to that effect were in the preamble. It was agreed that this be done.

The Council further decided that a Special Representative Meeting be called to consider this one issue on Wednesday, March 31, and that at the same time there should be summoned a Special Panel Conference, the two bodies sitting together but voting separately, and that Dr. H. G. Dain should be chairman of the combined meeting.

OTHER BUSINESS

Parliament and Publicity

Dr. GREGG, as chairman of the Insurance Acts Committee, brought forward certain proposals for the better presentation of medical views in Parliament. He suggested that action should be taken to promote the candidature for the House of Commons of a suitable practitioner with the necessary qualifications, including an intimate knowledge of insurance practice. Some members of Council thought that it would be preferable to "educate" present medical members of Parliament in Association policy, but it was pointed out that this was already being done, and that some more direct connexion with Parliamentary doings was desirable. The proposal, which was supported by Dr. DAIN, was accepted as a reference to the Executive Committee.

A further recommendation proposed by Dr. GREGG was for the re-establishment as far as practicable under present conditions of office machinery for the collection and collation of medical intelligence, for the appointment on a whole- or part-time basis of a temporary relations officer or adviser on publicity, and for the setting up of a Propaganda Committee authorized to incur certain expenditure to be borne in equal parts by the Association and the National Insurance Defence Trust.

The proposal to embark upon a large scheme of publicity was opposed by Major SCOTT STEVENSON, who said that any necessary correction of misinformation in the Press was already undertaken by the office, and that in the *British Medical Journal* the Association had the best propaganda medium it could possibly desire.

The recommendations were, however, agreed to, and were referred to the Executive and Finance Committees to be implemented.

Insurance Capitation Fee

Dr. GREGG, in an eloquent speech, recapitulated to the Council the strenuous, but fruitless, efforts which the Insurance Acts Committee had made to obtain from the Minister of Health a wartime increase in the insurance capitation fee. The main ground on which wartime increase was reasonably sought was the manifest shift of insurance risk, which had added greatly to the work and obligations of practitioners. At the first interview the Minister, while expressing sympathy, had refused the claim, whereupon the Panel Conference instructed the Committee again to press the matter. The Committee approached the Minister again with certain definite proposals, one of which was that, in view of the stated Government policy to grant no increases, a system of post-war credits might be entertained. It also expressed willingness to have the case submitted to arbitration. The Minister, however, although he handed to the deputation a confidential document which entirely bore out the case they were presenting as to extra work, repeated his refusal. The Committee was deeply disappointed that its just claim should be entirely rejected, and was sending a strong protest to the Minister. He felt that this protest should be supported by other sections of the profession not engaged in insurance practice, and therefore he asked for a resolution from the Council.

Mr. McADAM ECCLES, who said that he had never spoken in Council before in connexion with the Insurance Acts Committee, moved: "That this Council deplores the rejection by the Minister of Health of the reasonable and justifiable application by the Insurance Acts Committee for a wartime increase in the capitation fee." Mr. ZACHARY COPE seconded. The resolution was carried with one dissentient (Dr. Fox).

The Swansea Hospital Dispute

Mr. R. L. NEWELL, chairman of the Hospitals Committee, gave an account of the dispute at the Swansea General and Eye Hospital.

Mr. Newell also reported that following upon a resolution of the Annual Representative Meeting the Hospitals Committee had considered the question of medical committees in hospitals. It was of opinion that in all hospitals there should be medical committees composed of medical staffs above a certain grade, and that where there was a medical superintendent he should be a member or have a right to attend the meetings. The decision as to whether the medical superintendent should be chairman of the committee was felt to be one for each committee concerned, but there should be a right to direct access to the hospital management. This was agreed to.

Miscellaneous

In view of the recent pronouncement of the Ministry of Health concerning diphtheria immunization of children at their homes by the family doctor, the Council decided to recommend to the Representative Body an amendment of its scale of fees, which was drawn up at a time when domiciliary immunization was not contemplated. It is recommended that where injections are given at the home of the child the fee per injection of immunizing material should be not less than 3s. 6d.; when given at the surgery, not less than 2s. 6d.

Prof. BURGESS said that the Special Practice Committee, at the instance of the Physical Medicine Group, had considered the practicability of setting up machinery, somewhat on the lines of the Council of Physical Medicine of the American Medical Association, to prepare and maintain a list of apparatus used in physical medicine which conformed to certain criteria to be defined. The Special Practice Committee was fully in accord with this intention, but was a little doubtful whether such a complicated task should be thrown upon headquarters at the present moment. The Council passed a resolution along these lines, to be implemented at the convenient time.

Reports were presented from the Liaison Committee between the Association and the British Hospitals Association, from the Science and Journal Committees, and from the General Practice and Scottish Committees, the two last being largely concerned with the proposals on the Beveridge Report already debated. Representatives of the Association on outside bodies were also appointed or reappointed.

Medical examination of doctors of military age on the staffs of hospitals is in future to be made at selected E.M.S. hospitals by senior members of the staff. If a doctor is not then considered physically fit the Army Council will arrange for his further examination, so that he can have official information that he has been rejected as unfit. A doctor who is regarded as fit by the civilian examiner will not be further examined unless and until he is nominated for a commission. (Ministry of Health Circular 2722.)

Association Notices

SPECIAL REPRESENTATIVE MEETING

Notice is hereby given that a Special Representative Meeting of the Association will be held in the Great Hall, British Medical Association House, Tavistock Square, London W.C.1, on Wednesday, March 31, 1943, at 1.45 p m approximately, on the requisition of the Council to consider the following motion:

> That it be recommended to the Representative Body that if Parliament, after considering the Beveridge Report, decides to accept the assumptions of the report and to put into operation the proposals of the report, taken as a whole, including a scheme for comprehensive health and rehabilitation services for prevention and cure of disease and restoration of capacity for work, available to all members of the community, the Association would be willing to co-operate in the preparation of such a scheme, provided—
>
> (*a*) That the character, terms, and conditions of the medical service are determined by negotiation and agreement with the medical profession; and
>
> (*b*) That those members of the community who decide not to avail themselves in part or in whole of the benefits of the service open to them should not be precluded from obtaining the medical services they desire from doctors within the scheme, paying for such service privately, with the necessary safeguards to prevent abuse.

By order of the Chairman of the Representative Body.

B.M.A. House,
Tavistock Square,
London, W.C 1.
Feb. 5, 1943.

G C ANDERSON,
Secretary.

SPECIAL CONFERENCE OF REPRESENTATIVES OF LOCAL MEDICAL AND PANEL COMMITTEES

Notice is hereby given that a Special Conference of Representatives of Local Medical and Panel Committees will be held at British Medical Association House, Tavistock Square, London, W.C.1, on Wednesday, March 31, 1943, at 3.15 p.m., to consider the following motions:

> That if Parliament, after consideration of the Beveridge Report, decides to initiate a scheme for comprehensive health and rehabilitation services for prevention and cure of disease and restoration of capacity for work, available to all members of the community, the profession, in the public interest, should not oppose such a scheme, provided that the character, terms, and conditions of the medical service are determined in agreement with the medical profession.
>
> That those members of the community who decide not to avail themselves of the benefits of the service open to them should not be precluded from obtaining the medical services they need from doctors within the scheme on a fee-paying basis, with the necessary safeguards to prevent abuse.

B.M.A. House,
Tavistock Square,
London, W.C.1.
Feb 5, 1943.

G. C ANDERSON,
Secretary

COMBINED CONFERENCE

There will be a conference of the Special Representative Meeting and the Conference of Representatives of Local Medical and Panel Committees on Wednesday, March 31, at 9.30 a.m. followed, at the times stated in the notices above, by separate meetings of the two bodies, with separate voting.

B.M.A. House,
Tavistock Square,
London, W.C.1.
Feb. 5, 1943.

G. C. ANDERSON,
Secretary.

PUBLIC HEALTH POLICY

The principal business before the Public Health Committee of the B.M.A. at its meeting on January 27 was to consider certain aspects of the Beveridge report. The resolutions adopted, like similar resolutions carried by other committees of the Association, will all be brought before the Council in due course, and on the basis of them recommendations may be shaped to be brought before the Representative Meeting. The particular point put before this Committee as before others was the assumption in the report that the medical service scheme will cover 100% of the population, but the ascertainment of the views of the committees on this point was only preparatory to Council decisions.

The recent circular on diphtheria immunization issued to local authorities by the Ministry of Health was considered, especially the statement that where it was not found possible to secure the attendance of a child at some convenient centre the child should be treated at home, and that to this end the services of medical practitioners in their capacity as family doctors should be utilized. The scale of fees agreed by the Association when the services of general practitioners were utilized in diphtheria immunization provided a sum per injection of not less than 2s. 6d., but domiciliary attendance was not then considered. The Committee agreed that when immunization was carried out at home the fee should be 3s. 6d., the material as in the other case being supplied without charge to the practitioner, both this fee and the fee for injection at the surgery being subject to the 20% wartime increase. It was the general view that the number of cases in which the child was not able to attend at the surgery would be very small or even negligible. A proposal by the Holland County Council that such of its health visitors as were trained nurses should be allowed to give injections in the homes of children of over 1½ years of age was brought to the attention of the Committee, whose view was that the proposal could not be approved.

The question of the use of anaesthetics by midwives, which was the subject of a lively debate at the Aberdeen Meeting in 1939, again came forward at the instance of the General Practice Committee, which had had referred to it an earlier suggestion from the Public Health Committee that the policy might be reconsidered in the light of experience gained by the use of approved apparatus for the administration of nitrous oxide and air as an anaesthetic in labour. The General Practice Committee was hesitant about reopening the subject, but it was desired to know what was the nature of the experience mentioned. Some members of the Public Health Committee stated that the apparatus in question had been used in hospital with great satisfaction and without any unfortunate results, but there appeared to be no body of information as to its home use, and in any case the necessary transport was a difficulty. In hospital, of course, any midwife using it would be more or less under supervision. One member stated that the prospect of having this apparatus at hand in emergency was a factor which determined many women to enter the hospital for their confinement rather than to have it at home. It was decided to ask each member of the Committee to send in any available information as to experiences of the method.

Among other matters with which the Committee dealt was one in which an assistant medical officer of health alleged unkind treatment at the hands of her authority. She had sent in her resignation owing to domestic reasons, but subsequently, on a change of circumstances, had withdrawn it. Neither her resignation nor her withdrawal had been acknowledged, but the authority had proceeded to make another appointment. It was decided to request the observations of the medical officer of health of the authority, and also to consult the Association's solicitor on the legal position.

MEDICAL WAR RELIEF FUND

FORTY-SECOND LIST

Amount previously acknowledged, £47,936 13s. and £100 3½% Conversion Stock and £40 3% Defence Bonds

Individual Subscriptions

£50.—Mr. G. H. Steele, Guildford (2nd donation)

£10 10s.—Mr. A. L. Moreton, Luton.

£5 5s.—Dr. M. L. V. Andrews, Truro; Dr. W. F. T. Haultain, Edinburgh (2nd donation); Dr. J. F McConchie, Wolsingham (2nd donation); Mr. E. H. and Dr. Helen R. Rainey, Harleston, Dr. G. Mary Rolfe, Exeter (2nd donation); Mr. D. N. Rocyn-Jones, Cardiff (3rd donation).

£5.—Dr. M. G. Sheldon, Birmingham (3rd donation).

£3 3s.—Dr. W. H. C. Croft, Coventry (2nd donation); Dr G R Lipp, Sheffield (3rd donation)

£2 2s.—Dr. P E. Adams, London (3rd donation); Fl Lt. A. M. F. Batty, R.A.F.V.R. (2nd donation); Dr. A. D. E. Bayliss, Westcliff-on-Sea; Dr. Dora B L. Bunting, Southampton (3rd donation); Capt. N. F Coghill, R A.M C. (2nd donation); Lt. Col. W. H. Skardon Burney, R.A M C; Dr. M. C. M. Given, Tunbridge Wells (3rd donation); Dr. W. H. Steele, Newton Abbot (3rd donation); Dr. H B Waller, London (3rd donation)

£1 11s. 6d.—Capt. G. F. O'Connor, R.A.M C. (3rd donation).

£1 1s.—Capt. H I. Clapham, R A.M.C.; Dr I. S. S. Fox, London; Dr R. Friedlaender, Manchester (2nd donation).

10s. 6d.—F/O O. B. Appleyard, R.A.F.M S.

10s.—Dr E. Bayley, London (3rd donation)

£16.—Members of Llanelly Medical Board—per Dr. Rhys Paton (amount already sent £37 6s)

£5.—Glasgow Division—per Dr J. Inglis Cameron (amount already sent £389 18s): "G W." and Dr. J. Inglis Cameron.

£2 2s.—North Northumberland Division—per Dr D. T McDonald (amount already sent £90 9s. 9d); Dr. J C Mackay, £1 1s. (2nd donation); Dr R. H Dewar, £1 1s. (2nd donation)

Local Medical and Panel Committees

£100.—Gateshead.

£44 19s. 2d.—County of Ayr (8th donation).

£42 6s. 6d.—Newcastle-upon-Tyne (6th donation).

£25 19s. 11d.—East Lothian (7th donation)

Total—£48,300 19s. 7d, and £100 3½% Conversion Stock and £40 3% Defence Bonds

Cheques, payable to the Medical War Relief Fund, should be sent to Dr. G. C Anderson, Honorary Treasurer of the Fund, British Medical Association House, Tavistock Square, London, W.C 1.

MEDICAL PRACTITIONERS (FEES) REGULATIONS, 1940

The fees payable to doctors called in by midwives under the Midwives Acts are governed by a series of conditions, details of which are given in the Medical Practitioners (Fees) Regulations, 1940. The fees set out in paragraphs (i), (iii), and (iv) of the scale for attendance during labour, for suturing the perineum, etc., and for attendance at an abortion or miscarriage are not payable unless at the conclusion of his attendance the doctor furnishes to the medical officer of health of the local supervising authority a report in the form set out in the second schedule of the regulations. In this connexion the practice of using one form only for the doctor's account and report (where a report is necessary) is one that might appropriately be extended, as it reduces to a minimum the practitioner's clerical work. Much of the information in the special report required by the regulations is in many cases already included in the account form normally used by local authorities. The addition of a few extra items to the account form would dispense with a separate form for the special report.

POSTGRADUATE NEWS

The Fellowship of Medicine announces: (1) Week-end course in rheumatism at Rheumatic Unit, St. Stephen's Hospital (L.C C), on Sat. and Sun., Feb 27 and 28; (2) Revision course in anaesthetics at Radcliffe Infirmary, Oxford, March 15-26; (3) Clinical surgery, Sat, Feb 27, 2.30 p.m., at London Homoeopathic Hospital, examination of cases and tutorial; (4) Fundus oculi demonstration (M.R C P), Wed., March 3, 1 30 p.m., at West End Hospital for Nervous Diseases, In-patient Department; (5) M.R C.P. course in Neurology, Tues. and Fri, 3 p.m., March 9 to April 2, at West End Hospital for Nervous Diseases.

WEEKLY POSTGRADUATE DIARY

FELLOWSHIP OF MEDICINE, 1, Wimpole Street, W.1—*Brompton Hospital*, Tues. and Thurs, 4 30 p.m., M.R C P. course in chest diseases (limited to 6). *London Homoeopathic Hospital*: Wed. afternoon, Clinical Surgery Demonstration (limited to 6). *National Hospital for Diseases of the Heart*: Tues and Wed, 10 a m., Out-patient clinics.

EDINBURGH POSTGRADUATE LECTURES.—At Edinburgh Royal Infirmary. *Thurs.*, 4 30 p m. Dr H Stalker: Social Psychiatry.

DIARY OF SOCIETIES & LECTURES

ROYAL SOCIETY OF MEDICINE.—*Wed.*, 2.30 p.m Section of Comparative Medicine. *Thurs.*, 2 p m Section of Dermatology; 4.30 p.m. Section of Neurology *Fri*, 3 30 p.m Joint meeting of Section of Obstetrics and Gynaecology and Medico-Legal Society *Sat.* (Feb 20), 11 a m. Section of Physical Medicine, at Royal Westminster Ophthalmic Hospital.

BIOCHEMICAL SOCIETY.—At British Postgraduate Medical School, Ducane Road, W, *Sat* (Feb 20), 12 noon. Communications and Demonstrations.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W.—*Mon.*, 4 30 p.m Discussion: Advances in the Knowledge of Bright's Disease. To be introduced by Dr. Horace Evans.

ROYAL NATIONAL THROAT, NOSE AND EAR HOSPITAL, Gray's Inn Road, W.C.—*Fri.*, 4 p m., Mr J. S. Hogg. Cardiospasm

B.M.A.: Branch and Division Meetings to be Held

PERTH BRANCH.—At Queen's Barracks, Perth, Thursday, Feb. 18, 8 30 p.m, Capt. R. Good, R A.M.C.: Lecture and practical demonstration of the Army Group Selection Tests

BIRTHS, MARRIAGES, & DEATHS

The charge for inserting announcements under this head is 10s 6d This amount should be forwarded with the notice, authenticated with the name and address of the sender, and should reach the Advertisement Manager not later than first post Monday morning to ensure insertion in the current issue

BIRTHS

AYLWARD.—On Feb. 2, 1943, at Summercourt Nursing Home, Southborough, to Effie (*née* Munro), wife of Dr. R D. Aylward—a son.

HILSON.—On Jan 29, 1943, at the Westminster Hospital, to Lena (*née* Walker, L.R.C P &S.Ed.), wife of Don Hilson, B.A., M.R.C P, L.R C.S., a son.

LINNELL.—On Feb 2, 1943, at 20, Howard Place, Carlisle, to Mary (*née* Graham), wife of Capt Louis Linnell, R A.M.C—a son (John).

MACARTNEY.—On Jan. 22, 1943, at Crumpsall Hospital, Manchester, to Joyce (*née* Worthington), wife of Major Donald W. Macartney, R A.M C—a daughter

ROSS.—On Jan. 5, 1943, to Betty (*née* Booth), wife of Dr Kenneth M Ross of Farnham, Surrey (Major R A.M C., India), a sister for Angus (Susan Jane).

DEATHS

DONALD.—On Jan. 5, 1943 (the result of an accident), Robert Donald, M C., M D., D.P.H, beloved husband of Helen Cassels, Donachai, Bishopton

THOMSON.—On Jan. 29, in Edinburgh, as the result of an accident, Sir StClair Thomson, M D, F R C P., F.R C.S., late of 64, Wimpole Street, London, son of the late John Gibson Thomson of Ardrishaig, and grandson of the late John Sinclair of Loch Aline, Argyll, aged 84 Cremation (private) took place in Edinburgh. Memorial Services were held at Golders Green Crematorium on Wednesday, Feb 3, and at King's College Hospital, Denmark Hill, on Thursday, Feb 4.

SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
LONDON SATURDAY FEBRUARY 20 1943

Correspondence

Vaccination—An Experience

SIR,—Speculative practice in medicine is unethical, and rightly so, yet the remuneration of the public vaccinator is contingent on the successful result of the operation, and is not made for the performance of vaccination.

During the period in which the Glasgow outbreak of small-pox occurred last year, I had the unusual experience of finding that of 12 consecutive entries in my vaccinator's register 7 related to unsuccessful vaccination, whereas of the previous 100 performed by me only 6 were unsuccessful. My comment that the potency of the lymph appeared low (dilution owing to increased demand from Glasgow) was denied by a Ministry of Health official, who gave his opinion that my ignorance of the principles of vaccination was responsible.

This page in my register brought to my notice the speculative character of public vaccination, and I observed that in one case alone I had paid six visits, travelling 42 miles, vaccinated thrice, completed seven forms and three double entries in a register, all for the sum of one shilling, obtainable after sending to the county council an analysed form of account for the quarter, to be followed later by an analysis of public vaccination for the year. After correspondence with the county council, in which I drew attention to the unsatisfactory nature of the contract, and suggested that payment for work done should be the basis of a future contract, I resigned. My neighbours refused to undertake the district, and now I learn that a practitioner residing over 12 miles away has been appointed, who may yet discover that travelling 192 miles in an endeavour to produce "successful" vaccination in an insusceptible infant for the sum of one shilling is uneconomic and unethical.—I am, etc.,

Tollerton, York. A. K. THOMAS.

The Beveridge Report

SIR,—We have now had a fairly long discussion in your columns and elsewhere on the effect of the Beveridge report on the future of the medical profession. Is it not time that an effort was made to crystallize our attitude to the main proposals in that report? Organizations other than the B.M.A. are sending out questionaries on matters of compensation for practices in the event of their being taken over by the Government, and it cannot be denied that there is a general feeling that we have no united policy to present to the Government when the discussions begin to take place in Parliament. Insurance societies and friendly societies and other interested bodies are making their objections or agreement vocal in the public press and elsewhere, while we are whirling round in a maelstrom of discussion that is leading us nowhere.

Is it not possible for the B.M.A. to prepare a questionary addressed to all practitioners in the country to secure a unified consensus of opinion on the main points affecting us in the new proposals? Such an opinion, backed by the majority of practitioners in the country, would be of immense strength in presenting our case. None of us wants universal panel practice. None of us really likes panel practice from a purely medical point of view, but we appreciate the financial advantages. All of us want an assurance of adequate compensation in the event of our practices being taken over. Many of us do not see how the scheme can possibly work in rural areas. All these points could be dealt with in a questionary. What we need is a defined policy supported by the expressed opinion of the profession as a whole, and not merely by representatives at a B.M.A. conference. Such a statement of policy can be achieved by the method I have suggested.—I am, etc.,

Histon, Cambs A. E. MOORE.

SIR,—Dr. A. Wiseman's letter (*Supplement*, Jan. 30, p. 15) needs a reply from those of us who believe that a State Medical Service would indeed mean a form of slavery for medical men. If Dr. Wiseman had attended the recent inaugural meeting of the Individualists Society, and had seen the crowded hall—the audience being composed of members of all political parties—he might not have thought the Beveridge report commanded such universal approval as given out by the Press. He would, too, have been made aware that the lay public are keenly aware of the disadvantages of a State Medical Service had he heard the speech of Sir Frederick Hamilton, which emphasized the dangers of such a service. Unfortunately, for one reason or another, the Press either omitted all reference to the meeting or gave it but small space. I recommend Dr. Wiseman to obtain a copy of Sir Ernest Benn's speech and to read it.—I am, etc.,

RUSSELL STEELE.

Beveridge Report and Medical Planning

SIR,—A meeting of the medical profession in Bristol was held on Jan. 21, at which there was an attendance of 59. The following resolutions were passed: (1) That this meeting, representative of the medical profession in Bristol, urges the Medical Planning Commission to study without delay the implications of the Beveridge report, with special reference to conditions of service and remuneration. Carried unanimously. (2) That any future medical service should be based on the family, both for the promotion of positive health and for the treatment of disease, rather than on clinic systems of selected groups of individuals—e.g., school children, factory workers, etc. Carried with one dissentient.—I am, etc.,

H. M. GOLDING,
Hon. Sec., Bristol Division, B.M.A.

NEW HOSPITAL PROVIDENT SCHEME FOR LONDONERS

Members of the middle classes often find it difficult to meet the cost during illness of the private ward in a hospital or a nursing home. There has been no provident scheme to enable them to insure against the misfortune of illness in the same way as people with smaller incomes could insure by belonging to a hospital contributory scheme. So far as London is concerned, however, this position is to be altered. A provident fund to cover hospital and/or nursing home charges for people of moderate means has just been launched by the London Association for Hospital Services, Ltd., a non-profit-making concern which is sponsored by the King Edward's Hospital Fund for London. There is no lower or upper income limit; anyone may become a member provided he is not over 60 and either lives or works in the London Metropolitan Area. The annual rates of subscription are, for a single subscriber, £2 12s.; subscriber with one dependant, £4 4s.; with two dependants, £4 16s.; with three dependants, £5 2s.; and with four or more dependants, £5 5s. For these payments a subscriber of six months' standing is entitled to benefits up to a total of £105 annually towards hospital or nursing home charges, fees of doctors, surgeons, and anaesthetists while in hospital, consultations during treatment, and the costs of radiodiagnostic services, pathological and bacteriological investigations, and radiotherapy. No contribution is made towards preliminary consultation fees or for mental cases, confinements, war injuries, cases of pulmonary tuberculosis, notifiable diseases, incurable or senile cases, medical cases treated by the patient's own doctor at his surgery or at home, or dental and ophthalmic cases. While the total sum paid in benefits in any one year may (as stated) be £105, there is a fixed scale of allowances for the individual services likely to be required—i.e., the grant towards the cost of a major surgical operation is limited to £26 5s. in any one year, for consultations during treatment £6 6s., and for a course of radiotherapy £25 5s. in any one year. The scheme has been drawn up with the general approval of the voluntary hospitals and in consultation with the B.M.A. to ensure that it is acceptable to the medical profession. The chairman of the council of management is Sir Bernard Docker, and among the members are Sir Hugh Lett, Dr. G. C. Anderson, and Dr. W. Russell Brain. The offices of the association, of which Mr. T. W. Place is the secretary, are at 10, Old Jewry, London, E.C.2.

The Minister of Health has informed the Pudsey Town Council that, after considering the evidence at the public inquiry into the council's application for permission to terminate the appointment of their medical officer of health, Dr. E. O. Bowie, he has decided that he would not be justified in consenting to Dr. Bowie's dismissal.

THE NATIONAL EYE SERVICE

A meeting of the Ophthalmic Group Committee of the B.M.A. was held on Jan. 15 under the chairmanship of Dr. O. G. Morgan. The first act of the Committee was to place on record its profound appreciation of the services of Mr. Bishop Harman during his term of office as chairman of the former Ophthalmic Committee from 1929 to 1938 and of the Group Committee from 1938 to 1942. This was proposed by Dr. J. L Wilson, seconded by Mr. Harrison Butler, supported by Mr. H. R. Bickerton, and carried unanimously.

The chief business of the meeting, like that of the other committees, was to consider certain aspects of the Beveridge report, especially the question whether the comprehensive service envisaged should be available to the whole of the community. On this point a long exchange of views took place, and the feeling of the Committee was presented to the Council at its last meeting.

The question of the fee for ophthalmic medical examinations under the National Eye Service was again considered. Here again the Beveridge report raised its head. While those working the service do not want to take more than half a guinea from people earning less than £5 per week, they do not see why they should examine people with higher incomes for less than a guinea. But as the Beveridge report has not yet been discussed in Parliament it seemed an inappropriate time to force the issue. It was suggested that although the Beveridge scheme declared for 100% of the community coming into the provided service the conditions would be different. If a contributor had to visit a clinic he would be less likely to seek these services at a cheaper rate. At the present time not all towns have clinics, and the surgeons in these places have to see the patients in their consulting rooms.

The Committee decided to reaffirm the policy of differential rates (that is, for persons whose incomes are under £250, a rate of 10s. 6d., and for those whose incomes are over £250 and under £420, one guinea), and to circularize constituents advising them that although this policy had been reaffirmed it was not proposed at this stage, pending the outcome of the deliberations on the Beveridge report, to enforce it.

The remainder of the business before the Committee concerned a question of disciplinary control affecting a member of the service, and an application for inclusion in the Association's Ophthalmic List.

H.M. Forces Appointments

ROYAL NAVY

Surg. Lieut-Cmdr. J Reese to be Surg Cmdr.

Acting Surg Lieut-Cmdr. (Emergency) R. A C Herron to be Surg Lieut-Cmdr. (Emergency).

Surg. Lieuts R. T May, M F. Sheehan, P. O'Brien, M. M. J Enright, and C. D. Coode to be Surg. Lieut-Cmdrs

Surg. Lieuts (Emergency) G. T. Holroyd, F A Crosfill, and R Vaughan-Jones to be Surg. Lieut-Cmdrs. (Emergency).

ROYAL NAVAL VOLUNTEER RESERVE

Prob. Temp. Surg Lieuts. H R. Gray, H N Robson, W. A B. Campbell, R. C Blackney, C. A. Kilpatrick, R D Hoare, A. J Whitaker, G S Hopkins, E. C Glover, J B. Searle, P D Crosbie, D F Smith, and I. P. McL. MacDougall to be Temp. Surg. Lieuts.

ROYAL ARMY MEDICAL CORPS

Lieut-Col. (Temp Col.) G. B. Hadden having attained the age for retirement has been retained on the Active List supernumerary to the establishment

Lieut-Cols. W. Bird and E. E Holden have attained the age for retirement, but are retained on the active list, supernumerary to establishment.

Majors (Temp Lieut.-Cols) R. N. Phease, C B C Anderson, O B E., P E D. Pank, G. Moulson, G B Wild, and R D. Cameron, M C, to be Lieut.-Cols.

Capt (War Subs Major) (Temp Lieut.-Col) R. W. Scott to be Major

Capt. (Temp. Major) M. S. W Bisdee to be Major

Capt F King to be Major

War Subs Capt H. H. Seruman has relinquished his commission

TERRITORIAL ARMY, R.A M.C.

Lieut-Col. (Temp Col.) (local Brig.) F. A. E. Crew, T D, F R S, R.A M.C., has relinquished the local rank of Brig.

Col. A R Laurie, T.D, has relinquished his commission on account of ill-health and retains his rank

Capt. P. F Delaney has relinquished his commission on account of ill-health and has been granted the hon rank of Major.

War Subs. Capt. A G W Whitfield has relinquished his commission on account of ill-health and has been granted the hon rank of Major.

General List—Lieut. E. G. Murphy from supernumerary to be Lieut. for service with Birmingham Contingent Senior Training Corps

2nd Lieut R C Simpson, from 8th Bn. D.L.I., T A, to be Lieut.

LAND FORCES EMERGENCY COMMISSIONS

ROYAL ARMY MEDICAL CORPS

War Subs Capt A. McL. Fraser has relinquished his commission on account of ill-health and has been granted the hon. rank of Major.

War Subs. Capt. L. N. O'Hara has relinquished his commission on appointment to the I.M.S.

War Subs Capts. D. MacD. I. Harmer, E. Smith, C. A. Macadie, and S B. Sansom have relinquished their commissions on account of ill-health and have been granted the hon rank of Capt.

War Subs Capt J Wilkinson has relinquished his commission and has been granted the rank of Capt.

The notification regarding Lieut J. Schorstein in a *Supplement* to the *London Gazette* dated Nov 24, 1942, is cancelled

To be Lieuts.: C. Campbell, J H. D. Lawrie, J. McComb, J. M. Rome, S. Smithson, C. Starkie, R. M. L Anderson, J. V Banner, R. V. Bannister, A N. Boyle, N. R Carlscn, J Collins, G A. Craig, I R Duthie, J. H. Ebbetts, W. J M. Evans, R. F. Fidler, R. B. Floyd, A. K. Gallagher, E. W. Gibbs, F S Glassow, G. Graves, J R G. Grice, F P. Haldane, B. Hyde, S. Jacob, W. S Lewin, J D McFadyen, V. L Misso, W. J. Moffat, D. F. Morgan, W. R. Muirhead, A R. Munro, R M P O'Dolan, F P. H. E. Orban, R. E. M Paterson, H. A. Pearce, M. T. Phells, F C Read, J. Reed, J. W. F. Richardson, H. Riley, T. L Ross, W. D. Sheldrake, A. W Simmins, A. B. C Smith, C. F. J. Smith, R S. Smith, B. W. S Spurgin, I. H Stewart, G S. Thompson, R J Waugh, G Wetherley-Mein, R A Williams, E G Williamson, J. L. Wilson, T Skeoch (*correction*), J Shoreston.

WEEKLY POSTGRADUATE DIARY

FELLOWSHIP OF MEDICINE, 1, Wimpole Street, W.—*Brompton Hospital* · Tues and Thurs, 4 30 p m., M R C P. course in chest diseases. *London Homoeopathic Hospital:* Wed. afternoon, Clinical surgery demonstration (limited to 6). *St. Stephen's Hospital:* All day, Sat. and Sun, Feb. 27 and 28. Week-end course in rheumatism.

EDINBURGH POSTGRADUATE LECTURES—At Edinburgh Royal Infirmary, *Thurs.*, 4.30 p m Dr. C. Clayson: Modern Trends in the Prevention and Treatment of Tuberculosis

DIARY OF SOCIETIES & LECTURES

ROYAL SOCIETY OF MEDICINE.—*Mon.*, 4.30 p.m Section of Odontology. *Thurs.*, 4 30 p m. Section of Urology *Fri.*, 2 30 p m Section of Disease in Children, at Great Ormond Street Hospital; 2.30 p m. Section of Epidemiology and State Medicine.

CHADWICK TRUST—At London School of Hygiene and Tropical Medicine, Keppel Street, Gower Street, W C, *Tues.*, 2.30 p.m, Prof. M. Greenwood, F R S · Social and Industrial Environment and Disease.

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES, 11, Chandos Street, W—*Sat.* (Feb 27), 2 30 p m, Dr A H. Harkness: Drug Resistance in Gonorrhoea, with Special Reference to Aetiology and Treatment

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE.—At 26, Portland Place, W, *Wed.*, 4 30 p m. Dr A. G. H Smart Some Medical Problems in the Colonies in Wartime. A discussion will follow.

ASSOCIATION NOTICES

Election of Member of Council by Kent and Sussex Branches

Notice is hereby given that owing to the death of Dr. A. M. Watts a vacancy exists on the Council for the Kent and Sussex Branches. Nomination of candidates for the remainder of the period 1942-3 must be forwarded in writing so as to reach me by March 15, 1943. Candidates must be nominated by either (*a*) a Division or (*b*) not fewer than three members of a Branch in the group, and must be members of a Branch included in the Group, and members of the Association for at least the period of three years immediately preceding the election.

If more than one candidate is nominated voting papers will be issued on March 29 to each member of the Group.

G. C. ANDERSON,
Secretary.

Diary of Central Meetings

MARCH

4 Thurs **Journal Board, 1 45 p m.**
31 Wed. Joint Conference of Members of the Special Representative Meeting and of Members of the Special Conference of Representatives of Local Medical and Panel Committees, 9.30 a m.
Special Representative Meeting, 1.45 p m. approximately.
Special Conference of Representatives of Local Medical and Panel Committees, 3.15 p.m.

Branch and Division Meetings to be Held

EASTBOURNE DIVISION.—Joint meeting with Eastbourne Medical Society at Princess Alice Hospital, Eastbourne, Tues, Feb. 23, 8 30 p m. Wing Cmdr R W. Durand: Medical Problems of Operational Flying.

APPOINTMENTS

DAVIS, HAROLD, M.B., B.Chir., M R C.P, Temporary Physician to Out-patients, Hampstead General and North-West London Hospital.

GOODWILL, SIBYL D., M R C S., L R C P, D P.H, Temporary Assistant Medical Officer, Metropolitan Borough of Islington.

BIRTHS, MARRIAGES, & DEATHS

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BIRTH

HALLINAN—On Jan 30, 1943, at the War Memorial Hospital, Crickhowell, Breconshire, to Margery (*née* Pullin), wife of Flight Lieutenant F. J Hallinan, M.B., B.Ch.(N.U.I.), a son (Phillip Edward).

MARRIAGE

ORR—STARK—At Knightswood Baptist Church, Glasgow, on Feb 9, 1943, by the Rev. J. Allan Brown, M A, B D, assisted by the Rev W F Gibbons, B D., of Alloa, Flying Officer John Orr, M B, Ch.B, R A.F V R., only son of the late John and of Mrs Orr, 11, Church Street, Alloa, to Helen Guthrie Chalmers, S R G &F N, elder daughter of Mr and Mrs. Robert A. Stark, 5, Lincoln Avenue, Glasgow, W.3.

DEATH

STIRLING—On Feb 7, 1943, at the Private Patients Home, Manchester, Dr. James M. Stirling, age 47 years, beloved husband of Greta Stirling, "Heversham," 357, Stockport Road, Levenshulme, Manchester.

The Minister of Health announces (Circular 2763) that the restriction placed last June on the promotion of holders of A and B2 posts is suspended, but any proposed transfer of a Class A officer to a B2 post or of a B2 officer to a B1 post must be notified to the Central Medical War Committee, where practicable, at least a month before it is due to take place. The restriction on the transfer from one hospital to another of holders of B1 posts (*Supplement*, Aug. 22, 1942, p. 20) is to continue until April 30 next.

SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
LONDON SATURDAY FEBRUARY 27 1943

Correspondence

The Panel Conference

SIR,—I am asked to forward the following resolution, which was passed at a meeting of the Bristol Panel and Local Medical Committee on Feb. 16, for publication in the *Supplement*:

"This committee, having heard its Representative's report, is dissatisfied with the proceedings at the Conference of Representatives of Local Medical and Panel Committees on Nov. 12, 1942, particularly relating to: (1) the arrangement of the agenda; (2) the amount of time occupied by the chairman of the Insurance Acts Committee and by resolutions put forward by the Insurance Acts Committee; (3) that a motion was accepted for the agenda which was saved from being ruled out of order only by its withdrawal."

—I am, etc.,

Bristol. J. A. BIRRELL, Hon. Secretary.

Insurance Capitation Fee

SIR,—In the report of the proceedings of the Council (*Supplement*, Feb. 13, p. 25) I note that you have named me as the one dissentient against the resolution deploring the Ministry of Health's rejection of a wartime increase in the capitation fee. I consider that either you should have reported the statement I made on the motion or you should have omitted my name.

I stated that while the reasons for demanding a wartime increase were valid, my own feeling was that our position should be considered against the background of an almost completely mobilized nation of forty-five millions, the vast majority of whom were working extremely long hours, and whose economic standards were much lower than those of the medical profession.

Under these circumstances I thought: (*a*) that we should be most unlikely to obtain a bonus, even after further pressure by the Insurance Acts Committee, as stated by Dr. Gregg; and, therefore, (*b*) from the strategical standpoint it might be wiser to keep our eye firmly fixed on our real object, which is an overall increase in the capitation fee, irrespective of war conditions, and that our sacrifice of a war bonus claim would be made use of at the appropriate time. This, I hope, will make it quite clear that my opposition was not on a question of principle but purely on a question of strategy.—I am, etc.,

WILLIAM W. FOX.

SIR,—I see that the Minister has finally refused our just claim for an increased capitation fee on the grounds that "it was contrary to Government policy to recognize additional work as establishing a case for a war bonus," and has completely ignored the prime cause of our dissatisfaction—namely, the altered insurance risk.

We have at our disposal a ready means of obtaining for ourselves the increase so curtly refused by the authorities. All that is required is three months' notice to the Minister that the terms of service will be altered—by us, this time, for a change —and that (*re* para. 6 of the Terms of Service) we propose to make a charge of 1s. for every insurance certificate issued. On the assumption that a practitioner with a 1,500 list will issue 10 certificates —first, intermediate, or final—each weekday, this charge will amount to about 3,000s. a year, and will be equivalent to an increased capitation fee of 2s.: not enough, but probably as much as one could have hoped for at the present time. This notice, and a large placard for the waiting-room to be exhibited well in advance of the proposed change, are all that are necessary.

We must do something about this refusal forthwith. Every month's delay lends weight to the assumption that we are only mildly discontented with our present lot. I can well foresee the time when a future Minister of Health will use the return of our A1 patients from the Forces as a reason for lowering the capitation fee again. What about it, I.A.C.? —I am, etc.,

Preston. L. F. UNSWORTH.

Freedom from Want for Doctors

SIR,—Has not the moment arrived when the most pressing need is for the profession to give serious attention to "social security" and "freedom from want" for doctors? Both in and out of the Press we are in danger of being smothered with plans, which, it is alleged, will improve the standard of medical care of the public, but always the question of the material well-being of the doctor is dismissed with vague phrases such as "adequate remuneration will be paid."

Now that meetings are to be held to consider the Beveridge report, would it not be well for all Divisions of the B.M.A. to be asked to express a definite opinion on this matter? The view of Government circles on the matter is shown by Service, industrial, and E.M.S. salaries—£600 for the G.P. and £900 for the consultant, with a few administrative posts at a slightly higher figure.—I am, etc.,

Whetstone, N.20. A. C. ELKIN.

Industrial Medical Attendance

SIR,—I gather that Dr. A. H. Driver's letter (*Supplement*, Feb. 6, p. 22) is, in effect, a statement that there is no need for an industrial M.O. to be limited by such ethical duty advised by the B.M.A. as referring a case of industrial accident to the practitioner concerned, despite the factors created if he does not do so. At least, I cannot find any clarity in his letter on this point, as he states that most M.O.s use the green certificate provided by the B.M.A., signifying the patient is not referred to the G.P., and then contradicts himself by stating that the usual practice is to give the patient a note to take to his panel doctor. The latter is, of course, the correct procedure, and by offering the facilities of the industrial clinic on the same note the industrial M.O. can still continue his interest in the treatment of the case if he so wishes.

Your correspondent would thereby obtain the co-operation he advocates: he nullifies co-operation by omitting reference to the practitioner. He suggests the advantages he has over the practitioner—i.e., the trained nursing staff, the closeness of touch with the most suitable hospitals, and his greater ability to conserve working-time—and I therefore infer that he doesn't want co-operation from the practitioner but subservience. Finally, I wish to correct his inference that I suggested the industrial M.O. would utilize follow-through treatment to feather his own nest. I stated that by not conforming to ethical rules he would automatically involve himself in such a factor.—I am, etc.,

Tipton, Staffs. L. H. EUNSON.

*** This correspondence is now closed. —ED., *B.M.J.*

N.H.I. Disciplinary Machinery

SIR,—Dr. A. Harbour's unique interpretation (*Supplement*, Jan. 30, p. 17) of the statement in my article with regard to the N.H.I. disciplinary machinery hardly calls for a serious rejoinder, and your space is valuable. But when he goes on to impugn the conduct of the committee over whose deliberations I have had the honour to preside for fifteen years, may I ask him to accept my assurance that he is gravely mistaken.—I am, etc.,

Croydon. R. W. HARRIS.

Naval Medical Officers' Pay

SIR,—In the recent increase of pay granted to junior officers in the Navy members of the medical service were excluded, in spite of the fact that the cost of living has risen equally for medical officers. Since the proportion of pay to that of the other branches of the Service was considered equitable before this increase, it is difficult to see why we of the medical branch were excluded. The position and tendency require careful watching, and I hope this is being done.—I am, etc.,

NAVAL MEDICAL OFFICER.

Medical officers of health are asked to inform the Ministry (Circular 2751) of any men born in the year 1925 who have a history of tuberculosis. The information should be given, as in the case of other age groups, on Form T 147.

H.M. Forces Appointments

ROYAL NAVAL VOLUNTEER RESERVE

Prob. Temp. Surg. Lieut. J. MacP. Jolly to be Temp. Surg. Lieut.

ROYAL ARMY MEDICAL CORPS

Major (Temp Lieut -Col) M. C Paterson, M.C., has been restored to establishment.

Major (Temp. Lieut.-Col) H. G P Armitage has been seconded for service.

LAND FORCES: EMERGENCY COMMISSIONS

ROYAL ARMY MEDICAL CORPS

War Subs Major H T. Chiswell from temporary commission to be Lieut , retaining the temporary rank of Lieut.-Col. and War Subs. Major.

War Subs Capt J McD Dougan has relinquished his commission on appointment to the I.M S.

War Subs Capt W V O Erskine has relinquished his commission on account of ill-health and has been granted the honorary rank of Capt.

WOMEN'S FORCES

EMPLOYED WITH THE R.A M C

The following M O s have been granted commissions in the rank of Lieut : Eleanor Stern, Mary O. Adams, Christina A. Gunn, Pearl Lyons, Eleanor M. Creak, Mary C. Luff, Annys M Cusack, Mary Darlow, Edith I Fettes, Eleanor M Henderson, Margaret Ingham, Margaret Evelyn Peaker, Stella M B Perry, Isobel J Robertson, Margaret J Walker, Frances H. Heron-Watson, Celia P. Larkins.

ROYAL AIR FORCE

Group Capt. (Temp Air Commodore) W A. S Duck, O.B.E. (retired, but re-employed on the active list) has relinquished voluntarily the temporary rank of Air Commodore and has reverted to that of Group Capt (Substituted for the notification in a *Supplement* to the *London Gazette* dated Jan. 19, p. 388, col. 1)

Wing Cmdr. (Temp) L. S. Everett to be War Subs. Squad. Ldr.

Mrs. L I. Thomson, M O. with the relative rank of Fl. -Lieut has relinquished her commission on account of ill-health.

ROYAL AIR FORCE VOLUNTEER RESERVE

Fl. Lieut. D M Anderson to be War Subs Squad Ldr (Substituted for the notification in a *Supplement* to the *London Gazette* dated Jan. 22, p 433, col. 2)

Fl Lieuts G. J, Marks and R. R. Foote have relinquished their commissions on account of ill-health and retain the rank of Squad. Ldr.

G. E. O. Williams to be Fl. Lieut. (Emergency).

Fl Lieut. J. L. Hamilton has relinquished his commission on account of ill-health and retains his rank

Fl Lieut. M. A Margo has relinquished his commission on appointment to the S.A M.C.

Flying Officers J S. Barr, K G Bowker, G H. Kilgour, H B. Wilson, H. Stoll, H W Wheate, J. K. Lotinga, S. Wetherell, G M Willey, A. P. Gastoni, C. G, F Smartt, J A. Kennedy, J R Hindmarsh, E N Gauld, I D Gebbie, J H McCoy, G J. F. Rees, A. Ryder-Lewis, and M Lewis to be War Subs Fl Lieuts.

Flying Officers J. C. Garland and G Caplan have relinquished their commissions on account of ill-health and retain their rank.

To be Flying Officers (Emergency) W. Burnett, J. K. Lewis, A R. Macdonald; A. MacLellan, G. R. Millar, W A Porter, S. D. Thomson, W F Waudby-Smith, J P Williamson, J. C Brennan, H V Cross, T M. Davie, P D Gange, W F Harper, C D. Kennedy, N M. Macdonald, R B. McConnell, J. R B. Peckover, G. C. Roberts, W. C. Robinson, C. M Ruben, A. Starritt, R. S. Steavenson, and F. J. Zacharias.

R A F V R : DENTAL BRANCH

Flying Officer T Dagger, M.R.C.S , L R.C.P., to be War Subs Fl Lieut

D. C. P Battersea to be Flying Officer (Emergency)

INDIAN MEDICAL SERVICE

Major W D B Read to be Lieut -Col.

EMERGENCY COMMISSIONS

To be Lieuts . J G Webb and S McClatchie.

ARMY IN BURMA RESERVE OF OFFICERS

EMERGENCY COMMISSIONS

To be Lieuts : A. B Rao, W N S. Law, N. K. Anandan, R Prashad, and M Ghose.

COLONIAL MEDICAL SERVICE

The following appointments are announced: G C Franklin, B Ch , M R C S., L.R C P , Medical Officer, Gold Coast; M. P. Hutchinson, M R C S., L R.C P , Medical Officer, Sierra Leone; F N. Macnamara, M B , B Ch , O. D. Macnamara, M B , B Ch , and V G Springett, M R C S , L R C P , Medical Officers, Nigeria; F A Milne, M R C S , L R C P , Medical Officer, Northern Rhodesia; L. G. Poole, M B , Ch.B., Medical Officer, Fiji

ABSENTEEISM AND CERTIFICATION

At a recent meeting called by the Nottingham Branch to discuss problems of certification, Mr. Raymond Evershed, K.C., Regional Controller for Fuel and Power, was invited to speak on certification among miners, since coal-mining is one of the main industries of the area It was first pointed out that it was not the case that a man who had been away from work was not permitted by the management to start again unless and until a medical certificate was produced. Mr. Evershed then said that in the coal-mining industry there was the ordinary "civil" contract between the colliery undertaking and its workmen, but there was nothing in that contract requiring a doctor's certificate before a man resumed work after absence In the ordinary contract with a collier or surface worker the colliery did not guarantee to provide work or to pay the workman, however willing and ready he might be to work, if there was nothing for him to do. Thus, if, by reason of a breakdown or because the company was at the time unable to sell its coal economically, the company decided that a pit or seam must "stand," the workmen affected became unemployed. Under the Essential Work (Coal-mining Industry) Orders, 1941 and 1942, it was a criminal offence for a workman in the industry to absent himself from work "without reasonable excuse"—i.e., if, according to the contract of service, he was bound to offer himself for work six days a week (which was usual), then it was unlawful for him not so to present himself on each of the six days unless he had a "reasonable excuse."

There was no definition of the phrase "reasonable excuse," but it was obvious that incapacity from accident or illness was such an excuse, and also that the best evidence of such incapacity was that of a doctor who had examined the man at the material time. The collier was guaranteed a wage whenever he was ready and willing to work, according to his contract, notwithstanding that, by reason of breakdowns, etc., he might not be called on or permitted to do any work, and a levy was imposed on the industry to provide the necessary funds. This guaranteed wage was a weekly, not a daily, assessment, and the man was not entitled to an essential work payment in respect of a day on which he had been absent, however reasonable the excuse might have been. Thus, if a man was absent for any reason at all on, say, a Monday or a Tuesday, and on the remaining days of the week the pit was working normally, no question of an "essential work payment" arose. If, however, having been away on Monday or Tuesday, he found on Wednesday that his pit was "standing" on account of a breakdown, he would be disqualified from claiming an "essential work payment" unless he could show that his absence on Monday or Tuesday was for a "reasonable excuse"; but having so shown, he still did not get any payment for Monday or Tuesday, his guaranteed weekly wage being reduced by the amount due for those two days.

It followed, Mr. Evershed continued, that from the point of view of wages it was hardly ever necessary to give a certificate, and the only cases in which the production of a certificate would be a real and proper protection to a man after a day or two's illness would be when an "essential work payment" was affected. In most of these cases a certificate could as easily be given four or five days after the cessation of the illness as one or two days thereafter. No special form of certificate was required. In all cases the main consideration was that the practitioner must have examined the man on the date of the illness. He could then certify his opinion of the man's condition and of his fitness or unfitness for work

Mr. Evershed concluded by saying that he had sent a circular to all concerned to make certain there was no misapprehension on the part of managements about the legal position, and that men were not denied the right to resume work in the absence of a medical certificate.

B.M.A.: Diary of Central Meetings

MARCH

4 Thurs. **Journal Board**, 1.45 p m.

31 Wed. Joint Conference of Members of the Special Representative Meeting and of Members of the Special Conference of Representatives of Local Medical and Panel Committees, 9.30 a m.

Special Representative Meeting, 1.45 p m. approximately.

Special Conference of Representatives of Local Medical and Panel Committees, 3.15 p m.

B.M.A.: Branch and Division Meetings to be Held

BELFAST DIVISION.—At Whitla Medical Institute, Belfast, Wed., March 3, 4 15 p m. Dr F M B Allen: How the Wishes of the Medical Profession in Northern Ireland can best be Expressed, and How the Interests of the Profession can best be Maintained

BLYTH DIVISION.—At Thomas Knight Memorial Hospital, Blyth, Sun., Feb. 28, 3 p m . Consideration of the motion on the Beveridge report published in the *Supplement* of Feb. 13, and instruction of Representatives to Special Representative Meeting on March 31. All medical practitioners are invited to attend.

PERTH BRANCH —Joint meeting with Perth and Perthshire Local Medical and Panel Committees at Station Hotel, Perth. Thurs , March 4, 4 p m Agenda · Consideration of the Motion on the Beveridge report, published in the *Supplement* of Feb. 13, and instruction of representatives to Special Representative Meeting on March 31, etc.

POSTGRADUATE NEWS

The Fellowship of Medicine announces: (1) Revision course in anaesthetics at Radcliffe Infirmary, Oxford, March 15 and 16; (2) M R C P course in neurology, Tues and Fri , 3 p m., at West End Hospital for Nervous Diseases

WEEKLY POSTGRADUATE DIARY

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane Road, W —*Daily*, 10 a.m to 4 p m , Medical Clinics, Surgical Clinics and Operations, Obstetric and Gynaecological Clinics and Operations. *Daily*, 1 30 p m , Post-mortems *Mon* , Course on War Surgery of the Extremities begins; 2 p m Ear, Nose and Throat Clinic *Tues* , 10 a m , Paediatric Clinic; 11 a m. Gynaecological Clinic; 2 p m , Genito-urinary Clinic. *Wed* , 11 30 a m , Medical Conference; 2 p m., Typhus : the Causative Rickettsiae and Immunization against the Disease, by Dr van den Ende. *Thurs* , 2 15 p m., *X*-ray Demonstration on the Heart and Aorta by Dr. E J E Topham; 3 p m., Dermatological Clinic *Fri* , 12 15 p.m., Surgical Conference; 2 p m , Gynaecological Conference; 2 p m , Sterility Clinic

FELLOWSHIP OF MEDICINE, 1, Wimpole Street, W. *London Homoeopathic Hospital*: Wed afternoon, clinical surgery demonstration (limited to 6). *National Hospital for Diseases of the Heart*: Tues and Wed , 10 a m., out-patient clinics

ROYAL NATIONAL THROAT, NOSE AND EAR HOSPITAL, Gray's Inn Road, W C —*Fri* , 4 p m., Mr. S E. Birdsall: Sinusitis in Children.

EDINBURGH POSTGRADUATE LECTURES —At Edinburgh Royal Infirmary, *Thurs* , 4.30 p m Dr. R McWhirter The Value of Post-operative Radiotherapy in Carcinoma of the Breast

DIARY OF SOCIETIES & LECTURES

ROYAL SOCIETY OF MEDICINE.—*Tues.*, 5 p m General Meeting of Fellows. *Wed* , 2 30 p m Section of History of Medicine; 2.30 p m Section of Surgery *Fri* , 10 30 a.m Section of Otology; 2 15 p m Section of Laryngology; 2 30 p.m. Section of Anaesthetics

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W.—*Mon* , 4 30 p m. Discussion · Effects of Underwater Explosion To be introduced by Surg. Rear-Admiral C P. G Wakeley, Surg Lieut -Cmdr W. G Gill, and Prof. G R. Cameron.

BIRTHS, MARRIAGES, & DEATHS

The charge for inserting announcements under this head is 10s. 6d This amount should be forwarded with the notice, authenticated with the name and address of the sender, and should reach the Advertisement Manager not later than first post Monday morning to ensure insertion in the current issue.

DEATH

CRAIG —At 6, Hermitage Terrace, Edinburgh, on Feb 16, 1943, Christina Jane Gibson, widow of the late Archibald Craig, M D., Pathhead Ford, Midlothian, in her 93rd year.

SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
LONDON SATURDAY MARCH 6 1943

FUTURE OF MEDICINE IN GREAT BRITAIN

PROPOSALS OF "MEDICAL PLANNING RESEARCH"

"Medical Planning Research" is a body of 400 members, for the most part doctors, many of them serving in the Forces, who have been qualified for less than 21 years, which has been engaged in preparing a plan for the future of medicine in Great Britain. Its interim report was published as a supplement to the *Lancet* of Nov. 21, 1942. The report is an amalgam, by a small editorial board, of 200 individual drafts, many of them expressing divergent opinions, with the result that, as is freely admitted, some of the contributors will be among the most vigorous opponents of the report as a whole.

The difficulty of comparing this interim report with that of the Medical Planning Commission, which anticipated it by a few months, is the totally different approach to the problem. The Commission began its interim report with a criticism of present medical services and went on to discuss improvements; the interim report of Medical Planning Research proceeds from the principle that medical organization is very largely determined by the pattern of the society in which it exists. Fully half the report is concerned with social security proposals, some of which might be leaves out of the Beveridge report if that had appeared before this was constructed. Questions of productive capacity, the causes of poverty, the distribution of purchasing power, housing in its effect on health, are discussed, and proposals are made for the better post-war society within which the new medical services will have to be built. Methods of payment for health services, on which the Commission's report scarcely touches, are dealt with in detail, even to the formulation of a national balance-sheet.

Footing the Bill

The proposal of Medical Planning Research is that every person in receipt of earned or unearned income should compulsorily pay a social security insurance contribution to the extent (except in the case of the lowest wage-earners) of 8% or 10% of income. In return he would be provided with complete treatment for all forms of sickness, including rehabilitation, special prophylactic measures, advice and supervision for himself and his dependants, cash sickness and unemployment benefits, adequate old age pension, family allowances, and burial allowances, all without means-test. A voluntary increase of, say, 25% in the payment would entitle the contributor to receive an extra degree of privacy in institutional treatment.

It is considered that this form of payment is without the disadvantages attaching to the customary methods of paying fees direct, local rates, charitable contributions to hospitals, and forced payments such as those exacted from employers for workmen's compensation. The present insurance or panel system has advantages and disadvantages which may be set out as follows:

Advantages	*Disadvantages*
Free choice of doctor, even though "largely illusory"	Levy from employers is a tax on industry.
Weekly payments by patient, a factor in retaining self-respect	Cash and other benefits by different approved societies extremely unequal.
Cost of sickness borne while patient is fit.	Approved societies a wasteful form of administration.

The most serious disadvantages of the National Health Insurance system are that it does not cover dependants or the upper and middle income groups, and that it does not provide specialist or institutional treatment. But these are limitations in scope rather than inherent defects.

The health and social service scheme put forward by the Research is estimated to cost 1,000 million pounds (about one-quarter of the present war expenditure). The social security contribution would yield about 300 millions, and the remainder would have to be met by a direct contribution from the Exchequer—that is, by taxation. Income tax is the fairest method of collection of payment, but the reason why the whole sum should not come directly from the Exchequer is that the contribution of the income-tax payer is not connected in his mind, as this social insurance contribution would be, with the services he receives in return; moreover, it is undesirable that the administering body for the health and social services should be under detailed Treasury control.

Central and Regional Machinery

A corporate body, to be called the National Health Corporation, and not a Department of State directly under a Minister of the Crown, is favoured as the central authority for a national organized health service. The Medical Planning Commission left those two alternatives an open question. The Research holds that the corporate body is preferable because: (1) "Parallelism" (that is, division of authority among many persons of equal rank) is possible in a corporate body to a high degree; whereas in Departments of State hierarchical organization, which is to be deprecated, is the rule. (2) Medical policy is long-term, and to submit it to frequent inquisitions by Parliament is to discourage planning and initiative. (3) The principle that the best possible health services should be available to all is not a political issue. (4) Maintenance of health is a joint task for technician and layman; in a Government Department the technician would be under the layman.

The powers of the National Health Corporation would be vested in a board of governors, say three medical and three lay, with a lay chairman—the Commission's view is that such a body should be "predominantly medical" in composition—appointed by the Privy Council on the advice of the Prime Minister and Minister of Health. To the Ministry of Health the corporation would be linked in much the same way as the B.B.C. was formerly linked to the Post Office. The principal executive officer—the director-general—should be, preferably, a medical practitioner. Advisory bodies, their members co-opted by the board, might be nominated by the Royal Colleges, the British Medical Association, the General Medical Council, the universities, nursing bodies, Government Departments, trade unions, and organized industry.

It is further proposed that the corporation should have an administrative office in each of, say, twelve regions in which Great Britain would be divided. The senior officer in each region would be, generally, a medical practitioner. The task of the regional organization would be to see that the medical needs of the population were met and that those working in the health services fulfilled the authorized standards. If regional authorities with elected councils should supplant the present councils of counties and county boroughs, these authorities should be closely linked with, but should not control, the regional organization of the National Health Corporation. In the smaller areas it is proposed to set up local health committees to reflect local sentiment about health problems to the corporation.

"The Home Doctor"

The medical profession is considered by Medical Planning Research in three categories: the home doctor (the general practitioner), the specialist or consultant, and the social doctor (medical officer of health). The home doctor must be of the patient's choice, must be available at or near the patient's home, must give the same standard of advice and skill to all his patients, must be aware when he has reached the limits of his skill and knowledge and refer the case to a specialist, and must be able to arrange appropriate institutional treatment, himself playing an active part in such institutional treatment. He must be an expert in general bedside diagnosis and home treatment, simple clinical pathology, minor surgery and medical first aid, ante- and post-natal care, possibly midwifery, and certainly child welfare. Further, he must be a free man—free, among other things, to refuse to accept a patient (though, having accepted, he must carry through his obligations), free to increase his practice so far as efficiency allows, and free from undue bureaucratic interference.

Remuneration, off-duty times, equipment, and opportunity for acquiring special skills must be adequate. Vacant practices should be filled, after public advertisement, by a small board comprising representatives of the national health service, the regional medical advisory committee, and the local medical committee of the health centre. Patients on the list of a retired or deceased doctor should be invited to choose a new doctor from those working at the centre, including the newly appointed practitioner. Each doctor working at a health centre would accept patients up to a prescribed maximum. His remuneration would consist of a basic salary, a capitation fee, fees for special clinics, etc.—all paid from corporation funds—and private fees for patients choosing to be outside the service. Practitioners entering the service from existing private practices would be granted non-contributory retirement and death pensions in compensation for loss of capital. Sale of practices would not be permitted. The suggestions of Research for the organization of health centres follow closely the scheme for the model centre in the Medical Planning Commission's interim report.

Specialist and Hospital Services

The memorandum of the Research then turns to the question of hospital and specialist services and lays down in detail what such services should provide—consultation in clinics near the patient's home or consultation in the patient's home, out-patient treatment for conditions beyond the scope of the home doctor, in-patient investigation and treatment, rehabilitation, training of doctors, nurses, and ancillary workers, and research. After pointing out the defects of the present system, it defines a national hospital service, the whole cost of which would be borne by the corporation. Like the M.P.C., the Research takes the region as the unit. Each unit would have three or more key hospitals—large voluntary or municipal hospitals or new hospitals—at least one of which should be linked with a university. Attached to each key hospital would be a number of local hospitals or medical centres (existing cottage or municipal hospitals, but greatly altered in structure and function), and around each medical centre would be the local health centres. Each medical centre would have an out-patient department or polyclinic; beds (private and public) for acute cases, minor illness, midwifery, infectious fevers, and chronic sick; a pathological laboratory and radiological department; and a hostel for children of local women admitted as patients. The key hospital would be a complete functional replica of the medical centre, and would resemble in its internal organization a voluntary hospital. Like the Commission, the Research recommends the setting up in every hospital of a committee of the medical staff, but the latter would include representatives of juniors and even of clinical students. It does not favour special hospitals, save the relative few which would act as national centres for postgraduate teaching and research.

As for staffing, all senior appointments should be advertised, the primary selection should be made by the medical committee of the key hospital concerned, and the final appointment by a board composed of members of the regional advisory committee and of specialists in the subject, with, possibly, additional assessors. Junior appointments should be recommended by the medical committee and confirmed by the regional office. It is laid down that no member of the senior staff should be confined to out-patient work, or, indeed, to work at the medical centres or to domiciliary consultation, and none should be free from it.

Senior staff should have the option of part-time or whole-time appointment, and part-time officers should be permitted privately to see "uninsured patients."[1] It is thought that if such consultations are permitted at hospital "the pseudo-consultants will be left alone in Harley Street, which will soon cease to have any cachet." Remuneration for whole-time seniors: £1,500 to £2,000; those serving three-quarter time, two-thirds of the whole-time salary; those serving half-time, one-third of the salary. This reduced basis is suggested because men are likely only to choose part-time work if they see a prospect of greater earnings. For junior appointments little alteration in the present procedure is proposed.

Finally, there is the question of the "social doctor" or medical officer of health, who, it is thought, should operate from an office in each medical centre over an area covered roughly by the attached group of health centres. In addition to his preventive work, he will organize vital statistics and medical intelligence service, incidentally taking over the function of the registrar and receiving all notifications of births, marriages, and deaths. His present duties with regard to food and drugs, housing, and sanitation will continue, and his conditions of service will be identical with those of senior officers at key hospitals.

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[1] All persons will be insured under the scheme. This reference apparently relates to a provision whereby persons earning over £500 a year will be permitted to opt out of one-eighth of their contribution, and become no longer entitled to medical benefit—one way of preserving a remnant of private practice.

WEEKLY POSTGRADUATE DIARY

British Postgraduate Medical School, Ducane Road, W.—*Daily*, 10 a.m. to 4 p.m. Medical Clinics, Surgical Clinics and Operations, Obstetric and Gynaecological Clinics and Operations. *Daily*, 1 30 p.m. Post-mortems *Mon.*, 2 p.m., Ear, Nose, and Throat Clinic. *Tues.*, 10 a.m., Paediatric Clinic; 11 a.m., Gynaecological Clinic; 2 p.m., Genito-urinary Clinic *Wed.*, 11 30 a.m., Medical Conference. *Thurs.*, 2 15 p.m., *X*-ray Demonstration on Radiology in Pregnancy, by Dr. E. J. E. Topham; 3 p.m., Dermatological Clinic. *Fri.*, 12 15 p.m., Surgical Conference; 2 p.m., Gynaecological Conference; 2 p.m., Sterility Clinic.

Fellowship of Medicine, 1, Wimpole Street, W.—*West End Hospital for Nervous Diseases:* Tues and Fri., 3 p.m., M.R.C.P. course in neurology. *King Edward Memorial Hospital:* Sun., 10 a.m. to 12 noon, F.R.C.S. clinical and pathological course (limited to 6) *London Homoeopathic Hospital:* Wed afternoon, F.R.C.S. clinical demonstration (limited to 6) *Hillingdon County Hospital:* All day Sat and Sun., March 13-14. F.R.C.S. week-end course in clinical surgery (limited to 10) *National Hospital for Diseases of the Heart:* Tues and Wed., 10 a.m., Out-patient clinics

Edinburgh Postgraduate Lectures.—At Edinburgh Royal Infirmary, *Thurs.*, 4 30 p.m. Dr. A. F. Hewat: Spontaneous Pneumothorax

DIARY OF SOCIETIES & LECTURES

Royal Society of Medicine.—*Tues.*, 2.30 p.m. Section of Psychiatry; 5 p.m. Section of Therapeutics and Pharmacology. *Wed.*, 2 30 p.m. Section of Proctology, at St. Mark's Hospital, City Road, E.C. *Fri.*, 2 30 p.m. Clinical Section, at London Hospital; 2 30 p.m. Section of Ophthalmology

B.M.A.: Branch and Division Meetings to be Held

Belfast Division.—At Whitla Medical Institute, Belfast, Thurs., March 11, 4 15 p.m. Consideration of the motion on the Beveridge report published in the *Supplement* of Feb. 13, and instruction of Representatives to Special Representative Meeting on March 31.

Brighton Division.—At Royal Pavilion, Brighton, Sun., March 7, 3 p.m. Consideration of the motion on the Beveridge report published in the *Supplement* of Feb. 13, and instruction of Representatives to Special Representative Meeting on March 31 At Lady Chichester Hospital, Hove, Thurs., March 11, 3 p.m. Clinical meeting

Chester Division.—At Royal Infirmary, Chester, Sun., March 7, 4 p.m. Agenda: To consider the attitude of the profession to the Medical Clauses of the Beveridge report. Medical men and women serving in the Forces are cordially invited to attend.

East Suffolk Division.—At East Suffolk and Ipswich Hospital, Ipswich, Wed., March 10, 3 30 p.m. Agenda. Consideration of the motion on the Beveridge report published in the *Supplement* of Feb. 13, and instruction of Representatives to Special Representative Meeting on March 31, etc. All practitioners in the area of the Division are invited to attend.

Glasgow and West of Scotland Branch.—At Institution of Engineers and Shipbuilders in Scotland, 39, Elmbank Crescent, Glasgow, Tues., March 9, 3 30 p.m. Prof. J. M. Mackintosh. Medicine and Town Planning.

Isle of Wight Division.—Joint meeting with Isle of Wight L.M. and P. Committee at Unity Hall, Newport, Wed., March 10, 3.15 p.m. Agenda: Consideration of the motion on the Beveridge report published in the *Supplement* of Feb. 13, and instruction of Representatives to Special Representative Meeting on March 31, etc.

Westminster and Holborn Division.—At B.M.A. House, Tavistock Square, W.C., Thurs., March 11, 5 p.m. Agenda: Consideration of the motion on the Beveridge report published in the *Supplement* of Feb. 13, and instruction of Representatives to Special Representative Meeting on March 31, etc. All practitioners in the area of the Division are invited to attend.

TOWELS FOR DOCTORS

Doctors may now claim, for professional purposes only, a special ration of towels for the period to Dec. 31, 1943. The special ration is four coupons. These are available to specialists, consultants, and general practitioners in private practice, but not to doctors working in institutions or under local authorities, since towels will be provided for them by their employers. Practitioners are particularly urged not to apply for their ration until new towels are genuinely needed.

This special ration will be issued in the form of a coupon-equivalent towel certificate and will be available on and after March 8, 1943. Application should be made to the Secretary, British Medical Association, B.M.A. House, Tavistock Square, London, W.C.1. Envelopes should be marked "Towels" in the top left-hand corner, and a stamped addressed envelope *must* be enclosed with each application, otherwise *no* reply will be sent. There may be cases where owing to the size or nature of his practice a doctor may find that, however economical he is, it is impossible for him to manage on the ration allowed. Where this is so a case for special consideration may be stated to the following: in England, the Regional Medical Officer; in Scotland, the Department of Health for Scotland, St. Andrew's House, Edinburgh, 1; in N. Ireland, the Medical Officer, Ministry of Home Affairs, Stormont, Belfast. The supply of towels is now so limited that members of the public must use their own towels more and more and not rely on other people providing them—for example, patients who receive treatment in their own homes or by appointment at surgeries or in private nursing homes will now be expected to provide their own towels.

BIRTHS, MARRIAGES, & DEATHS

BIRTHS

Gimpelson.—On Jan. 13, 1943, at the Lindo Wing, to Lucie (*née* Moskovitz), wife of Lieut. Harry Gimpelson, R.A.M.C. (missing at sea since Dec 6/7, 1942), a daughter—Susan Jill.

Harper.—On Feb 23, 1943, at Hughenden, Limpsfield, Surrey, to Barbara (*née* Pocock), wife of Major Ernest H. C. Harper, F.R.C.S., R.A.M.C. (N. Africa), a daughter.

Jain.—On Feb. 27, 1943, at Claremont Nursing Home, Birmingham, to Grete, wife of Dr. L. R. Jain, a son

McCall.—On Feb. 25, 1943, at Stoke-on-Trent, the wife of Dr. A. J. McCall, twin daughters

Moorhead Hamilton.—On Feb 23, 1943, to Cecily (*née* Brown Kelly), wife of Surg. Lieut.-Cmdr. W. Moorhead Hamilton, R.N., a daughter

DEATHS

Tasker.—In November, 1942, through enemy action at sea, Ronald Henry Tasker, M.R.C.S., L.R.C.P., of the Burmah Oil Company, husband of Mrs. Dorothy Tasker, 5, Darlington Place, Bath, Somerset.

Watterson.—On Feb. 18, at 341, Marine Road, Morecambe, John William Watterson, M.B., C.M.(Edin.), J.P., C.A., Freeman of the Borough of Morecambe and Heysham, in his 80th year.

SUPPLEMENT TO THE

BRITISH MEDICAL JOURNAL

LONDON SATURDAY MARCH 13 1943

GENERAL MEDICAL COUNCIL

DISCIPLINARY INQUIRIES

A special session of the General Medical Council was held on February 17 and 18, and in private on February 19, principally to consider certain penal cases which had been left over from the November session. The only other business was the consideration of a memorandum of evidence proposed to be offered to the Inter-departmental Committee on Medical Schools (the Goodenough Committee); this took place *in camera*. Mr. H. L. Eason presided.

Misleading Certificate: Erasure

The first case was that of James Jackson Brown, registered as of Lauriston Road, South Hackney, who was summoned on the charge that he gave the following certificate for use by the person named in connexion with his call-up under the National Service (Armed Forces) Act, 1939:

> "I hereby certify that Mr. [A. B.] of . . . has been a patient under my care for on 2 years. He then had a severe attack of influenza which left him in the post-encephalitic state."

The certificate was dated May 9, 1940, and it was alleged that the patient had not been under Dr. Brown's care for any such period, that the certificate was untrue, misleading, or improper within the meaning of the Council's Warning Notice, and that it was given in order to enable A. B. to evade his liabilities under the Act. Mr. Gerald Howard, K.C., who appeared on behalf of the complainants, the Ministry of Labour and National Service, said that A. B. was a healthy-looking man aged 28, who got into touch with a man named Pell, who said he would assist him to evade military service. Pell took him to Dr. Brown, who handed Pell a letter containing presumably the certificate which was the subject of the charge. On May 10 the medical board placed him in Grade 4, but he was re-examined on July 26 of the same year and placed in Grade 1 and was now a corporal in the Army.

A. B. in evidence said that Pell agreed to help him to evade service, and said that the cost would be £250, which was paid. Pell told him to act as if he was ill, suffering particularly from giddiness. He was sent by Dr. Brown to see a specialist, Dr. Brady, before whom he also acted, and the specialist made a report which was enclosed with the certificate. The witness said that Dr. Brown did not examine him; but later, under cross-examination, he said that he took a specimen of urine, also that he used a stethoscope. He could not recall that he had seen Dr. Brown before this incident. It was true that he had had an attack of influenza two or three years previously, when three doctors attended him, but he could not say that one of them was Dr. Brown.

Mr. Pereira, instructed by Le Brasseur and Oakley, on behalf of the London and Counties Medical Protection Society, appeared for the respondent, and in answer to his questions Dr. Brown said that when Pell, whom he had known for 20 years, brought this patient to him he did not recall having seen him before. Pell, however, assured him that he had treated this young man two years previously for influenza, and he accepted that assurance and did not look up his records. His records had since been destroyed by enemy action, but they were available at that time (May, 1940). He could find nothing wrong with A. B. except that he appeared to be "daft"; he thought that his previous influenza might have affected his brain, and he sent him to a specialist before giving the certificate. He added that a few months later Pell brought him other similar patients, but he refused to have anything to do with them because he had become suspicious of the business.

Mr. Pereira put in two statutory declarations from medical men testifying to Dr. Brown's high character. He mentioned that Dr. Brown was a native of Jamaica and not fully conversant with the English language. This explained the curious wording of the certificate. The phrase "for on two years" simply meant "about two years ago"; it was not intended to imply that A. B. had been under his care for two years. The certificate admittedly was misleading, but it was not intended to mislead. He pointed out some inconsistencies in the statement of A. B., who had said that he had acted in front of Dr. Brown, though not to the same extent as he had done before Dr. Brady. But if there was, as alleged, a conspiracy between Dr. Brown and A. B. to deceive the authorities any such acting in front of the former would be a mere farce.

The Council considered the case *in camera*, and on the public session being resumed the President announced that the Council had found to be proved the fact that Dr. Brown had certified that A. B. had been a patient under his care for about two years before May, 1940, whereas in fact he had not been under his care for any such period, that he did not make any proper professional inquiries before giving the certificate, that the certificate was untrue, misleading, and improper, and that it was given for the purpose of enabling A. B. to evade his liabilities under the National Service (Armed Forces) Act. In respect of the facts so proved, the Council had judged Dr. Brown to have been guilty of infamous conduct in a professional respect, and had instructed the Registrar to erase his name from the *Medical Register*.

A Questioned Certificate

The Council considered the case of Arthur Hilary Clifton Hill, registered as of the Croft House, Rocester, Staffordshire, who was summoned on the charge that in May and June, 1942, he gave six weekly certificates in relation to the duties of an aircraftwoman, stating in each of them that she was suffering from injury to the forearm and was unable to return to her unit, adding in four of the certificates that she was "unfit to travel," whereas on the dates concerned she was not unable to return to her unit nor unfit to travel. The complainants were the Air Ministry. Dr. Hill was represented by Mr. A. Pereira, instructed by Le Brasseur and Oakley, on behalf of the London and Counties Medical Protection Society.

Mr. Winterbotham, the Council's solicitor, said that the aircraftwoman concerned had been, since she was a child, one of Dr. Hill's patients. While home on leave in May, 1942, she injured her forearm, and on the following day was attended by Dr. Hill, who sent her to the Royal Infirmary at Derby for an *x*-ray examination; the radiograph showed that no bone was broken. Dr. Hill continued to give certificates from May 4 to June 8, always mentioning the arm injury as the cause of her disability, but, so far from being unfit to travel, she married and went away on a short honeymoon during this period.

Evidence was given by the aircraftwoman, Mrs. A., who said that she was a member of the W.A.A.F. from March, 1941, until December, 1942, when she was discharged on medical grounds. While at home on leave in May, 1942, she injured her arm, and went to Dr. Hill, who sent her to the hospital at Derby and on her return gave her the first of the certificates to send to her commanding officer. She agreed that on May 25 she undertook an hour's journey in a train, although on that day she had received another certificate stating that she was unable to return to her unit. She had been a patient on Dr. Hill's panel list for some years, and he had attended her in childhood. During the latter part of her leave on this occasion she developed influenza and laryngitis, for which Dr. Hill also treated her, and which accentuated and prolonged her arm disability. She was all the time "more or less run down," and on eventually returning to her unit she was placed in sick quarters for a week, was never placed on full duty again, and was discharged on medical grounds six months later.

Dr. Hill, in the witness box, said that this girl had been his patient during the whole of the time he had been in Rocester. There was a former history of injury to the wrist sustained at school, and for this she attended at Derbyshire Royal Infirmary over a period of six or seven months. When she came to him for the further injury to the same wrist sustained while on leave, the wrist appeared to be very swollen and painful, and she was herself in a very collapsed state. He suspected a fracture and sent her for *x*-ray examination. The report was that she had no bone injury. The arm was placed in elastoplast. He gave her a certificate stating, what was his candid opinion, that she was unfit to travel. Later she had an influenzal chill and laryngitis, and although the arm trouble was improving this delayed her recovery. He fully agreed that he ought to have been more explicit in the certificates and to have said during the later part of the time that she had the influenzal condition, but without thinking, and in the stress of a busy practice, he had continued to give the certificates in the old phrasing. He fully believed that the girl was unfit to make the somewhat difficult journey back to her unit, and if she did undertake journeys, apart from the visit to the hospital, it was without his knowledge and against his instructions. He was not aware that she had been married while undergoing this treatment. Two statutory declarations from medical men in the locality testifying to Dr. Hill's integrity and his care for his patients were put in.

The Council found the facts proved to their satisfaction. The President said that the Council took a serious view of the duty of every practitioner to take the greatest care over the signing of certificates, especially when they had to do with the service of the Crown in time of war. But the Council hoped the warning he had received in being summoned there to meet these charges would be sufficient to remind him in the future of the need for care in the substance of the certificates he wrote, and did not see fit to direct the Registrar to erase his name from the *Register*.

Convictions for Misdemeanour

In the case of James Stewart Macdonald, registered as of Dixon Avenue, Glasgow, who was summoned in respect of two convictions of driving or being in charge of a motor vehicle whilst under the influence of drink, the Council postponed judgment until May, 1944, and said that Dr. Macdonald (who was legally represented but did not personally attend on this occasion) must then be present.

Alan Gray, registered as of Windermere Road, Carlisle, was summoned on the charge that he had been convicted in December last at Greenwich police court of being under the influence of drink while in charge of a car, and, at the same court, of having failed to appear in accordance with a recognizance. Dr. Gray admitted the offence, and pleaded a great deal of domestic trouble at the time, after having been invalided from the Army. The Council found the conviction proved, and ordered the erasure of Dr. Gray's name from the *Medical Register*. Dr. Gray asked whether he could apply for restoration at some future date. The President replied that, in accordance with standing orders, he could apply for reinstatement at any time.

In the case of Walter Campbell, registered as of Jeffrey Street, Edinburgh, who was summoned following a conviction of being in charge of a motor car while under the influence of drink, the Council postponed judgment until May, 1944.

In the case of Donald McGregor Stewart, registered as of Nantymoel, Glamorgan, who appeared following convictions for defiling a wall with urine in a certain public place and, on another occasion, of using indecent language in a public place, the Council also postponed judgment until May, 1944. In this case Mr. A. Pereira, counsel defending the practitioner, made a strong protest against the Council's solicitor, reading to the Council, in presenting the facts of the case, a statement by the police. He said that not the same objection could be taken to a report in a reputable local newspaper, but a police statement was probably nothing more than an extract from a policeman's notebook. The Council, however, allowed the statement to be read.

The Council dismissed a case against Andrew Dorset Harper, registered as of Five Ways, Torquay, who had been found guilty by a general court martial of having absented himself without leave for ten days from the first depot and training establishment of the R.A.M.C.

Felony and Misdemeanour: Erasure

The Council considered the case of Francis Percival de Caux, registered as of Green Street, London, W.1, who had been convicted at the Central Criminal Court in September last of unlawfully using an instrument, or some other unknown means, with intent to procure the miscarriage of eight women, and of conspiring with other persons with intent to procure the miscarriage of a woman. He had been sentenced to five years' penal servitude in respect of the first offences, and two years' imprisonment in respect of the conspiracy, the sentences to run concurrently. Dr. de Caux did not appear, and it had been ascertained from the governor of the prison that he did not wish to attend. The Council instructed the Registrar to erase the name of Dr. de Caux.

E.M.S. PATHOLOGISTS' FEES

On Jan. 16 we published in the *Supplement* (p. 10) the new scale of fees payable to pathologists in the E.M.S. When the Pathologists Group Committee of the B.M.A. met recently it adopted the following resolution:

> That the committee accepts the unusually low unit scale of fees provided for in Circulars 2394 and 2752 in a spirit of contribution to the war effort and emphasizes the fact that these low fees are not intended to apply to work done either for local authorities or for those patients for whom the schedule of fees for pathological work for insured persons and their dependants has hitherto been found to be appropriate.

CERTIFICATES FOR PRE-NATAL ALLOWANCES

The attention of the B.M.A. was recently drawn to the fact that War Office Regulations demanded that the certificate accompanying applications for pre-natal allowance made by the wife of a Service man must be signed by a medical practitioner. The Association, realizing the additional burden thus thrown on the doctor, pointed out to the War Office that this was a case in which the signature of a certified midwife might well be accepted. The following letter has now been received from the War Office, dated Feb. 10, 1943:

> ". . . I am directed to inform you that approval has now been given for the signature of a State-certified midwife to be accepted on the certificate accompanying the application by the wife of a Service man for pre-natal allowance"

The Home Office announces that Dr. Miraj ud Din of Birmingham is not authorized to be in possession of and to supply any drug or preparation to which the Dangerous Drugs Regulations, 1937, or the Raw Opium, etc., Regulations, 1937, apply.

POSTGRADUATE NEWS

The Fellowship of Medicine announces a revision course in anaesthetics, daily, from April 5 to 17. Lectures daily at Royal Cancer Hospital, Fulham Road, S.W. 3 p.m. and 4 30 p.m., and practical demonstrations at various London hospitals

WEEKLY POSTGRADUATE DIARY

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane Road, W—*Daily*, 10 a m. to 4 p m , Medical Clinics, Surgical Clinics and Operations, Obstetrical and Gynaecological Clinics and Operations *Daily*, 1.30 p m., Post-mortems *Mon.*, Course on the Surgical Care of the Soldier in Training begins; 2 p.m., Ear, Nose, and Throat Clinic. *Tues.*, 10 a m., Paediatric Clinic; 11 a.m., Gynaecological Clinic; 2 p m , Genito-urinary Clinic. *Wed.*, 11.30 a.m , Medical Conference. *Thurs*, 3 p m., Dermatological Clinic *Fri.*, 12 15 p m., Surgical Conference; 2 p m , Gynaecological Conference; 2 p m., Sterility Clinic.

FELLOWSHIP OF MEDICINE, 1, Wimpole Street, W—*West End Hospital for Nervous Diseases:* Tues. and Fri., 3 p m M R C P course in neurology. *London Homoeopathic Hospital* · Wed afternoon, F R C S clinical demonstrations (limited to six). *Royal National-Orthopaedic Hospital* · Sat , March 20. F.R C S orthopaedic course (limited to six) *National Hospital for Diseases of the Heart;* Tues. and Wed , 10 a m , out-patient clinics. *Radcliffe Infirmary:* Daily lectures and demonstrations, Revision course in anaesthetics.

ROYAL NATIONAL THROAT, NOSE AND EAR HOSPITAL, Gray's Inn Road, W C.—*Fri* , 4 p m Mr J. D. McLaggan. Chronic Suppurative Otitis Media.

DIARY OF SOCIETIES & LECTURES

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S W.—*Tues.* and *Thurs* , 2 15 p m Lumleian Lectures by Dr. G Evans: Arteriosclerotic Disease.

ROYAL SOCIETY OF MEDICINE —*Tues.*, 4 30 p m Section of Pathology *Thurs* , 4.30 p m Joint Meeting of Sections of Dermatology and of Physical Medicine; 4 30 p m. Section of Neurology *Friday*, 3 30 p m. Section of Obstetrics and Gynaecology; 4.45 p m Section of Radiology

CHADWICK TRUST —At 26, Portland Place, W., *Tues* , 2 30 p m Dr. R. Cruickshank: Some Post-war Problems in the Control of Infectious Diseases

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W—*Mon* , 5 p.m Discussion: Diagnosis and Treatment of Malignant Growths of the Lungs. To be introduced by Dr. Geoffrey Marshall, Mr. R C Brock, and Dr F MacDonald Allchin.

B.M.A.: Branch and Division Meetings to be Held

INVERNESS-SHIRE DIVISION.—At Royal Northern Infirmary, Inverness Sat , March 13, 3.30 p.m Agenda: Consideration of the motion on the Beveridge report published in the *Supplement* of Feb 13, and instruction of Representatives to Special Representative Meeting on March 31, etc. All practitioners in the area of the Division are invited to attend.

NORTH OF ENGLAND BRANCH.—At Royal Victoria Infirmary, Newcastle-upon-Tyne, Thurs., March 18, 7 15 p m. Clinical demonstrations in the Out-patient Department. Address by Prof. J Chassar Moir: The Diagnosis of Pelvic Contractions All members of H M. Forces serving in the area of the Branch are invited to attend

WILLESDEN DIVISION.—At Willesden General Hospital, Sun , March 14, 10 45 a m Agenda: Consideration of the motion on the Beveridge report published in the *Supplement* of Feb. 13, and instruction of Representatives to Special Representative Meeting on March 31, etc. All practitioners in the area of the Division are invited to attend

BIRTHS, MARRIAGES, & DEATHS

The charge for inserting announcements under this head is 10s. 6d This amount should be forwarded with the notice, authenticated with the name and address of the sender, and should reach the Advertisement Manager not later than first post Monday morning to ensure insertion in the current issue.

BIRTH

LIDDELL-MILLIGAN.—On March 5, 1943, at Livingstone Memorial Hospital, Dartford, Kent, to Gwen (*née* Higgs, late Sister, P M.R A F N S.), wife of Dr W Liddell-Milligan, St George's Hospital, Morpeth, a son.

DEATH

BODLEY.—On Feb 28, 1943, Dr. Alfred Lang Bodley, surgeon, of West Bromwich, after a long illness, aged 52 years.

SUPPLEMENT TO THE

BRITISH MEDICAL JOURNAL

LONDON SATURDAY MARCH 20 1943

INSURANCE ACTS COMMITTEE OF THE B.M.A.

A meeting of the Insurance Acts Committee was held on February 25, under the chairmanship of Dr. E. A. GREGG. Sitting first as trustees of the National Insurance Defence Fund, they authorized expenditure from the Fund of an amount not exceeding £2,500 in one year for propaganda purposes. On the question of the proposed increase of the target to one million, the chairman said that money was wanted, in all probability "lashings" of money, and this was the time to start to get it. The benefit would be reaped more especially by the younger men—their sons and junior colleagues—but he hoped that older practitioners who had already subscribed for many years would continue to do so.

The Beveridge Report

The committee then considered the recommendation which the Council of the Association proposed to submit to the Special Representative Meeting called for March 31. It was noted that the recommendation, which was drafted, of course, before the recent debate on the Beveridge report in Parliament, made the Association's willingness to co-operate conditional upon the acceptance of the assumptions and proposals of the Beveridge report "taken as a whole," whereas the Government had not taken them as a whole: it had adopted parts of the scheme, rejected others, and had said nothing about many more. The chairman pointed out that if the Government had picked out of the scheme the proposals for a comprehensive medical service and had left the rest alone, the position would have been fundamentally altered; but he did not interpret the recommendation as meaning that every detail suggested in the report must be accepted before the recommendation became operative. There did not seem to have been a departure of such a character as to justify the abandonment of the recommendation, but it would be for the Representative Meeting and Panel Conference called for the same date to amend the recommendation, if desired, in the light of what the Government had announced.

The Secretary (Dr. Anderson) reported that he had received a letter from the Secretary of the Ministry of Health asking for the appointment of representatives of the profession to consult with the Minister on future medical services. The Association Executive had drawn up a list of those who would meet the Minister on March 9 to hear what he had in his mind. This would be a preliminary meeting only, and a report would be made to the Joint Conference on March 31. The body to represent the profession for this purpose on March 9 included the principal officers of the Association, the chairmen of the I.A.C. and of the Panel Conference, the chairmen of several of the Association committees, representatives of the Royal Colleges, the Society of Medical Officers of Health, and the Medical Women's Federation, and others, as well as certain additional representatives in the event of the conversations covering Scotland. Ten of the persons on the list were general practitioners, seven of whom were members of the I.A.C.

The committee had before it a communication which the Hampshire Local Medical and Panel Committee had addressed to peers and members of Parliament in its county; it consisted of resolutions passed by the committee declaring that the proposal for a free medical service as outlined in the Beveridge report was prejudicial to the interests of the medical profession. The I.A.C. agreed that a letter be sent to the Panel Committee concerned and to all Panel Committees deprecating individual action of this kind without consultation.

The Capitation Fee

The chairman reported that at the last meeting of the Council he had explained the circumstances under which the application for a wartime increase in the insurance capitation fee had been made and its rejection by the Minister. Two members of the Council who were consultants, one of whom said that he had never spoken in the Council on insurance matters before, proposed and seconded a resolution, which was carried, deploring the Minister's rejection of this entirely reasonable and justifiable claim. A letter which the Executive Committee had sent to the Minister recapitulating the main points of the argument, and expressing regret at his decision, which, it said, it could not regard as final, was approved by the full committee. The consideration of a proposal that a request be now made for arbitration was postponed until the next meeting of the committee.

Correspondence with the Minister

The following is the text of correspondence with the Minister of Health, following a deputation from the I.A.C. on Jan. 4:

Letter from the Minister of Health, dated Jan. 20, 1943

"I have been thinking over the representations made to me by the deputation from the Insurance Acts Committee of the British Medical Association, which called on me on Jan. 4, and in your subsequent letter of Jan. 8.

"The deputation stressed again the 'shift of risk' among the insured population brought about by war conditions accompanied as it has been of late by an increase in short-term sickness. You will remember that in my reply I said that the increase of the work of doctors caused by these circumstances was recognized and taken into consideration when my previous decision was conveyed to you on Oct. 17 last. Some measure of that increase has, as you know, now become available and you refer to this in your letter of Jan. 8. It does not, however, appear to me that the ascertainment of the increase affects my argument that it is contrary to Government policy, in such circumstances, to recognize additional work as establishing a case for what is in effect a war bonus, and I regret that I cannot vary the decision already communicated to you.

"I have fully considered the suggestion that the additional remuneration should be given by way of a post-war credit, but I am afraid that this offers no solution. A postponement of the payment does not affect the general principle which, as I have already indicated, the Government have felt bound to adopt.

"The deputation stressed the importance of the Protection of Practices Scheme as a valuable aid in the recruitment of doctors for the Forces. While I recognize the value of that scheme, I do not think that it creates a situation in which I could properly ask that the Government's general policy should be altered in this particular instance.

"As stated in the previous letter of Oct 17 last, I regret having to come to this decision, which must, I fear, so long as present circumstances obtain, remain final"

Letter to the Minister of Health, dated Feb. 12, 1943

"The Insurance Acts Committee has considered your reply of Jan. 20 to the representations made to you in recent months, and in particular to the representations made to you on Jan. 4 and in the Secretary's subsequent letter of Jan. 8.

"In your reply you rightly state that the deputation stressed again the shift of insurance risk among the insured population brought about by war conditions, though you go on to state that these circumstances were recognized and taken into consideration in your letter of Oct. 17 last. The committee has re-examined your letter of Oct. 17 and can find no recognition or admission of the fact that there had been an increase of work as the result of a shift of insurance risk. Indeed, your letter of Jan. 20 is the first frank admission of the fact of increased work, an admission which you could hardly fail to make in view of the statement of the Government actuary, which was made known to us only at the end of our meeting with you on Jan. 4.

"The committee did and does stress this point as being the main basis of its claim. Insurance doctors are participating in an insurance medical service, and when the insurance risk so shifts, as the result of war circumstances, as to increase the burden of work falling upon them they are justified in claiming a proportionate increase in their remuneration. The committee is not satisfied that you have in fact given any weight whatever to this argument, which is now admitted by you for the first time to be sound Having admitted it, you go on to assert what appears to the committee to be a statement regarding Government policy which is inconsistent with the facts So far from it being an axiom of Government policy that increased work should not be rewarded by increased pay, it is the widespread practice in this country, by undertakings both Governmental and commercial, to give such increases or make them possible, as, for example, by overtime payments or piecework rates.

"When you put forward the argument that it was contrary to Government policy to award cost-of-living bonuses to the higher income groups we did not demur to your statement, unwelcome though it was But when you extend the argument so as to deny a group of men undertaking increased work as a result of wartime circumstances the remuneration which is their due, you interpret Government policy in a way suitable to your argument but inconsistent with its application throughout the country.

"The committee is not satisfied with your replies on the Protection of Practices issue, as what was proposed was not an alteration of the 'Government's general policy' but an application of it.

"In the latter part of the Ministry's letter of Oct. 17 it is stated that it is desired to assure the committee 'that the decision will in no way prejudice future discussions which the Department may have to enter into on wider matters affecting the medical profession.' In actual fact, this decision, by accentuating the dissatisfaction of a large body of general practitioners with the remuneration of the service for which you are responsible, will inevitably affect the attitude of the medical profession as a whole in future negotiations.

"That the attitude of the Insurance Acts Committee is shared by the profession as a whole is evidenced by the following resolution passed by the Council of the British Medical Association at its meeting on Feb. 3:

> "'That the Council deplores the rejection by the Minister of Health of the reasonable and justifiable application by the Insurance Acts Committee for a war-time increase in the insurance capitation fee.'

"You know perfectly well that the Insurance Acts Committee is deterred by considerations of national interest from advising insurance practitioners to withdraw from their insurance contracts at present. But for such considerations of national interest the Insurance Acts Committee would, indeed, advise that step, so deep and so widespread is the dissatisfaction within our ranks. The committee cannot escape the conclusion that you are taking advantage of the public-spirited attitude of insurance practitioners in this matter.

"The committee cannot regard your decision as final, and is now considering what other steps it should take."

Reply from Minister of Health, dated March 5, 1943

"Mr. Brown has asked me to write to you in reply to your letter of Feb. 12 about the capitation fee under the National Health Insurance Acts. Mr. Brown has been thinking over what you say in your letter, but he had had in mind all the considerations you set out when he wrote his letter of Jan. 20 to Dr. Anderson, and, as he said at the end of that letter, the decision which it conveyed must be regarded as final."

The Insurance Acts Committee is considering the next step.

Other Matters

A report was made on a number of matters which had lately been the subject of conversation with representatives of the Ministry. Sympathetic consideration had been promised by the Ministry of a proposal to grant sickness benefit to an insured woman who, during the last weeks of pregnancy, was certified to be unfit for work on account of pregnancy alone. Another question raised was as to the amount included in the Central Practitioners' Fund in respect of juvenile contributors and generally as to the constitution of the Juvenile Deposit Contributors Fund. It was stated that the Government actuary was preparing a memorandum on the subject.

On a communication from one of the Group Committees urging that every endeavour should be made to keep doctors on Service fully informed of all important decisions and of negotiations affecting practitioners, the chairman said that this was the full intention of the committee so far as lay in its power. The obvious medium for such information was the *Supplement*.

After inquiry on a representation by the West Ham Insurance Committee the Minister of Health has decided not to remove the name of Dr Dinshaw Framroze Tarapore of 11, Forest Road, Forest Gate, E.7, from the medical list of the insurance committee Dr. Tarapore is to pay £20 towards the costs of the committee

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PLANNING FOR RADIOLOGY

The Faculty of Radiologists, eager to ensure the proper equipment of and opportunity for radiology among specialist services in future medical planning, has put forward in two pamphlets its recommendations for the distribution and organization of radiotherapeutic centres in Great Britain and also for the provision of a radiodiagnostic service.

Treatment Centres

For radiotherapy the Faculty urges the aggregation of small departments into large centralized units. The many advantages of such aggregation include the maximum use of specialists and the improved facilities for training in the subject. Clinical progress in radiotherapy would also be assisted by close association of the department with a large medical centre. The desirable unit to aim at is a department capable of treating 1,000 new cancer cases per annum. This number might be expected to be forthcoming, in the absence of any other treatment centre, from a population of 2,000,000. The staff of such a unit should include five radiotherapists, two physicists, eleven technicians (including specially trained nurses), together with clerks, almoner, and ordinary nurses. It should have at its command seven *x*-ray therapy plants, of which at least four should be for deep therapy, and two grammes of radium, made up in tubes and needles, excluding beam unit radium. The number of beds should be at least 65.

It is considered that London, with the Home Counties and Sussex, with a population of 12,500,000, should have six such radiotherapy departments. At the present time there are at least 30 hospitals in London which claim to provide a radiotherapeutic service, but even among the teaching hospitals there are few with radiotherapy departments approaching the standard here laid down. The various teaching and cancer hospitals in the London area are therefore brought into six suggested groups for this purpose. In the Provinces the greater part of the country could be served by a department, specialized hospital unit, or control organization for each of the ten teaching schools. In some areas, such as Devon and Cornwall, centres apart from medical schools might be necessary. The main radiotherapeutic centres in Scotland should be at Edinburgh, Glasgow, Dundee, and Aberdeen.

Radiodiagnostic Services

For diagnostic clinics different considerations apply. These clinics should be numerous and cover an area systematically. At present there are between 800 and 900 *x*-ray diagnostic departments in hospitals in England and Wales, but efficiency is not achieved unless the department is under the supervision of an experienced radiologist of consultant status. Every department should have at least one properly trained radiographer working under the radiologist; the services of a whole-time man or woman could be utilized in any department having a turnover of 2,000 cases a year. Departments in key hospitals should be equipped completely and be able to undertake the most difficult types of work. Intermediate hospitals should be able to handle all routine general radiological work. In cottage hospitals equipment should vary according to locality; if they are near larger hospitals they need be equipped only with small apparatus suitable for casualty work. A questionary recently addressed to its members by the Faculty showed that an overwhelming majority was in favour of payment by salary for hospital work, and there was a large majority in favour of concentrating all *x*-ray diagnostic work, including private work, in hospital. Only a small minority preferred a whole-time salaried hospital appointment without the right to see private patients.

In the view of the Faculty radiologists should be appointed by the regional body controlling and co-ordinating hospital services and should be appointed to the region, although in practice divisions of the region would make their own appointments and submit them for approval. The staffing of the regional scheme should be such that divisional hospitals could serve those hospitals in the division too small to support a radiologist of their own. It is regarded as of critical importance that properly trained and qualified radiologists should run the service, and the Faculty welcomes the suggestion that a joint committee of the Royal Colleges should decide on consultant status.

BOOKS FOR PRISONERS OF WAR

The B.M.A. has arranged for gifts of medical books to be sent to certain camps and hospitals for prisoners of war in Germany where numbers of its members are known to be. Little exact knowledge, however, is available of the special needs of the various camps for medical literature. Individual prisoners who are members of the Association are therefore invited to write to the secretary, specifying the particular books which they would like to have, either for use in connexion with the medical care of fellow-prisoners or for the purpose of private study. The Association will gladly make every effort to supply their needs.

MEDICAL WAR RELIEF FUND

FORTY-THIRD LIST

Amount previously acknowledged—£48,300 19s 7d and £100 3½% Conversion Stock and £40 3% Defence Bonds

Individual Subscriptions

£10 10s.—Dr H F Hugo, Crediton (3rd donation).

£6 6s.—Dr C. M. Cusden, Iver (4th donation).

£5.—Lady Hurst, Chislehurst.

£2 2s.—Capt. N. Bickford, R.A.M.C. (7th donation); Dr. A MacFaul, Leigh, Lancs (2nd donation); Dr. E. Muriel F. McLean, London; Dr R. B. O'Brien, London.

£1.—Dr. A. L Cowan, Glasgow

£53 13s. 9d. ($240.00).—Canadian Medical Association (amount already sent, £1,433 18s. 10d); Saskatchewan Division, $40.00 (2nd donation); Tisdale Clinic, Saskatchewan, $50.00; Dr. J. A. Mathewson, Saskatchewan, $10 00; Brant County Medical Association, Ontario, $50.00; Victoria County Medical Association, Ontario, $50.00 (4th donation); Drs O. M. Irwin and R R. Stirrett, Saskatchewan, $25 00; Dr. H Levson, Saskatchewan, $15 00.

£10 10s.—Plymouth Division—per Dr. Mabel L Ramsay (amount already sent, £323 7s 6d); Mr H F. Vellacott (5th donation)

£2 2s.—Exeter and District practitioners—per Dr W. A. Robb (amount already sent, £205 2s); Dr D T. Mackie (2nd donation)

£1.—Lincoln Division—per Mr. G. A. Bagot Walters (amount already sent £327 11s); Dr T. W. A. Daman.

Local Medical and Panel Committees

£5.—Norfolk (3rd donation).

Total—£48,404 9s. 4d. and £100 3½% Conversion Stock and £40 3% Defence Bonds.

Cheques, payable to the Medical War Relief Fund, should be sent to Dr. G. C. Anderson, Honorary Treasurer of the Fund, British Medical Association House, Tavistock Square, London, W.C.1.

Correspondence

Unbacked Negotiations

SIR,—Unbacked negotiations are doomed to fail. At a recent A.R.M. deep-felt dissatisfaction with the result of the negotiations in respect of the capitation fee for N.H.I. was expressed, as well as criticism and censure of those who conducted the negotiations. The fact that these criticisms were misdirected does not diminish the prevailing spirit of discontent. We are now likely to be faced with more vital negotiations affecting the whole profession, and already there is a feeling of frustration and defeatism. I have heard such expressions as "the same old gang" used to indicate those likely to conduct the negotiations, and the expression "selling us to the Ministry" to show what is likely to be the result. Even supposing that the Council of the B.M.A. does appoint members out of touch with actual practice and remote from the periphery to represent us, are they entirely to blame if negotiations fail? Has the Association considered what would happen if we refused the terms offered? Surely this is the crux of the whole matter. Unless some scheme is prepared in advance to meet such an eventuality we are as powerless as, for instance, the Danes were before Hitler. If we refuse, what then? Now is the time to consider this.

The history of collective bargaining in this country has clearly established the right to strike, and the Labour Party should be the last to deny this necessary weapon. The idea of a doctors' strike is abhorrent to all doctors. It is inconceivable that we should deny our services to the sick and refuse to relieve their sufferings. Moreover we have no strike funds. But is this the only alternative? I think not. It should be possible to work out a scheme of fees to insured persons if the doctors resign *en masse* from the panel and Government service. Panel cheques are payable in arrear, so that every panel doctor would be entitled to a quarter's income on resignation for the work already done. This would provide a start. Fees would then be charged to all insured persons who could afford to pay, and this at the moment would include the vast majority. The rest would have to be treated for nothing, as has often been done before by our profession.

The resulting inconvenience and chaos affecting both patients and the Government would prove a formidable weapon. It might be argued that this is not the time to embarrass the Government, to which I would reply that this is also not the time to exploit the profession, and that it takes two to make a quarrel. The Government might attempt to stampede or defeat us by trying to introduce a whole-time service; but this could equally well be resisted by the same methods, and by "black-listing" all appointments in such a service. The "black-listing" of certain public appointments has in the past been one of the most successful efforts of our Association.

The success of any attempt to resist what we consider unjust terms would depend upon: (*a*) the efficacy of any alternative scheme, (*b*) the loyalty of the profession in backing the scheme, and (*c*) the support afforded by the public enlightened by a suitable campaign of information. To secure the greatest measure of support efforts should be made to draw up the scheme with other organizations of doctors, and to obtain their support so that a united front could be maintained. It might involve sacrifices on the part of doctors, but no battle can be won without sacrifices, and the miners and other workers have demonstrated that if members are determined and willing to accept sacrifices to secure justice much can be achieved. Can we expect such loyalty in our profession? Otherwise negotiation becomes a farce and the negotiators, however able, merely representatives to receive "the terms of surrender." It is a matter of the greatest urgency that our representatives should be fortified with the assurance that, if the terms offered are such that they cannot recommend their acceptance, an alternative to surrender does exist.

We must face facts and think rationally. It is thought that the medical service part of the Beveridge plan may be the only part to be adopted for a time. Why? Because the medical profession is easily coerced and is more easily tackled than some of the other and more powerful interests concerned with other parts of the plan. Surely this alone is the strongest indication of the weakness of our position in negotiation and the urgent need for remedying our defences. Now is the time to prepare a scheme or it will be too late. I am entirely in favour of the principle of the Beveridge report, and welcome its introduction provided that the broad plan is accepted (except for minor details) and that satisfactory terms and conditions are offered to the medical profession in return for their co-operation and surrender of certain private interests. My anxiety concerns the nature of the terms and conditions, and the weakness of our position in negotiation.—I am, etc.,

Hove. H. J. MCCURRICH.

State Service and Private Practice

SIR,—Surely it would be deplorable when we are fighting a war for democratic ideals that medical men should carry on a campaign to protect medical vested interests and encourage snobbery, lay and medical. I refer to section (*b*) of the motion to be considered at the B.M.A. Representative Meeting on March 31. We may say we are not intending to do any of these things, but the public won't believe us. I therefore appeal to those who will be present at the meeting at B.M.A. House to ponder well over this question, and to consider whether it might not be best for a great profession to throw in its whole weight to make the State scheme a great success, remembering that prevention of disease must be the prime endeavour—an endeavour which would not be greatly promoted by getting extra money for work outside the State scheme. Our brothers on the various fronts will think all the more of us at this critical time if we put the national interest above any private one.—I am, etc.,

E. H. M. MILLIGAN,
Glossop. M.D., D.P.H.

New Hospital Provident Scheme for Londoners

SIR,—In the paragraph under this heading (*Supplement*, Feb. 20, p. 27), after saying that members of the middle classes often find it difficult to meet the cost during illness of the private ward in a hospital or nursing home, you go on to say that there has been no provident scheme to enable them to insure against this. I am sure you will be glad to correct the error into which you have fallen, because for 21 years there has been in existence the British Provident Association, which has been doing this with a considerable amount of success—a success which would have been much greater if the medical profession had backed it as I always hoped they would. I was on its executive for some years, and it was very gratifying to see the way in which it was appreciated by many of the "new poor." And it lacks one disadvantage which the new proposed scheme has, that of being confined to the London metropolitan area. The B.P.A. also has the advantage over the new scheme that it does make a considerable grant towards preliminary consultation fees. It is a pity, I think, to ignore the good work that has been done by this body, and I should like to bring it to the notice of doctors not only in the London area but all over the country. They would find it of great help to a class of patients which wants to pay its way but would have difficulties without some such arrangement as this. The President of the B.P.A. is the Earl of Harewood, and the secretary Mr. T. Denman. Doctors who are interested would be well advised to write to 30, Lancaster Gate, London, W.2, for particulars. I am not writing this in any spirit of opposition to the new scheme. There is room for both.—I am, etc.,

London, W.C.1. ALFRED COX.

Planning by the Doctor's Wife

SIR,—I imagine that there are no women who live so closely in contact with, and whose private lives are so affected by, their husbands' work as G.P.s' wives. May we not therefore be allowed to help in planning for the future? As the wife of a man with a busy industrial practice, I have lived for many years among my husband's patients, away from my friends, in an area where it is impossible to send my children to school. I am fortunate in having a modern house, though we have only a very small garden, but many G.P.s are forced to live in large old houses, difficult and expensive to run, because in the areas in which they practise these are the only type having the necessary reception rooms. If our husbands were able to do their work at a health centre, it would then be possible for us to live, as do other professional men and their families, in pleasant surroundings where a normal social life is possible. Is it not time that we, as G.P.s' wives, insisted that we do not spend the rest of our lives living "over the shop"?—I am, etc.,

Birmingham. P. M. BEAUCHAMP.

The Monetary Value of Practices

SIR,—Much has been written in your columns for and against a fully controlled State Medical Service, and undoubtedly much has been learnt from the various arguments that have arisen. It appears to me that one vital point has been left practically undiscussed—viz., the fate of the doctor's practice as regards its monetary value. The majority of practices have been bought and years of hard work put in to pay off the debt incurred. This is, in most cases, the doctor's only asset.

I believe it has been suggested that the doctor in a State-controlled medical service should receive a pension on reaching an age limit. This is all very well, but would the pension, in the event of his predecease, be carried on to his widow and/or his dependants? It occurs to me that in the event of the adoption of a State-controlled medical service it should be made a condition of acceptance by the profession that existing practices are bought by the Government at the rate at present operated by the British Medical Bureau.—I am, etc.,

Braintree, Essex. L. C. J. EDWARDS.

Vaccination

SIR,—May I endorse what Dr. A. K. Thomas (*Supplement*, Feb. 20, p. 27) has written concerning the unsatisfactory state of affairs in public vaccination? In one way my experience has been happier than his. I also queried the potency of the lymph with which public vaccinators are obliged to work, and I received a very courteous reply from the director of the Government Lymph Establishment, who set before me the figures for the country as a whole and told me that the establishment had to be content if the rate of successful cases was 80% or over. I was able to point out that my own successes had been 100% with every batch which had shown 80% for the rest of the country. More recently I wrote again about my failures with batch 468 and was civilly informed that this had been unsatisfactory.

To be denied payment because of one's lack of success with faulty material is an irritating state of affairs. To be denied it because of failure in immune persons is maddening.—I am, etc.,

DONALD M. O'CONNOR.

UNUSED PETROL COUPONS

It is understood that doctors called up for military service often fail to return their unused petrol coupons. Doctors generally are reminded that any unused coupons should be returned to the Regional Petroleum Officer at the end of the rationing period or when a practitioner for any reason ceases to practise.

H.M. Forces Appointments

ROYAL NAVY

Surg. Lieut.-Cmdr. J. L. S Coutler to be Surg Cmdr.

ROYAL NAVAL VOLUNTEER RESERVE

Surg. Lieut.-Cmdrs. J. B. Hutchinson, V D, E. L Puddy, R S Allison, R L Stubbs, H P Widdup, H M Willoughby, V D, L D. Nelson, C C. Ungley, A. H. Shelswell, V.D., and A. R. Thomas to be Surg Cmdrs.

Surg. Lieuts L Foster and R. F B. Bennett to be Surg Lieut.-Cmdrs.

Prob. Temp. Surg. Lieuts. R. F Clarke, C. F Donovan, J. E Richardson, D J. O'Brien, N. A. Neville, G E. Mallock, J A. Knowles, N S Marsden, A. J. Drew, C. H. Kitchen, D C. Lillie, and W. Black to be Temp. Surg. Lieuts

ARMY

Col. J. G. Gill, D.S.O., O.B.E., M.C., to be a D.M.S., and has been granted the paid acting rank of Major-Gen

The following Consultants have been granted the local rank of Brig.: Temp Cols J. Biggam, M.C., D. Fettes, O.B.E., and F. M Lipscomb

ROYAL ARMY MEDICAL CORPS

Major (War Subs. Lieut.-Col.) (Temp. Col.) W. J F Craig to be Lieut.-Col

Lieut.-Col L B. Clarke having attained the age for retirement, is retained on the active list supernumerary to the establishment.

Capt W. F. L. Fava to be Major.

TERRITORIAL ARMY, R.A.M.C

War Subs. Major A. G. W. Whitfield has relinquished his commission on account of ill-health and has been granted the honorary rank of Major (Substituted for the notification in a *Supplement* to the *London Gazette* dated Feb. 5.)

Lieut. F. A Macrae, from Seaforth Highlanders, T.A., to be Lieut

2nd Lieut. S. Smith, from R.A., T.A., to be Lieut.

TERRITORIAL ARMY RESERVE OF OFFICERS: R.A.M.C.

Capt R. S. Morshead, M.C., having attained the age limit, has relinquished his commission and retains the rank of Capt.

LAND FORCES: EMERGENCY COMMISSIONS

ROYAL ARMY MEDICAL CORPS

War Subs. Capt. D McBain has relinquished his commission on account of ill-health and has been granted the honorary rank of Capt

Lieuts. J. J. McGann and L. S. Davies have relinquished their commissions on account of ill-health and have been granted the honorary rank of Lieut

The notifications regarding Lieut. F. A. Macrae, published in *Supplements* to the *London Gazette* dated March 24 and Sept 29, 1942, are cancelled.

The notification regarding Lieut. S Smith in a *Supplement* to the *London Gazette* dated Jan 1, 1943, is cancelled.

To be Lieuts.: J. McKenzie, R. Bell, W. R. Black, D. S Buchanan, P. S. Buckley, J. F. Dick, L. W. D. Drabble, J. A Flaherty, C. E. Hagenbach, A. Hollingsworth, U M Hopkins, A. Lask, T. J. Peristiany, K J Samson, H S C. Smith, M. Steel, N S. Taylor, G. B. Thrift, A. C. Welch. L. M. Whitaitt, D D. Clarke, W. J. Bremner, L. S Carstairs, T. F Everett, E D. Falconer, C. Fridjohn, A. Georgiadis, J Marshall, G. C. Mackay, J P Milne, A E. Penn, C. E. Powell, A. R Rennie, E. M. Tustin, C Gutman, B. Barnett, A. Bigham, J. Ackerley, W H. Berry, G. E. N. Bird, A G. Brownlie, J P. J. Burns, B. Cimbelmann, H H Cohen, D. J. Cussen, S J. De Navasquez, A. W. R. Eardley, S. Graham, L. Harris, A Heron, R. S. Holcombe, R. D. C. Johnstone, L. I Johnston, A. Lees-Low, S. M. Levy, S. H Lishman, J. C. W. MacFarlane, H. E. S Marshall, H. F Moffit, D. A. O'Sullivan, T N. Parish, H W. Porter, W. G Robertson, T. S Rodgers, T. M. Rowatt, C J Sanderson, J J. Shipman, B. Sidman, P. H D. Stone, G. B T. Story, E C Sugden, W. S. Sutton, J. Symon, T. M. Thomas, J. St. J. F W. Wallace-Collett, R. B. Welbourn, E. W Webster, R. F Boomla, A D. M. Hamilton, J. Harkness, W. C Harvey, J. Jacobs, E T. James M. C. H. Kingdon, J. A. Livingston, I. J. MacCammond, B. Maddison, G. D. Mariano, P J W. Milligan, J. C. V. Murphy, M. Odess, I S Phillips, G A. A. Powell, M Robinson, R M Saleh, D G Vulliamy, D. W. Wilks, J. H. Wood, A C Douglas, J W. L. Doust, R S. Gibson, J Gilchrist, A. B. Hill, J. E. C. Jones, M. J. Kelly, L. Lurie, A. W. Pringle, A. B. Robertson, H N Shepheard, G. F. Shaw, C. H. Sims, P. Strelitz, J. Stuppel.

ROYAL HORSE GUARDS

Lieut. (War Subs. Capt.) J. M. Brown, from R.A.M.C., Emergency Commission, to be Surg. Lieut. (War Subs Surg Capt.).

WOMEN'S FORCES

EMPLOYED WITH THE R.A.M.C.

The following M.O.s have been granted commissions in the rank of Lieut.: Mary White, Janet W. Herriot, Christine J T. Jamieson, Robina M Marwick, Stella M. Cutner, Freda C J. Nicoll, Mary G Powell, and Mary W. Taylor.

ROYAL AIR FORCE

Squad Ldr. B G. Haynes has resigned his commission.

Miss M. L. Watson, M.O. with the relative rank of Flying Officer, has been promoted to the relative rank of War Subs. Fl. Lieut.

ROYAL AIR FORCE VOLUNTEER RESERVE

To be Fl Lieuts (Emergency): G. O Horne and D F Kanaar

The notification concerning J. C Garland in a *Supplement* to the *London Gazette* dated Feb. 9, p 707, col 2, should read Fl. Lieut. and not Flying Officer.

Flying Officers J Jacobs, F. G. M Ross, G. R. Davies, J. J S Wilson, J. R M. Vance, G. M. Tucker, R. P Parkinson, D. Aitchison, K. M. Hay, J A J. Wiseman, R. O. M. Jones, C. S N. Swan, T. G Barlow, A. N Pickles, P. A. Killian, C T. B Adams, R. Mortimer, and J. M. B. Morwood to be War Subs Fl. Lieuts.

Flying Officer R N Harbinson has resigned his commission and retains his rank

To be Flying Officers (Emergency): M. S Aldridge, R W. Bailie, G Bates, D. H Bone, H. P. Hughes, E R. Jordan, W. H. Lindsay, J B. H Musgrove, W A. Ogilvie, J. W. Abbiss, C Bremer, C F Campbell, W M. B. Davidson, R. J. Dinsmore, R H. Maudsley, G. A McKaig, L. J. Page, G J Rees, D. L Scott, B. H. B. Upton, D. Raeside, J Abrahams, S. S. Hart, R. V. Imrigh, S Lindsay, C. Rutter, and J. K. Wright.

Dr. Arthur Carr, registered as of Brick Lane, London, E.1, has been granted leave by a King's Bench Divisional Court to serve notice upon the G.M.C. of a motion for an order of certiorari to quash its order erasing his name from the *Medical Register* (*Supplement*, Dec. 12, 1942, p. 73).

ASSOCIATION NOTICES

Psychological Medicine Group Committee

The following have been elected members of the Psychological Medicine Group Committee of the B.M.A. for the three years 1943–6: Dr. N. H. M. Burke (St. Albans), Prof. Millais Culpin (London, W.1), Dr. R. Eager (Exeter), Mr. T. Lindsay (Caterham), Dr. J. H. MacDonald (Luss), Dr. W. G. Masefield (Brentwood), Dr. Doris M. Odlum (London, W.1), Lieut.-Col. A. A. W. Petrie (Sutton), and Dr. R. M. Stewart (Leavesden).

Diary of Central Meetings

MARCH

31 Wed. Joint Conference of Members of the Special Representative Meeting and of Members of the Special Conference of Representatives of Local Medical and Panel Committees, 9 30 a.m.

Special Representative Meeting, 1.45 p.m. approximately.

Special Conference of Representatives of Local Medical and Panel Committees, 3 15 p.m.

Branch and Division Meetings to be Held

BIRKENHEAD AND WIRRAL DIVISION.—At Arrowe Park Hotel, Woodchurch, Birkenhead, Sun., March 21, 5.15 p.m. Agenda: Consideration of the motion on the Beveridge report published in the *Supplement* of Feb 13, and instruction of Representatives to Special Representative Meeting on March 31, etc. 6 p.m. General meeting open to all practitioners in the area of the Division.

NORTH OF ENGLAND BRANCH.—At Royal Victoria Infirmary, Newcastle-upon-Tyne, Thurs., March 25, 2 15 p.m. Clinical demonstrations in the Out-patient Department. Address by Prof. J. C. Spence. Children in Medical Practice. All members of H.M. Forces serving in the area of the Branch are invited to attend

WEEKLY POSTGRADUATE DIARY

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane Road, W.—*Daily*, 10 a.m. to 4 p.m. Medical Clinics, Surgical Clinics and Operations. Obstetric and Gynaecological Clinics and Operations. *Daily*, 1.30 p.m., Post-mortems *Mon.*, 2 p.m., Ear, Nose, and Throat Clinic *Tues.*, 10 a.m., Paediatric Clinic; 11 a.m., Gynaecological Clinic; 2 p.m., Genito-urinary Clinic. *Wed.*, 11.30 a.m., Medical Conference. *Thurs.*, 3 p.m., Dermatological Clinic. *Fri.*, 12.15 p.m., Surgical Conference; 2 p.m., Gynaecological Conference; 2 p.m., Sterility Clinic.

FELLOWSHIP OF MEDICINE, 1, Wimpole Street, W.—*West End Hospital for Nervous Diseases:* Tues and Fri., 3 p.m., M.R.C.P. course in neurology *London Homoeopathic Hospital:* Wed afternoon F.R.C.S clinical demonstration (Limited to 6.) *Royal National Orthopaedic Hospital:* Sat. afternoon F.R.C.S orthopaedic course. (Limited to 6) *Radcliffe Infirmary:* Daily, Revision course in anaesthetics *St. Mary Islington Hospital:* Wed., 2 p.m., F.R.C.S clinical course. *National Hospital for Diseases of the Heart:* Tues and Wed., 10 a.m., Out-patient clinics.

DIARY OF SOCIETIES & LECTURES

ROYAL COLLEGE OF PHYSICIANS OF LONDON, Pall Mall East, S.W.—*Tues.* and *Thurs.*, 2.15 p.m. Oliver-Sharpey Lectures by Prof. G W. Pickering: The Circulation in Arterial Hypertension.

ROYAL SOCIETY OF MEDICINE.—*Mon.*, 4 30 p.m. Section of Odontology *Tues.*, 4.30 p.m. Section of Medicine *Fri.*, 2 30 p.m. Section of Epidemiology and State Medicine; 4.30 p.m. Joint meeting of Section of Disease in Children and Maternity and Child Welfare Group of Society of Medical Officers of Health

BIOCHEMICAL SOCIETY.—At Courtauld Institute of Biochemistry, Middlesex Hospital, W., *Sat* (March 27), 2 p.m. Annual general meeting

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES, 11, Chandos Street, W.—*Sat* (March 27), 2 30 p.m., Major J Marshall, Dr. J. McMichael, and Major T. E. Anderson: Jaundice in Syphilis

BIRTHS, MARRIAGES, & DEATHS

The charge for inserting announcements under this head is 10s 6d. This amount should be forwarded with the notice, authenticated with the name and address of the sender, and should reach the Advertisement Manager not later than first post Monday morning to ensure insertion in the current issue.

BIRTHS

PARTINGTON.—On Feb 28, 1943, at the Christopher Nursing Home, Wigan, to Dr C Mary (*née* Hallett), wife of Capt C. N Partington, R.A.M.C., of Birkenhead, a daughter (Ann Mary).

TAYLOR.—On March 8, 1943, to Helena Taylor, M.B., D.P.H. (*née* Lauder Thompson), wife of Capt. Arthur W Outram Taylor, R.A.M.C. (India), a son Present address, Forsters, West Malling, Kent.

SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
LONDON SATURDAY MARCH 27 1943

Correspondence

Serving Doctors and Medical Reorganization

SIR,—Many letters to you have given the disquiet that there is among many of us that the younger practitioners, now in the Forces, have not contributed to the discussions upon the future of medical practice and medical work. May I make a practical suggestion?

In our area we have done our best to get the very many serving doctors to attend the various meetings, not only of the study groups but also the more general discussions. Not one has attended. Let us, therefore, now go after them in their Service haunts. For instance, I am suggesting to our local honorary secretary that one or two of us offer to attend one night or two at two very large local camps, one of which has no fewer than eleven doctors and nine dentists on its staff, and that we take with us to guide the discussion the findings of our local study group. In this way serving doctors would hear what those in practice are thinking, and could give their opinions and voice their feelings. The results could then be sent to headquarters for use in producing any final proposals.—I am, etc.,

A. T. SCHOFIELD.

SIR,—I ask the hospitality of your hard-worked columns to voice an opinion which is probably widely held among those G.P.s who are tied to Service duties while all these great deliberations regarding the future of the profession of general medical practice are taking place.

In peacetime I had the privilege of serving as a member of the Middlesex Panel Committee as well as on various committees of the B.M.A. After a few months of war most of these committees suspended their work as fully representative committees, and appointed small—very small—executive subcommittees to carry on routine work under wartime conditions. An offer to resign and make way for another doctor, still in general practice, on these committees was politely rejected on the grounds that such committees could not be fully representative in wartime and proper democratic *elections* would take place after the war to reconstitute such committees with full mandate to represent the interests of the G.P.s concerned.

Now the future status and livelihood of the profession are under discussion, and indeed negotiation with the Government for radical alteration. The Government have cleverly agreed to proceed, after agreement in negotiation with the profession, with implementation of the postulates of the Beveridge report, but no mention is made as to how the opinions and views of the most vital, youthful, and therefore most important section of the profession, who are in the Forces, are to be obtained or given consideration.

I therefore appeal through your columns to those senior colleagues who are at present in power so far as the medico-political organization is concerned to remember that nothing they agree to can be accepted as binding on those of us who are unable to state our views democratically, unless a referendum to the whole profession is taken and negotiations based upon the majority view resulting therefrom. It should be made clear to the Government that the future medical services of the nation are dependent upon the work that doctors at present in uniform are prepared to undertake with confidence and enthusiasm when they are returned to peaceful pursuits. The opinions expressed by various committees at the present time are not in any way representative of the views of this large but necessarily silent number.

The urgency of coming to decisions regarding the proposed establishment of fuller national medical services on the recommendation of Sir William Beveridge is obvious to us all, but, at the risk of tedious repetition, I would again emphasize that a referendum to the whole profession is absolutely essential, and reliance upon existing medico-political organization most unwise and undemocratic, for the reasons outlined above.—I am, etc.,

ALISTAIR FRENCH,
Wing Commander, R.A.F.M.S.
Hon. Treasurer (in absentia), Metropolitan Counties Branch, B.M.A.

At a Division Meeting

SIR,—I hope that every member of the B.M.A. will attend his local meeting whenever anything in connexion with State medicine and the Beveridge plan is under discussion. Unfortunately, the more successful practitioners, who are therefore the busiest, have not usually the time to attend these meetings, and, as a result, decisions are taken which affect their whole future and which they declare too late they know nothing about.

I attended the local B.M.A. meeting at Guildford which was to instruct our delegates how to vote at a Representative Meeting on March 31. It was decided that it was not necessary to discuss Clause (*a*), for which I was sorry as I do not think there are enough doctors in the country to supply a comprehensive medical service. It must be realized that under such a scheme patients will bring all their minor ailments to the doctor, which they have previously treated themselves or taken to the chemist. As a result it may be difficult to separate the wheat from the chaff. In other words, serious cases may be overlooked. I consider that at least three times as many doctors will be necessary as are at present available. This, however, was already agreed upon, and we discussed an amendment of Clause (*b*), proposed and seconded by members who were actually to be delegates to the conference. They proposed to delete Clause (*b*) altogether, and they put their case with the deepest sincerity. They were obviously idealists, and, although I have realized that the trend of the nation is definitely communistic, if that is what is meant by the subservience of the individual to the State, their speeches were a shock to me. The outstanding phrase in their speeches was "whether we like it or not," and I felt that I must belong to a profession which had failed in its service to the public instead of to a profession which had always put the interests of the patients first and its own last. I had thought that our delegates would be more concerned in safeguarding the interests of the doctors, but apparently their chief thought was the safeguarding of the patients against the doctors. I am pleased to say that the proposal that the amendment to Clause (*b*) should be deleted was rejected, and yet these delegates will go to the conference on March 31 to vote in favour of Clause (*b*), of which they do not approve. This seems wrong to me.

I suggested—and I admit that my suggestion was thought by the meeting to be unnecessary—that it would be well to have some idea of what we are to be paid as State doctors before deleting Clause (*b*). Personally, if I am to be paid an adequate salary, I have no desire to do private practice. If, however, the doctors are to be paid £800 or less, then many doctors will be unable to meet their commitments, which they entered into quite justifiably in view of their income and their expectation to earn such an income for some years to come, and they must demand the right to augment it in this case. I mentioned £800, as I believe this is the sum which was arranged as a whole-time salary for the most specialized members of the profession for their services under the E.M.S. scheme, and they were debarred from private practice. When the E.M.S. came into operation at the beginning of the war these doctors protested that their salary hardly paid their Harley Street rents, to which they were committed by leases. They had shown the same apathy while these arrangements were being made which members of the profession are showing now while idealists may negotiate their economic downfall.

We were told that we were to be compensated by a capital sum for our practices just as in the case of coal-owners and their mines, but I am sure that their negotiators would not be quite so altruistic as ours. I feel that this time of war, when all our sense of values is distorted by the horrors and the sacrifices of our fellow-men, is not the time to negotiate a final decision for all time, from which there will be no drawing back, on the whole future of medicine. The trend at the moment is communistic or "all for the State," just whatever label one prefers, but our history has shown that the higher the pendulum swings in one direction it usually swings later an equal distance in the opposite direction. In a few years' time it may be found that, while the rest of the nation who are still free have gone all individualistic, the doctors are for ever imprisoned in a net of State bureaucracy.

Let us wait for State medicine until this war is won and all the registered medical practitioners, whether they are members of the B.M.A. or not, can vote on this subject which decides their future. The banking interests and the powerful approved societies will keep the theories put forward by this Oxford professor in their proper perspective, and it is up to the doctors not to be blinded by sentiment in times which are necessarily hysterical when their own interests are at stake.—I am, etc.,

Camberley. LESLIE HARTLEY.

Does the Public Know?

SIR,—The spate of correspondence and special articles in regard to the medical profession and the Beveridge report has made the *Journal* unusually interesting and entertaining reading. When all is said and done, however, surely most of it is waste of effort, since the *Journal* is a closed book to the general public. If any good is to come of these expressions of opinion, excellent argument, and such a clear and precise statement of our case, surely means should be found to bring them to the notice of the public, who are sublimely ignorant of our point of view.

It is common knowledge among the practising profession that our patients have no conception of the conditions under which we are called upon to carry out the services of National Health Insurance. As has been pointed out more than once in your columns, it has been found that on the occasions when the cheese-paring and totally inadequate nature of the capitation fee has been brought to the notice of insured patients they express surprise and amazement, having been under the impression that we were adequately remunerated for our services. Had the general public known the facts of the recent negotiations with the Minister upon this matter of the capitation fee we should undoubtedly have had the sympathy and support of the public for the justice of our claims, a matter of no mean political importance.

The same would seem to be of paramount importance in regard to the negotiations now in progress concerning the implications of the Beveridge report and the status of the profession whose duty it will be to carry out the health services envisaged in that report. We must see to it that the public are made familiar with the issues at stake from our point of view as well as from their own. Letters and articles in the *Journal*, excellent as they are, are of no value so long as they remain within the secretive covers of the *Journal*. These, no doubt, give great satisfaction to those of us who have not the time or the gift of expressing ourselves, but beyond that serve no useful purpose whatever. The public must be made aware of the facts if there is to be any hope of a satisfactory health service or a fair deal.—I am, etc.,

Oxford. J. FRANKLAND WEST.

Representation of the Profession

SIR,—Is it not a fact that the views of the Representative Body in no way represent the feelings of the whole of the medical profession? Many practitioners do not belong to the B.M.A., and those who do find it difficult to attend Division meetings owing to pressure of work. Could not a questionary on controversial matters be sent to all practitioners normally resident in the British Isles? If this were done I feel you would obtain little confirmation of statements such as the following in your leading article (Feb. 13, p. 193): (1) "The idea of a complete service on a compulsory insurance basis is already accepted by the medical profession for roughly nine-tenths of the population." (2) "The 100% proposal does not necessarily imply a whole-time State salaried service." Perhaps not, but it is the thin end of the wedge, and against the wishes of a 49% minority at the last Annual Representative Meeting.

Let us, therefore, be democratic, respect minorities, have our questionary, and find out what really is the feeling of the profession.—I am, etc.,

Leominster. GEOFFREY M. HOUSDEN.

RECRUITMENT OF PUBLIC HEALTH MEDICAL OFFICERS

The Ministry of Health states that notwithstanding the notice contained in Circular 2440 some local authorities still try to fill vacancies on their medical establishments without first consulting the Central Medical War Committee. It cannot be too strongly emphasized that the deferment granted to a medical officer in the employment of a local authority relates specifically to the post then held by him, and if he leaves that post and applies for another under a local authority he immediately renders himself liable to recruitment. In his own interests he should, before entering into any commitment, ascertain from the Central Medical War Committee what his position would be if he accepted a specified new appointment. It will be open to the two local authorities concerned in any change of employment to make representations to the Central Medical War Committee against recruitment. The Ministry of Health would consider whether on the merits of the case it was justified in supporting such representations. Such support would not normally be forthcoming if there were other suitable candidates not liable to military service, or if it were considered that by staff adjustments or by co-operation with another authority the work could be carried on without making an appointment.

H.M. Forces Appointments

ROYAL NAVY

Surg. Lieut (Emergency) W. V. Owen to be Surg. Lieut.-Cmdr. (Emergency)

ROYAL NAVAL VOLUNTEER RESERVE

Prob. Temp. Surg. Lieuts H Hart and D. S. Foster to be Temp Surg Lieuts

TERRITORIAL ARMY, R.A.M.C.

War Subs. Capt. A G. B Young has relinquished his commission on account of ill-health and has been granted the honorary rank of Major.

LAND FORCES: EMERGENCY COMMISSIONS

ROYAL ARMY MEDICAL CORPS

War Subs. Capts J M Holmes and J W. S. Macfie have relinquished their commissions on account of ill-health and have been granted the honorary rank of Major

War Subs. Capts. C Gordon, T. J Lynch, and W G Sugden have relinquished their commissions on account of ill-health and have been granted the honorary rank of Capt

Lieuts J. H. C Phillips, F J. A. Murray, and G C. Taylor have relinquished their commissions on account of ill-heath and have been granted the honorary rank of Lieut.

ARMY DENTAL CORPS

H. Ackers, F R C S to be Lieut.

ROYAL AIR FORCE VOLUNTEER RESERVE

Flying Officers H. M. Given and D. G. Jarman to be War Subs. Fl Lieuts.

To be Flying Officers (Emergency): A. N. Ashworth, R. C. Baird, G. P. Baker, N. N. Blaxland, D. L. Caldwell, R. M Emrys-Roberts, C. B Huss, B. A. G Jenkins, M Lewis, W. B McGowan, N McLean, B A. Pomryn, A. M Shenkin, T. C. Studdert, R O Swaine, H B. Willington, G. D. Wilson, J Innes, and S S. Naftalin.

WOMEN'S FORCES

EMPLOYED WITH THE MEDICAL BRANCH OF THE R.A.F.

To be M O s (Emergency) with the rank of Flying Officer: Phillis M Armstrong and Barbara B. Lennon.

B.M.A.: Diary of Central Meetings

MARCH

30 Tues. Council, 3.30 p m.
31 Wed. Joint Conference of Members of the Special Representative Meeting and of Members of the Special Conference of Representatives of Local Medical and Panel Committees, 9 30 a m.
Special Representative Meeting, 1.45 p m approximately.
Special Conference of Representatives of Local Medical and Panel Committees, 3.15 p m

B.M.A.: Branch and Division Meetings to be Held

BRIGHTON DIVISION.—Members of the Division are invited to a meeting of the Brighton Medico-Chirurgical Society at Royal Pavilion, Brighton, April 1, at 8 30 p m., when Dr F. Lindsay Woods will read a paper on "The Modern Treatment of Venereal Disease."

NORTH OF ENGLAND BRANCH—At Royal Victoria Infirmary, Newcastle-upon-Tyne, Thurs, April 1, 2 15 p m. Clinical demonstrations in the X-ray and Orthopaedic Departments. Address by Prof. W. E. Hume: Some Aspects of Medicine in This and the Last World War. All members of H M. Forces serving in the area of the Branch are invited.

POSTGRADUATE NEWS

The Fellowship of Medicine announces a revision course in anaesthetics from April 5 to 17. Lectures daily at Royal Cancer Hospital, Fulham Road, S.W, 3 p.m. to 4.30 p m, and practical demonstrations at various London Hospitals.

WEEKLY POSTGRADUATE DIARY

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane Road, W.—*Daily*, 10 a.m. to 4 p m Medical Clinics, Surgical Clinics and Operations, Obstetric and Gynaecological Clinics and Operations *Daily*, 1.30 p m. Post-mortems. *Mon*, Course on War Surgery of the Abdomen commences. *Tues.*, 10 a.m Paediatric Clinic; 11 a.m. Gynaecological Clinic; 2 p.m. Genito-urinary Clinic. *Wed*, 11.30 a m Medical Conference *Thurs.*, 3 p m. Dermatological Clinic. *Fri*, 12 15 p m. Surgical Conference; 2 p.m Gynaecological Conference; 2 p m. Sterility Clinic; 2 p.m. Neurological Clinic

FELLOWSHIP OF MEDICINE, 1, Wimpole Street, W.—*West End Hospital for Nervous Diseases:* Tues. and Fri., 3 p m, M R C P. course in neurology. *London Homoeopathic Hospital:* Wed afternoon, F.R C S. clinical demonstration (limited to 6). *St Mary Islington Hospital:* Wed., 2 p m., F R.C S clinical course. *Royal National Orthopaedic Hospital:* Sat afternoon, F.R C S. orthopaedic course (limited to 6) *National Hospital for Diseases of the Heart:* Tues. and Wed., 10 a.m Out-patient clinics.

DIARY OF SOCIETIES & LECTURES

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W C—*Fri*, 4 p m. Thomas Vicary Lecture by Sir Hugh Lett: Anatomy at the Barber-Surgeons' Hall.

ROYAL SOCIETY OF MEDICINE.—*Sat.* (April 3), 10 a m. Section of Orthopaedics, at Albert Dock Seamen's Hospital.

BIRTHS, MARRIAGES, & DEATHS

The charge for inserting announcements under this head is 10s. 6d This amount should be forwarded with the notice, authenticated with the name and address of the sender, and should reach the Advertisement Manager not later than first post Monday morning to ensure insertion in the current issue.

MARRIAGE

WALLACE—BROWN—On Jan. 11, 1943, at the Cathedral, Calcutta, Reginald James Wallace, Captain, Indian Army, to Doris Barbara Brown, M.D, F.R.C S.

DEATH

CAMPBELL—E. Kenneth Campbell, O B E., M.B, F R C S, of Wittersham, Kent, ninth son of the late Hugh Campbell, M D., of Wimpole Street, and Margaretting, Essex, Major, R A M C., and Ophthalmic Specialist in the Army; late Consulting Surgeon to the Western Ophthalmic Hospital.

SUPPLEMENT TO THE

BRITISH MEDICAL JOURNAL

LONDON SATURDAY APRIL 3 1943

Correspondence

Why Reorganize?

SIR,—The more one studies the Beveridge plan in its relationship to a comprehensive medical service the more one is at a loss to understand the reasons for its inception. If its sponsor, *or sponsors*, pretend that the scheme is necessary so that all branches of medicine are available to the poor and sick alike, they either show profound ignorance of the true facts or have based their premisses on untruth.

Having been in general practice—mixed panel and private—for 30 years I state emphatically that my poorest patient can obtain any medical service free that can only be obtained by the richer patient on payment of fees. This includes examination by consultants, surgical operations if required any laboratory tests of specimens, *x*-ray examination, etc. Whenever I have sent one of my poorer patients for complete investigation to the infirmary—and I use three different ones—I have always received every help and courtesy from the "honoraries" and other medical officers, and so indeed has the patient. So far as I know, in 25 years there has not been a complaint here by any patient to the insurance committee that *any* service was not available because they could not pay for it.

As I regard myself as an average G.P., with a good number of poor people to look after, I am certain that my experience is that of thousands of my colleagues. Therefore, I state that this attempt to revolutionize the medical profession has not come from within its own ranks, and thousands of us want to know how and where it began. What can a layman like Sir William Beveridge know of the purely technical side of our profession? What would happen if the President of the B.M.A. formulated a scheme for the reorganization of the legal profession, and tried to foist it upon an apathetic public? Would this go unchallenged? If I suggest that this attempt to tear up the roots of and to regiment this scientific profession of ours was conceived by one or more of the great co-operative societies are there many who will disagree with me? The danger signal is there for us to see; I regard it as the twilight of the G.P.—the family doctor—and the squashing of all that is good in the profession. When the Minister of Health, buttressed by the permanent Civil Service officials in Whitehall, and the representatives of the medical profession meet to discuss how far into the social whirlpool doctors are prepared to be sucked, one can only hope that those thousands of younger medical men and women serving in H.M. Forces will not be forgotten. They have no voice, and if they are to be faced on their homecoming with the fact that they are to be "robotized," that individual enterprise and hard work are to receive the same reward, financially, as the slacker, then will they know that democracy and all it entails was just another political shibboleth. We practitioners in the twilight of our working days have no axe to grind, but may I conclude by beseeching the B.M.A. to use all its powers in what will be its final fight to preserve all that is essential to maintain the integrity of the profession it represents, and not permit it to be the prey of any autocratic or monopolistic junta—political or financial.—I am, etc.,

JAMES LEACH.

State Medical Service

SIR,—As a former member of a State service—namely, the West African Medical Staff, which, fortunately, in my days had the privilege of private practice—might I ask the advocates of a complete State service (with medical officers upon a salary basis) the following question.

A. Who, in their proposed State service, is to decide where a practitioner is to be posted? For example, if a medical officer wishes to be posted to Torquay, who is to decide whether he goes there or to a vacancy, say, in Peterhead, Limehouse, or Wigan?

B. In such a service members would almost certainly be subject to the usual bureaucratic discipline. In the event of a conflict of opinion between medical officers will any of them be subject to the disciplinary punishment of being transferred elsewhere against their will? This is one of the favourite "remedies" of bureaucratic chiefs in order to discipline subordinates whom they consider "troublesome." This often means that the officers in question are keen on their work and progressive, and, as a consequence, are naturally rather disturbing to their chiefs.

C. What limit is to be put upon the number of patients each practitioner is called upon to attend?

D. Why should a medical officer in a salaried State Medical Service work any longer hours than a member of the ordinary Civil Service, which is usually less than 8 hours a day? As a corollary, why shouldn't the Government provide for three shifts of duty of 8 hours each 24 hours and pay for them? Naturally, this would call for a large increase in the numbers of the medical profession, and the Government would have to plan how to obtain it. Such an arrangement would, however, abolish the conditions of sweated labour which exist in the medical profession.—I am, etc.,

Highgate, N.6. E. E. MAPLES.

Treatment *En Masse*

SIR,—The criticism of the B.M.A., which must, I think, be uppermost in the minds of all thinking and experienced practitioners, is this: It accepts the medical aspect of an implication which runs through practically all recent legislation not only in this country but in all others which profess "Western civilization." That implication is that 90% of people consist not of individuals but of crowds, and must accordingly be dealt with *en masse*. From the medical standpoint this involves also the assumption that in illness there is not a patient to be treated in the first place but merely parts or aspects of a patient. The Beveridge medical scheme will not see the patient in his own home—that is, in his own domestic circumstances—nor will it look on him as a person with a history, since the sufferer will only consult the doctor casually and at intervals; moreover, he is as likely as not to see different doctors at different times, and will thus often get different advice from each. For thorough diagnosis and therefore thorough treatment an understanding of the patient's continuity both in space and time is essential. But opportunity for this understanding will be denied in future to the large majority of doctors. I shall not elaborate just now what I believe will be the inevitable psychological result of this on our practitioners, but I know that the treatment they give the patients will be, in 90% of cases, superficial at best. And the *vis medicatrix naturae* cannot be expected to help them out of all holes!

It is crystal clear now that Western civilization is rapidly sinking into decrepitude. But why should we assume that the Hippocratic, of all arts, can do no better than follow it step by step?—I am, etc.,

North Queensferry, Fife A. J. BROCK.

Study Groups

SIR,—I think it would be of great interest to other study groups to record our experience of a most cordial meeting with our M.P., Sir John Jarvis. We asked him to attend one of our discussions, first as a listener with a view to letting him know just what we were thinking, and later reciprocally learning from him how the House handles problems such as the proposed State Medical Service.

Our Member told us that he much appreciated this personal contact with his medical constituents, and expressed the view that all M.P.s should be invited by their local study groups to such meetings. We on our part realized that it would be no use submitting 50-50 voting as suggestions to Parliament, but that as a profession we must achieve something like unanimity in our views; and also that we were a very small drop in the bucket of post-war problems and expenditure, and must comprehend where we stood in relation to the whole.

My object in writing this letter is to endorse to the full our Member's suggestion, and recommend it most strongly to all study groups as likely to produce an extremely interesting and informative meeting.—I am, etc.,

G. H. STEELE, M.S., F.R.C.S.,
Secretary, Guildford Study Group.

First Things First

Sir,—The majority of doctors must have been very worried for some time past by the revolutionary changes which are proposed for their profession, and I am sure that, like myself, they must have felt a new ray of hope when they listened to Mr. Churchill's broadcast speech on March 21. He said, "Don't take your eye off the ball for a moment." What is our ball? Surely, it must be the care of our fighting men by those doctors in the fighting Forces, and the care of the workers at home by the civilian doctors. These two essential tasks are already straining the medical profession to the utmost limits, and when there is a second front they will be strained even further. I think, therefore, that this comprehensive medical service should wait until Mr. Churchill's Four Years' Plan after victory has been won.

At the end of his speech Mr. Churchill exhorted us to "act with comradeship and loyalty to our country and to one another" and "to make State enterprise and free enterprise both serve national interests and pull the National wagon side by side." After that, I think, there is no further need to discuss Assumption B.—I am, etc.,

Camberley. Leslie Hartley.

Correction

Mr. H. J. McCurrich (Hove) writes that the word "principle" in the eleventh line from the end of his letter (March 20, p. 37) should read "principles," as it refers to the three principles in paras. 7, 8, and 9 of the Beveridge report.

H.M. Forces Appointments

ROYAL NAVAL VOLUNTEER RESERVE

Prob. Temp. Surg. Lieuts. A. Douglas, R W N. L. Ross, D. E. O'Driscoll, C T. A James, R J Stanley, E F Hunt, A E de la T. Mallett, D.S.C., A. Guthrie, F. G Beilby, S. Catterall, W. H. Aucutt, J F. Cowan, P M Kerr, B E. W. Mace, R. G. Tuke, N. D Paton, A P. N. H. Tait, G H. Murray, J. K. Black, J. G. Goodhart, V. O. B Gartside V T. Pugh, J D. G. MacDonald, I. G. Ferguson, A S. Biggart, T Smith, J B G Smith, L B G. Bennett, G A. Anderson, T. Macleod, G. H. Adams, M. Corridan, R. M. Ellison, B. E. R Solomons, R. A G. Smith, D de la C MacCarthy, D. G Jones, P. T Boyle, J. L C. Ward, T. St. M. Norris, T. Haw A J. Evans, A. P. Milner, P. A. Rees, J. T. Cunningham, M. Kirwan, J. E Morgan, T. M Pritchard, R. B. Stark, A. MacA Young, G. H N. Phillips, A B. Stenhouse, F Shepherd, to be Temp. Surg Lieuts

ARMY

War Subs Lieut.-Col (local Brig.) N St J. G D. Buxton, R A.M C, has relinquished the local rank of Brig

War Subs Major (acting Col.) F A. R. Stammers, R.A M.C, to be a Consulting Surgeon, and has been granted the local rank of Brig.

TERRITORIAL ARMY, R A M C

War Subs Capt S A Carr has relinquished his commission and has been granted the honorary rank of Major.

LAND FORCES: EMERGENCY COMMISSIONS

Royal Army Medical Corps

War Subs. Capt. J L Dowling has relinquished his commission on appointment to the Australian Imperial Forces.

War Subs Capts D. J. Herrick, L. J. Panting, and W D Allan have relinquished their commissions on account of ill-health and have been granted the honorary rank of Capt.

Lieuts. M Niven and A R. Smith have relinquished their commissions on account of ill-health and have been granted the honorary rank of Lieut.

The notification regarding Lieut. E W Gibbs in a *Supplement* to the *London Gazette* dated Jan. 29 is cancelled

To be Lieuts.: B H Kirman, F R Waldron, A R Aldin, S Bradshaw, T. Bromley, T. J. Burke, H J Craufurd-Benson, J. V Dacie, C. S Darke, M E. Davies, G. Fahmy, D. L. Fromow, A. M. Gwynn, D. R. Jokelson, I. Margolin, J. A M. Ratcliffe, M. H. Salaman, R. D. Scott, P Story, A. E Wall, C. M. Wilson, V Y. Bockner, H. A Boydell, R. J K. Brown, T. A. Cockburn, R. D M. I-K. Harkness, E. Henderson, H. W. F. Jones, D. H Joseph, G. W. Keele, J. A. MacDougall, D. H. Mills, R. G. Parker, P. H. Roberts

WOMEN'S FORCES

Employed with the R.A M C.

Relative War Subs. Capt C. M M. Culver-Evans has relinquished her emergency appointment as an M O

The following M O s have been granted commissions in the rank of Lieut: Ilse Friedheim, Margot M Stern, Catherine W Boyter, Ida Campbell, Beatrice M. Downie, Laetitia J. W. Forbes, Muriel Mackenzie, Christina R. C Maclean, Mary R. Menzies, Norah C. Miller, Agnes M. Purce, Norah H. L Armstrong, Freda B Bannister, Anna T Gallagher, Olive C. Sandys, Kathleen M. Watson, Anita M Beck, Elizabeth J. Davy, Lilian M A George, Alice M. Insh, Lucy McFarlan, Catherine M Osler, Margaret Purdie, Hilda M Reeve, Kate E Rymer, Mabel E. Stewart. Grizel Warnock.

ROYAL AIR FORCE VOLUNTEER RESERVE

Fl Lieut F. W T Davies has relinquished his commission on account of ill-health and retains his rank

Flying Officers E Rosenburg, R. McK. Miller, E Ridehalgh, J Harper, D. A. Ogden, W. W. Davey, W. D H McFarland, and E. D. Robson to be War Subs Fl Lieuts

Flying Officer J H. Playne has resigned his commission and retains his rank.

To be Flying Officers (Emergency): N. J. Anderson, E Bebbington, R. N Brandwood, P. H Buxton, J G Coburn, J. E Crane, G. H Dhenin, J. L T. Dickie, K. M Duncan, R Dunlop, R. L Ewing, G. E. Ffrench, P. A H McC. Foster, W. P. U. Jackson, R N A. Leyton R. M. S Matthews, J. P Quilliam, C. B M. Swan, B. A Thompson, G Masterton.

WOMEN'S FORCES

Employed with the Medical Branch of the R A F.

Fl Lieut E R M Wilson has resigned her commission

The following M O.s with the rank of Flying Officer to be War Subs Fl Lieuts.: P. E. Gaffikin, K M. Poad, J Cleland, E. A. Riddel, and W. I. Watson.

INDIAN MEDICAL SERVICE

Lieut -Col M. M. Khan has retired

Majors E G Hurd-Wood G. S Gill, and T. J. Davidson to be Lieut -Cols.

Emergency Commissions

J McD. Dougan to be Capt.

Lieuts. H M. Garlick, J S. Laurie, D G Coutts, M Scott, M Lawton, E M Eldrid, A. A. M. Coutts, T. E. W R. Wood, C. Shepherd, and J W. Lusk to be Capts.

Lieuts. (on probation) C. H. Phillips, E. R James, E H Smith, and E N. Pearman to be Capts (on probation).

To be Lieuts: A E Fraser-Smith and W. B Johnston

To be Lieuts (on probation): Emily E. G. Baillie, Enid G. Fisher, Elizabeth M Morgan, Enid C Just, H Billig, G M, and E Heath.

COLONIAL MEDICAL SERVICE

The following appointments are announced: R. S F Adam, M.B, Ch.B., Medical Officer, Kenya, C H J Baker, M R C S., L.R C P., Medical Officer, Sierra Leone, Elizabeth N. Harrison, M B Ch.B, Medical Officer, Zanzibar; J. W. Nelson, M R C S, L.R C.P., Medical Officer, Northern Rhodesia; C. M. Phillips, M.R.C.S., L R C P., Medical Officer, Aden; T. A. Austin, L R C P I &L M., D.P H., Director of Medical Services, Nyasaland

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The Scottish Medical Advisory Committee, the appointment of which was announced by the Secretary of State for Scotland recently, held its first meeting and discussed chiefly the Government's acceptance of Assumption B of the Beveridge report. It recommended that negotiations between the Department and the medical profession should start with consultations with the Scottish Branch of the B.M.A., and this Mr. Tom Johnston agreed to do. Other matters discussed were the increased incidence of tuberculosis and venereal diseases. The committee has been appointed in the first instance for three years.

ASSOCIATION NOTICES

Election of Members of Council by (1) Kent and Sussex Branches; (2) Representatives in Group XI

Dr. J. G. Thwaites (Brighton) has been returned unopposed for the vacancy in the Council occasioned by the death of Dr. A. M. Watts.

As a result of the voting by Representatives in Group XI, Dr. W. D. Frew (Kilmarnock) has been elected to fill the vacancy in the Council occasioned by the death of Dr. J. G. McCutcheon.

G. C. Anderson,
Secretary.

Branch and Division Meetings to be Held

North of England Branch.—At Royal Victoria Infirmary, Newcastle-upon-Tyne, Thurs., April 8, 2 15 p m Clinical demonstrations in the Out-patient Department. Address by Mr John Gilmour: The Modern Outlook in General Surgery. All members of H.M Forces serving in the area of the Branch are invited to attend.

Perth Branch.—At Perth Royal Infirmary, Thurs., April 8, 8 30 p m., Prof. C McNeil. Bridgeheads of Child Health

WEEKLY POSTGRADUATE DIARY

Fellowship of Medicine, 1, Wimpole Street, W. —*London Homoeopathic Hospital:* Wed afternoon, F.R C S clinical demonstration *Archway Hospital:* Tues., 2 p.m., F R C S clinical course. *Royal National Orthopaedic Hospital:* Sat afternoon, F.R C S orthopaedic course *National Hospital for Diseases of the Heart:* Tues. and Wed., 10 a.m, Out-patient clinics *Royal Cancer Hospital:* Lectures 3 p m. and 4 30 p.m, Revision course in anaesthetics.

Royal National Throat, Nose and Ear Hospital, Gray's Inn Road, W.C.—*Fri.*, 4 p m. Mr. F. C Ormerod: Tuberculosis of the Upper Respiratory Tracts.

DIARY OF SOCIETIES & LECTURES

Royal College of Surgeons of England, Lincoln's Inn Fields, W C.—*Mon.*, 4 p.m Mr. W. H Bowen: A Study of the Aetiology of Appendicitis. *Wed.*, 4 p m. Mr H. T. Roper-Hall: Premaxillary Cysts *Fri*, 4 p m Mr. L. H Savin: The Surgery of Non-magnetic Intraocular Foreign Bodies.

Chadwick Trust.—At Royal Sanitary Institute, 90, Buckingham Palace Road, S W., *Tues*, 2 30 p m Mr. T Sharp: Town Planning and Public Health

BIRTHS, MARRIAGES, & DEATHS

The charge for inserting announcements under this head is 10s. 6d. This amount should be forwarded with the notice, authenticated with the name and address of the sender, and should reach the Advertisement Manager not later than first post Monday morning to ensure insertion in the current issue

BIRTHS

Bain.—On March 26, 1943, at 120, Woodcote Road, Caversham, Reading, to Kathleen (*née* Falla), wife of Lieut W Ivor Bain, R.A M C (B.N A F), a sister (Sheena) for Alistair.

Wilkie.—At the London Hospital on March 3, 1943, to Mary (*née* Duffy, S.R N), wife of Captain D R P. Wilkie, R A.M C., a son.

Members of the B.M.A., and especially members of the Council and of a number of central committees, will learn with pleasure of the presentation made to Dr. Ernest Ward on his retirement from the post of Tuberculosis Officer for South Devon. At a meeting of the Torquay Division on Feb. 28 Dr. Ward was handed a cheque to which more than 90 of his colleagues had subscribed. In making the presentation the chairman of the Torquay Division, Dr. Morton Palmer, said that Dr. Ward had fulfilled the promise of his youth as a distinguished scholar of Cambridge University, by his work as a surgeon and a tuberculosis specialist, by his contributions to literature, and as an acknowledged authority on birds His most noteworthy attainments, however, were in the medico-political field, and the Torquay Division had been fortunate in having Dr. Ward to represent it for the last 30 years.

SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
LONDON SATURDAY APRIL 10 1943

"DISCUSSIONS WITHOUT COMMITMENT"

CONSULTATION BETWEEN GOVERNMENT AND PROFESSION

JOINT MEETING OF REPRESENTATIVE BODY AND PANEL CONFERENCE

A Joint Conference of members of the Representative Body and of the Conference of Representatives of Local Medical and Panel Committees was held in the Great Hall of B.M.A. House, London, on Wednesday, March 31. Its purpose was to consider the Government's invitation to enter into discussions with regard to Assumption B of the Beveridge report. Dr. H. GUY DAIN of Birmingham was in the chair, supported by the President of the Association, Sir Beckwith Whitehouse, the Chairman of the Council, Mr. H. S. Souttar, the Chairman of the Representative Body, Dr. Peter Macdonald, and the Treasurer, Dr. J. W. Bone. Almost every B.M.A. constituency and insurance area in Great Britain and Northern Ireland was represented. The Joint Conference, which occupied the whole morning, was followed by a special meeting of the Representative Body in the early afternoon, and this in turn by a Special Panel Conference, at both of which meetings the main recommendation agreed to at the Joint Conference was brought forward and accepted. At the outset of the proceedings a telegram of good wishes was read from the Polish medical section in London.

The Governing Resolution

The first business of the Joint Conference was to receive a statement by the Chairman of the Council, after which the following resolution was proposed and debated:

> That it be recommended to the Representative Body and to the Joint Conference of Local Medical and Panel Committees:
>
> (1) That the Government's invitation to enter into discussions without commitment be accepted.
>
> (2) That a committee representative of the profession as a whole should, in response to the Government's invitation, now enter into discussions with representatives of the Minister of Health on "a scheme for comprehensive health and rehabilitation services, for the prevention and cure of disease and restoration of capacity for work, available to all members of the community" (Assumption B of the Beveridge report), in the light of the following undertakings now given:
>
> (*a*) That, at the conclusion of the discussions and at the appropriate times during the discussions, but in any case before negotiations open and before any proposals are submitted by the Government to Parliament, the full machinery of the Association, including the Council and its Committees, Groups, Panel Committees, Divisions, and the Representative Body, will be used to consider the Government's proposals and to decide the Association's view thereon.
>
> (*b*) That every practicable step will be taken to give all members of the profession, whether members or non-members of the Association, an opportunity to express their views and in particular that every practicable step will be taken to give to members of the profession on Service an opportunity of expressing their views, to assess those views, and to present them to the meeting or meetings of the Representative Body called to consider any proposals by the Government.
>
> (3) That the composition of the Representative Committee, as reported in the statement published in the *Journal* of March 20, with the additions announced at this meeting, be approved.

Clause (1) of the above recommendation was carried with only two dissentients; clause (2) was carried without dissent; and clause (3) was carried by a large majority. To complete the personnel of the Representative Committee it was announced that Dr. J. H. Sheldon of Wolverhampton and Mr. H. J. McCurrich of Brighton had been added to represent staffs of provincial non-teaching hospitals, and Dr. E. R. Williams of South-West Wales to represent rural practitioners. The request of the Society of Apothecaries to nominate a representative in general practice had been accepted, and nominations were awaited from Northern Ireland, whose Government proposed to move *pari passu* with the British Government in this matter. A motion to include representatives of the Medical Practitioners Union was lost.

At the Special Representative Meeting the recommendation was brought forward by Dr. Dain, seconded by Dr. J. B. Miller, and clause (1) was agreed to without dissent, and clauses (2) and (3) were agreed to with very few dissentients. At the Special Panel Conference clauses (1) and (2) were agreed to almost unanimously. To clause (3) an amendment was carried recommending that it be remitted to Scotland to elect its own representatives other than those already nominated by the Royal Scottish Corporations. With this amendment clause (3) was agreed to.

Below is a summarized report of the proceedings of the Joint Conference. The proceedings of the Special Representative Meeting and of the Panel Conference will be reported in a later issue.

PROCEEDINGS OF JOINT CONFERENCE

Statement by Chairman of Council

The first business of the Joint Conference was to receive the announcement published in the *British Medical Journal* of March 20, p. 359, on consultation between the Government and the medical profession.

The CHAIRMAN OF THE COUNCIL (Mr. H. S. Souttar), who was heartily greeted, said that, whatever views they might hold about the future of the profession, this was one of the most important meetings ever called by the British Medical Association. The Association represented not one or other group, not general practitioners or consultants as such, but the profession as a whole. Before the war the Association had formulated its policy for a comprehensive co-ordinated service based on the two-way extension of the National Health Insurance service. With the coming of the war it became evident that in the period which followed the cessation of hostilities there would be great changes in the whole basis of their work; therefore the Medical Planning Commission was set up, and published its interim report last summer. In November, when the Beveridge report appeared, it was seen that some of the ideas expressed by the Commission had been adopted in that document, though details were not considered.

The Council regarded the Beveridge report of such importance as to call for reports on its proposals from certain of the standing committees and the group committees of the Association and for the eventual summoning of a Special Representative Meeting. At every stage the Council had done all in its power to take the Association into its confidence. (Some cries of "No.") After the Council meeting at which it was determined to summon the Representative Body a new situation developed in the shape of an invitation from the Minister to the Association to arrange for a body representative of the whole profession to meet him and discuss the Beveridge proposals. If the invitation had been for a representative body of the Association it would have been easy, but the Association was asked to arrange with other bodies which also claimed a right to speak for sections of the profession. The committee, the names of whose members appeared in the *Journal* of March 20, was accordingly set up. It had been complained that the Divisions should have been asked to elect representatives on this committee. There was no time for that. The request was made on February 18, and they were called upon to meet the Minister on March 9. ("Why?") Because at that very time a meeting between the Minister and representatives of local authorities and of the hospitals had already been arranged. If the Association had postponed the meeting, so that the Minister had entered into discussion only with the local authorities and others outside the profession, would not criticism have been made, and rightly of Association lethargy and timidity?

These recent developments had altered the situation. In the motion previously framed, which it was intended to lay before the Representative Body, it was proposed that if Parliament adopted a certain position with regard to the Beveridge proposals the Association, on certain conditions, would be willing to co-operate. The Government had since decided to adopt a large number of the proposals, and it was now imperative that the profession should accept the invitation to enter into consultation with the Minister as to how one of those proposals was to be implemented. For this purpose there must be a committee, but he stressed that the committee was only a discussions committee, not a negotiating committee. Its members would return to the bodies they represented to obtain their views on whatever proposals might be put forward. He moved: "That the Government's invitation to enter into discussions without commitment be accepted."

A Complaint of "Sidetracking"

Dr. G. DE SWIET (London) said that the Government had not accepted the Beveridge report. In the debate in Parliament the Minister of Health was not even one of the Government speakers. Following that debate there was a wave of disappointment, and then the Minister performed an act of appeasement with his proposal for a National Health Service scheme; while the Beveridge report "taken as a whole" (the vital words in the resolution by the Council which apparently was not now to be taken) was shelved. Yet a meeting had taken place on March 9 between the Minister and this self-appointed body. The further the new scheme was allowed to drift away from the Beveridge report the less would it prove to be anything really new. It looked as though Beveridge was merely a decoy. At this rate there would certainly be no complete structure of social security under a special Ministry, and perhaps even the Friendly Societies would manage somehow to survive.

Mr. MCADAM ECCLES reminded the meeting of the crisis 34 years ago at the advent of National Health Insurance. There was some danger that history might repeat itself. It was thought in those early days that the profession had a cohesion which would enable it to go forward for the benefit of the people as well as for that of the profession itself, but when legislation came the cohesion proved to be only on the surface. He made a strong appeal for a statesmanlike discussion of fundamentals. If in that way agreement were reached they could carry the whole profession and even Parliament with them.

The Question of Leadership

Sir KAYE LE FLEMING, as one who had taken no part whatever in these proceedings, said that when he read the announcement that the Minister of Health had asked the Association to compose a body of men representative of the whole profession his only sensation was one of pleasure that the importance of the Association had been so recognized. (Applause.) Had he still been Chairman of the Council his action would have been the same as the present Chairman had taken. Some appeared to think that this matter might have been delayed. He disagreed most emphatically. If the Executive or Council had said that it was not prepared to meet the Minister with a committee of this kind until the matter had been referred to the whole country, the Minister would have asked the Royal Colleges and some other bodies to do what he wanted. The occasion was urgent, and the action taken was in the best interests of the profession.

Dr. D. L. S. JOHNSTON (Halifax) could not believe that there was need for such haste in appointing the committee. Its appointment might have been delayed until after the present conference. It was suggested that, if there had been delay, the Minister would have gone to some other quarter. But could the Royal Colleges or the Society of Medical Officers of Health run the health services of the community? He begged members not to be intimidated by the suggestion that if they did not at once do something, something would be done for them. Last year the Panel Conference had to be postponed because the Minister was not ready. The profession had an equal right to ask him to wait until they were prepared to meet him.

Dr. HOWIE WOOD (Isle of Wight) said that their constituents did not expect that when major issues arose the Council of the Association or the Insurance Acts Committee should refer everything back to them. They were glad that their leaders acted as leaders. Before an irrevocable step in policy was taken they should certainly be consulted, but they should trust their leaders to do this preliminary work. The committee would collect information from the Government and report back to the constituting bodies before action was taken. It was not a negotiating body. If this leadership had not been forthcoming there would have been good ground for criticism.

Three members of the Council defended what had been done. Dr. P. INWALD asked how they could as responsible people have refused to discuss with the Minister the future of the service. The Government had a right, if it wished, to introduce a comprehensive service. It was the profession's job to see that the Government's proposals were on the right lines. Dr. W. W. FOX said that it was futile to declare that they must not negotiate with the Ministry. The Council or its Executive had acted democratically. It was right to appoint the committee; whether or not the right people were chosen was another matter. Major SCOTT STEVENSON said that he had come down from the Highlands to protest about the way in which the committee had been set up, but at the Council meeting on the previous day he had discovered that he was completely wrong, and he ate his words. There was urgency; it was an urgency which should never have arisen, but that was the fault of the Ministry, not of the Association.

The motion "That the Government's invitation to enter into discussions without commitment be accepted" was carried with only two dissentients in a meeting which must have numbered about 400.

Consultation with the Rank and File

Prof. R. M. F. PICKEN then moved Part (2) of the long resolution set out in the introduction to this report, empowering the committee to enter into discussions on a scheme for comprehensive health and rehabilitation services available to all members of the community (Assumption B of the Beveridge report) in the light of undertakings to use the full machinery of the Association to consider the Government's proposals and to take every practicable step to give all members of the profession an opportunity to express their views. He recalled the history of the Association's proposals for a General Medical Service for the Nation. The Medical Planning Commission had started with the knowledge that the profession had already accepted proposals of a very extensive nature, and its own revolutionary proposals were to a large extent accepted by the last Annual Representative Meeting. Thus the democratic machinery of the Association had been constantly used in building up the policy. The profession went into these discussions with the Government prepared in a way in which it had never been prepared before. He was sure that the Government was perfectly honest in saying that it wanted to get on quickly with the discussions in order that it might be prepared for whatever conditions would arise after the war. Even the Prime Minister, who had constantly said that the primary business was the winning of the war, had in his latest broadcast affirmed the need for laying the groundwork for these social matters even while the war had still to be won.

Dr. R. W. COCKSHUT (Hendon) said that democracy expressed the will of the majority and protected the rights of the minority. The representatives of the profession must represent the majority views. The profession had insisted, even with vehemence, that it was opposed to a whole-time State salaried service. That feeling had even gained ground during the last few weeks, and the profession was now united on this point as never before. His criticism of the Council was that it had not ensured that the members of this committee were in full accord with the views of the Representative Body. The committee included men who were known to be strong advocates of a State Medical Service. This was not democracy, it was anarchy. Unity through the British Medical Association was their only hope as a profession. He urged that the meeting should take its stand on certain principles: that the relationship of doctor and patient as at present constituted should not be impaired or disturbed; that freedom of choice should be preserved, and present restrictions on that freedom so far as possible removed; that in no sense should the doctor become either a civil servant or a Government official; and that the autonomy of the profession should be kept as inviolate as the autonomy of the profession of the law. Another point of insistence should be that no medical man should, as a result of changes which came about, suffer any loss of capital or income.

Dr. A. SMITH POOL (Glasgow) said that there was too much urgency about this question. He wanted to slow down the speed of radical reform in medical practice. Delay in reorganization was not going to deprive people of necessary medical attendance. Thousands of doctors in the Services had a right to be heard, perhaps a better right than most of those present that day, and if a bad bargain were made in their absence it would sow the seeds of future strife within the profession. These absent men should have a voice in the final settlement. It seemed to him that the Beveridge plan, if adopted, would split the medical profession into two parts—private practitioners and contract practitioners.

The Chairman (Dr. Dain) said that those concerned were well aware of the necessity for being careful and not rushing matters. The urgency was that the profession should be in at the beginning of these discussions; having got in, there was, as he saw it, no further urgency. No extension of services was possible, of course, while the war was on.

The Rural Practitioner

Dr. E. R. Williams (South-West Wales) wished to raise a question which concerned only a small minority of practitioners—namely, those in very sparsely populated areas. In West Wales his next medical neighbour in one direction was 23 miles away, and in another direction 15 miles. Was there on this committee a practitioner who was suitable to represent these very difficult practices? The Chairman said that at the meeting of the Council on the previous day it was felt that one of the gaps in the membership of this committee was the absence of a rural representative, and Dr. Williams's own name was suggested.

Dr. J. A. Ireland (Shrewsbury) said that this was not the time to revolutionize the whole practice of medicine. Whatever was decided as the result of this committee's so-called discussions or negotiations—and where the former became the latter no one could tell—would be fixed in perpetuity. There was one snag in the motion by Prof. Picken. It was in the words "available to all members of the community." At the last Annual Representative Meeting the proposal to have a comprehensive medical service covering 100% of the population was carried by 94 votes to 92, but he did not think that the vote represented the view of the meeting. It was rather put in the form of the question: "Should everybody have a decent standard of doctoring?" to which, of course, the usual answer was "Yes." He felt that the so-called urgency was political expediency and nothing else. It was "rubbish" to say that the position was comparable to 1910. Negotiations were then being carried on with a prospect of increased payment for work done—the insurance capitation fee as opposed to the old club rate—but to-day there seemed to be nothing except a State Medical Service or a 100% extension of the panel system.

Dr. R. W. Rae asked whether the Government demanded that there should be compulsory health centres in the new scheme. He did not see how these could be worked on a capitation basis.

Duty to the Community

Dr. J. R. Baker (Scunthorpe) said that they ought to be discussing not only what they got out of the community but what they gave to it. Sir William Beveridge had said that his scheme depended on a 100% contributory system for the whole nation. If an attempt were made to exclude health services from that contribution the Beveridge report would be torpedoed. To bring about such a result for the sake of the few private patients who were left to them was to do less than their duty to their absent colleagues. He would hate to see these men now in the Forces dragged back into a competitive scramble.

Dr. R. H. Mole, speaking as one of that "rare body," the under-thirties not in uniform, said that his Division (Oxford) had decided with a single dissentient that it would like to see every member of the community brought into the service. Only if the health scheme were fully comprehensive would a proper doctor–patient relationship obtain from the patient's point of view, while from the doctor's point of view it would do away with the difference in prestige between doctors who took private fees and those who took capitation fees.

Dr. A. M. McMaster desired to instruct the representative committee to insist on a fair settlement of the present capitation fee as an essential preliminary to any new discussions, but the Chairman said that this would cut right across the business of the moment, and he could not take such an amendment without notice.

Clause (2) of the resolution which had been moved by Prof. Picken was then, after a slight verbal alteration, carried in the form set out at the beginning. There were no dissentients.

The Composition of the Committee

The Chairman said that the next business was to approve or otherwise the composition of the representative committee as set out in the *Journal* of March 20 (p. 359). He added that no negotiations would be carried out by this committee, but discussions only; when it came to the stage of negotiations the personnel would have to be considered again.

The Chairman of the Council, in moving approval, said that the composition was determined after careful discussions with the other bodies, and personally he thought it a considerable achievement to have such a body brought together under the aegis of the Association. The bulk of its membership had been appointed on the most democratic principles. All the members had done sterling work for the profession.

In reply to Dr. Baldie, who asked whether the committee would have power to co-opt, the Chairman said that this had not been suggested, but it would have power to set up subcommittees to deal with specific points as they arose, and to these subcommittees outside persons, perhaps through the specialist group machinery of the Association, might be appointed.

Dr. D. L. S. Johnston (Halifax) protested against the committee on the ground that it had been very hurriedly appointed and was not wholly representative of the majority opinion of the last Annual Representative Meeting. There were members of the committee who were all out for a State Medical Service. This was not a question of personalities but of policies.

Claim of the Medical Practitioners Union

Dr. Gordon Ward (Sevenoaks) moved that two representatives of the Medical Practitioners Union be added to the committee. He said that the Union had between 5,000 and 6,000 members and had been in existence for 29 years. It published a weekly journal, and it did represent a genuine minority opinion. If it were excluded from these conferences with the Ministry three possibilities would be open to it. One would be to keep quiet and abrogate any further representation of its members; but that would not be an honourable course for any professional body. Another would be to join with some political party and work outside the profession to attain its end by political means. (He did not necessarily mean the Labour Party, for the Labour Party was bitterly opposed to the aims of the profession at the moment.) The third course would be, knowing nothing of what was happening, to continue urging its own policies in the Press or by memoranda, and then, surely, the enemies of the profession would play one section against the other. The Union wanted to join in a combined approach, and no sectional squabbles should prevent it. Dr. N. E. Waterfield asked whether the policy of the M.P.U. was a State Medical Service. Dr. Gordon Ward said that its policy was a State Medical Service, as was that of the Society of Medical Officers of Health, which was represented on the committee. But the M.P.U. would not be on the committee to represent the policy of State Medical Service any more than the B.M.A. would be there to represent the policy of non-State Medical Service.

Dr. E. A. Gregg said that he did not see any ground whatever for including this representation. He completely disbelieved the statement regarding the membership of the Union, of which no proof had been given.* The organization was not representative of the profession and would promote disunity within the body which had to deal with these serious matters. He had a vivid recollection of the extremely embarrassing position created at the Court of Inquiry on the capitation fee, and he was not yet satisfied that the intervention of the Union had not a great deal to do with bringing about the unfortunate result of that inquiry.

The motion to include representatives of the Medical Practitioners Union was defeated by a large majority.

The Position in Scotland

Dr. W. Jope (Lanarkshire) protested against the method adopted in choosing the Scottish representatives on the committee. The Insurance Acts Committee was given to understand that the committee as at first constituted would cease to function at the date of that conference, but since then they had had an announcement that the personnel, including six Scottish representatives, had been agreed. A combined meeting of the Scottish Committee and the Scottish Insurance Acts Subcommittee had unanimously protested against the method adopted. Scotland was not consulted with regard to the representation and was greatly dissatisfied.

Dr. Dain asked the Conference not to be carried away by the fervour of their Scottish friends. There were Scottish representatives on this committee, but Scotland had also a committee of its own to consider Scottish problems. It had also been a matter of complaint that the election had not been made from the constituencies. That was not the democratic method; electors in this country did not elect a Government, they elected a Parliament which itself chose or maintained in power a Government.

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* At the Special Panel Conference Dr. Ward raised this question again and quoted figures, as also did Dr. Gregg in reply. A similar motion was rejected by that Conference.

Dr. J. A. MOODY (Stratford) believed that the small representation of the public health service and the lack of any accredited representative of industrial medicine were open to criticism. Dr. K. I. E. MACLEOD said that the medical members of any body which was to negotiate with the Government should have been elected by a vote of the whole profession. Dr. D. O. TWINING complimented those concerned on the selection, but pointed out the absence of any Service members. Dr. J. C. ARTHUR, speaking as a member of the Ministry of Health Advisory Committee, said that it could be accepted as certain that there was urgency, and to meet that urgency the Association had acted as democratically as possible in the circumstances.

Dr. J. F. LAMBIE replied to the Chairman's remark about a separate committee for Scotland; this was necessitated by the difference in Scottish services—for example, in relation to the Scottish Maternity Act and to the Highlands and Islands Scheme. But it was felt in Scotland that this committee appointed in London had not been set up as democratically as it should have been. A new committee had now been set up in Scotland for consultations with the Secretary of State and was on a democratic basis. In reply to a question he said that it was rather large, consisting of 52 members. Dr. I. D. GRANT asked for an assurance that a negotiating committee to replace the present discussions committee would not be nominated by the Council and come before the representatives as an accomplished fact. Dr. DAIN said that obviously the Chairman of that meeting could not give that guarantee; he could only say that before any negotiating committee was got together a Representative Meeting would be summoned.

The motion approving the composition of the committee was carried by a very large majority.

The Position of the Medical Advisory Committee

Dr. A. V. RUSSELL (Wolverhampton) raised the question of the Ministry of Health Medical Advisory Committee, suggesting that that committee be adjourned while the representative committee was pursuing its discussions with the Ministry. Many members were on both committees. Dr. J. A. IRELAND supported this view. It was impossible for a man to serve two masters.

Dr. A. T. ROGERS, a member of both committees, considered that there was some advantage in the interlocking. He added that the Advisory Committee was by no means a body of "yes men." After one session in which criticisms were put forward the Minister was doubtful whether he had an Advisory Committee at all. Prof. PICKEN, also a member of both committees, thought that the judgment of those who were in that position might be trusted. Dr. A. BEAUCHAMP thought that the fears underlying the suggestion of Dr. Russell were unfounded. The Advisory Committee was not there to agree with the Minister and did not hesitate to pronounce disagreement when it thought this was required. Without the Advisory Committee the Minister would be advised only by his own permanent officials. Dr. S. WAND spoke in the same sense. Their representatives on the Advisory Committee could be trusted; they were not "yes men," and they did represent a good cross-section of the profession. At the same time, he did not think it advisable that they should have referred to them matters which were under consideration by the new representative committee. Dr. J. A. BROWN, another member of both committees, hoped this matter would not be pressed. If the Advisory Committee ceased to function it would be quite easy for the Minister to get together another body, perhaps a body of "yes men."

Sir KAYE LE FLEMING saw no reason why the Advisory Committee, with the men they had appointed to it, should in any way jeopardize the discussions with the other body, and he could see very good reasons why it might be an advantage to have members of the Advisory Committee on the other committee.

After further discussion it was agreed, on the suggestion of the SECRETARY (Dr. G. C. Anderson), as an expression of opinion that during the present discussions with the Ministry no matters concerning Assumption B of the Beveridge report should be considered by the Advisory Committee. Dr. Anderson said that there were many matters on which the Minister desired the advice of the committee. The Advisory Committee had met on two occasions only; on the first it had considered certain questions arising out of the Venereal Diseases Regulations, and on the second, questions concerning mass radiography. The Medical Planning Commission had advised the setting up of an Advisory Committee to the Minister, and there was certainly room for one, but its work should not entrench on the representative committee which was now set up. Dr. RUSSELL, who had raised the point, expressed himself satisfied.

This concluded the business of the Joint Conference.

FUTURE OF MATERNITY AND CHILD WELFARE SERVICES

Representatives of some thirty different societies discussed the future of the maternity and child welfare services at a conference held under the auspices of the National Association of Maternity and Child Welfare Services. Varied views were expressed, but there was unanimity on two things: (1) the need for teaching parentcraft; and (2) the importance of a revised and improved training for the medical student and doctor. One or two speakers saw the family doctor of the future as teacher and guide of those under his care, an enthusiast for positive health, anxious to be responsible for ante-natal and child supervision, but preferring to be a diagnostician rather than occupy himself with the treatment of acute disease, which he would apparently be prepared to hand over to specialists. Some members thought the consulting paediatrician and obstetrician should direct their respective services. Others suggested that if there was group medical practice at health centres it would be easy to arrange for some of the doctors to have special training and experience in child health; these might carry on the work of the present clinics in close contact with the health visitors, at the same time extending the child welfare services to embrace the curative as well as the preventive work; a consulting paediatrician would be available if necessary. It was agreed that the present break in the child welfare services at the age of 5 was an artificial one, and that the school medical service should be part of the general arrangements for child health. Other points raised were the desirability of a new central Government Department to link up health and allied services, and the need for a new outlook on hospital ante-natal supervision, one which did not regard a row of healthy, energetic, young expectant mothers as "patients." It was suggested that in the meantime the National Association would do well to decide what parts of its work should be safeguarded in the future health service.

POSTURAL AND REMEDIAL EXERCISES

A display of postural and remedial exercises, arranged by the Inspector of Physical Fitness, R.A.F., with the kind permission of the Air Council, was given recently in London under the auspices of the Board of Registration of Medical Auxiliaries, Mr. V. ZACHARY COPE, President of the Board, being in the chair. Air Commodore A. C. CRITCHLEY, who opened the display, said that in his group they looked after the initial training of new recruits to the Air Force, who in the early stages needed very little remedial exercise. Later on, through the wounds of the war, remedial exercises were of great importance. The younger generation had not been told the importance of keeping fit. Those who cared for the initial training of the air crews of the R.A.F. saw the results of civil education, and there was a good deal which could be done which had not been done in the past but which, he hoped, would be attended to in the future.

A display of postural and remedial exercises was then given by two groups of R.A.F. recruits from an Air Crews Reception Centre. Wing Commander W. S. DAILEY said that a few days before these men had been civilians; they had not been chosen for their physique or for their fitness and ability, but were representative of the normal recruit sent in under their normal instructors. One group worked on foot defects and the other on spinal defects. The training was to encourage agility, standing, stretching, correct breathing, and so on.

At the end of the display Mr. Zachary Cope spoke on the scope and organization of the Board of Registration of Medical Auxiliaries. He said that medical auxiliaries were the skilled technicians in the various branches of the medical armoury. First there were the physiotherapists, represented by the Chartered Society of Massage and Medical Gymnastics, who not only carried out what the name suggested but also all forms of electrotherapy. Then there were radiographers, chiropodists, speech therapists, dispensing opticians, and orthoptists. The Board of Registration saw that those on its register were competent in their particular branch of medical science, and insisted upon the following criteria: (1) members must be well trained; (2) they must have passed a satisfactory examination; (3) they must keep a high ethical professional standard; and (4) they should in most cases work in co-operation with or under the supervision of a medical man. For the protection of the public it was necessary that there should be some way in which in any profession competent persons could be distinguished from the incompetent. For this purpose Parliament had from time to time passed Acts which laid down certain necessary qualifications that should be attained before the individual's name could be put on a register of those qualified to practise. The *Medical Register* was started in 1858, the Register for Pharmacists in 1868, and that for dentists in 1878. The midwives were legally registered in 1902, and the last to be registered by the State were nurses, whose register began in 1919. Until recently medical auxiliaries were the only group not listed in an independent register. But seven years ago Dr. C. B. Heald, now consultant in physical medicine to the Air Force, suggested to the B.M.A. that a register of medical auxiliaries should be formed, and thanks to the organizing ability of Dr. G. C. Anderson and the co-operation of Group Captain Cooper, backed by the B.M.A. and the Society of Apothecaries, a register was started and the Board of Registration of Medical Auxiliaries came into being.

At the conclusion of Mr. Cope's address the R.A.F. instructional film "Fighting Unarmed" was then shown, and this was followed by a "surprise item," which was a series of physical training exercises performed by the recruits accompanied by the band of the R.A.F.

Correspondence

A Fair Deal for Medicine

SIR,—The Government are committed to a comprehensive medical service available to everybody from conception to the grave. We welcome the assumption, which indeed is unassailable. What the Government ostensibly are not committed to is the exact form the service is to take. Therein lies our danger and our opportunity. The danger is that if we do not see the vital issues clearly and quickly, and do not present them with determination and unanimity, eschewing such thoughts as "anything is good enough for the general practitioner" and "the consultant is well able to look after himself," we may find ourselves fettered with uneasy chains. The opportunity, which may not recur for a thousand years, is that we can, if we will, evolve such a service as will testify to the honour, dignity, and usefulness of the whole medical profession. We are anxious to give society a fair deal, and we ask from society a fair deal in return. The essence of that fair deal can be concentrated under the title of spiritual freedom and economic assurance for the service and the individual.

Spiritual Freedom.—The medical profession should be so constituted (1) that any member, within the limits of his ability and character, can rise to the highest position in medicine and society in general, and that, no matter what his status, he can perform his legitimate medical duties and consult with any other member as a colleague and in a spirit of equality without fear or favour; (2) that in the organization of the medical service the decisions on matters of purely medical practice—e.g., teaching, research, hospital, consultant, and general practice—should be in the hands of predominantly medical committees, and that the decisions on matters of medical management—central, regional, or local—should be in the hands of committees on which medical men are adequately represented. I am convinced that the preservation of this professional and individual independence is compatible with wise State control.

Economic Assurance.—In general terms, the remuneration of the individual should be sufficiently generous to ensure his dignity and confidence in whatever society he finds himself. No patient likes his doctor's mental and material garb to be inferior to his own. The failures of medical practice in the past and the necessity for its reorganization in the future can be viewed from two aspects: (1) the inability of the general public individually to afford payment for their complete medical requirements; (2) the inadequate remuneration to doctors per patient, whether private or insured, which compels the busy doctor to be too hurried, particularly in thickly populated areas, and makes him fail to divide his time in proper proportion between individual patients, study, family duties, recreation and travel, etc., and civic responsibilities. In other words, there are too few doctors, the majority of whom are too busy attending to too many patients who are individually too poor to provide reasonable remuneration to those doctors. The poorer patients, including most of the middle classes, cannot individually be expected to bear the entire burden of their medical requirements. The answer is some form of insurance by contribution or taxation (*vide* the Beveridge report).

From the medical side payment can be by salary, capitation fee, or item of service. If the salary were adequate and provided for automatic increase according to the standard of living—and by living I mean not merely an arithmetic addition according to the cost of food (for man does not live by bread alone)—it would be the method most easily administered. It would allow of more ready co-operation between doctors in obtaining time for postgraduate study, running of health centres, holidays, and so on, and would replace the competition for patients by a competition for improvement in work. Any salaried system must not be based on the rigid Services model. Those doctors now in the Forces have full knowledge of that system, and they should have a say in the final judgment. This, of course, is not possible till after the war.

The Medical Planning Commission has recommended a combination of salary, capitation fee, and private practice. Let us beware that each item is not used as a lever to beat us down on the next, so that we would get a very small salary, a poor capitation fee, and practically no private practice.

To sum up, I think it is time that we adopted some purely medical aims on the lines suggested by Dr. Geoffrey Bourne (Feb. 20, p. 227) and applied generally, as I have sought to do under the heading of spiritual freedom. The Beveridge report is remarkable for its powerful presentation—concise, clear, and intrinsically fair. Could we not get Sir William Beveridge to examine our case, interview our divergent commissions, associations, unions, societies, and committees, and some representative individuals, and edit a medical report for our consideration? Failing this, could we not at least get him to address a general meeting of the B.M.A. on the subject of the medical services of the future, for he must have many recondite ideas and we might see a light?—I am, etc.,

London, N.2. G. W. M. MACKAY.

A National Medical Service

SIR,—The most disquieting feature of the statements so far made by the Government spokesmen is unquestionably that they "have made it clear that the responsibility for administering such a service is to devolve on local bodies." (*Journal*, March 20, p. 354.) This is a horrible outlook for the profession, as one can foresee that within a short time we should all be under the jurisdiction of our local medical officer of health. Such a setting up of "medical gauleiters" would indeed be a disaster for all practitioners. If there must be a State service then let it be administered centrally, so that we are all in the same boat, and not subject to the whims of local bodies.

It seems a great pity that the representatives of the profession who are to discuss the national service with the Minister of Health were not elected by a free ballot of the profession as a whole, instead of being proposed beforehand, no mention being made of who did the proposing. However, let us hope that our representatives will bear in mind when they meet the Minister of Health that he has already dealt the profession the worst "smack in the eye" that we have ever suffered by raising the income limit without prior consultations; also that they will not be led away by all the specious promises which are now being made and which are given such emphasis in the *Journal*. Specimens are: ". . . The Government, in framing any time-table, will not forget that many of the profession are serving over-seas" . . . "the Government has declared its intention not to spring surprises in unilateral action" (*Journal*, March 20, p. 354) . . . "the discussions will take place not on the basis of any preconceived plan of the Minister but 'from the ground'" (p. 359). There is a false note about these declarations and they certainly seem far removed from our experiences in dealing with the Ministry of Health on previous occasions.—I am, etc.,

Lincoln. G. A. BAGOT WALTERS.

Health Centres

SIR,—Dr. W. Edwards's semi-humorous letter (*Journal*, March 27, p. 398) is very disturbing. He is unaware of the nature of the proposed health centres. They will not be glorified out-patient departments. There was never any thought that they should in the least interfere with the correct treatment of sick people. They are to be places where general practice can be carried out under better conditions than at present. There would never be any question of his "little Audrey" having to go to the centre when she should be visited in her own home. To jeer at the white-coated doctor is rather reminiscent of the days when the same jibes were made at the sterile gown by the devotees of the filthy frock-coat.

It is quite reasonable to assume that health centres are not ideal in all areas, but in the great majority they will be an inestimable boon to the patient and the doctor alike. In this area we hope to establish an experimental health centre where the doctors will take their practices, lock, stock, and barrel, and do all their work therefrom. There will be a complete 24-hour service, and at the same time the doctor will get adequate rest. We intend to do only general practice, but we hoped so to improve our work that medicine will have for us that same intense interest that it had when we started out to practise our art. We are quite sure that at health centres we shall be able to take our rightful place in the world of prevention of disease by doing general practitioner research. It is impossible in the space of a letter to go into the full organization and scope of health centres, but since such ignorance of the subject is abroad I think a full-scale article is called for. Until that has been published may I appeal to would-be correspondents to hold their fire?—I am, etc.,

Yardley. ARTHUR BEAUCHAMP.

The G.P.'s Part in Planning

SIR,—May I as a G.P.'s wife write in support of Mrs. P. M. Beauchamp, whose letter you published on March 20. I am sure that as a class we G.P.s' wives will welcome a health service worked from centres instead of our own homes. For years we have been slaves to the telephone; and in these increasingly difficult days we are slaves not only to that non-stop instrument but also to the front-door and surgery bells. We, like many others, were forced to take an enormous old house in a bad state of repair. It is impossible to get servants, and I am now saddled with this nightmare until such time as some heaven-sent scheme for centres will release us from this eternal drudgery.

My husband joined the R.A.M.C. at the beginning of the war, and we have a locumtenent and his wife in the house. But for her presence here I should never be able to leave the place; as it is we take turns and consult each other as to convenience when we want to go out. Should one of us have an engagement then the other *has* to stay in no matter what other attractions may offer. I leave it to the imagination as to what holidays are like. Life is rapidly becoming intolerable for us. The G.P. is the only man expected to be on duty night and day year in and year out. It is time that a civilized community realized this and released these overworked men and their wives to enjoy a little legitimate and regular free time, and allow them the common privilege of choosing where and how they shall live.—I am, etc.,

M. ST. CLAIR MACKENZIE.

Kew Gardens.

The G.P.'s Part in Planning

SIR,—In the *Supplement* of April 3 (p. 42) Dr. Leslie Hartley, in support of his personal view, has quoted an extract from the Prime Minister's broadcast of March 21. May I draw everyone's attention to another extract from that broadcast? "Therefore you must rank me and my colleagues as strong partisans of national compulsory insurance for all classes, for all purposes, from the cradle to the grave." I think the little word "all" is very significant.

At the Representative Meeting in London on March 31 we were told that the Ministry of Health had taken its "eye off the ball" long enough to present the representative committee with a proposed scheme for medical services. We were given to understand that the scheme was so severely criticized by that committee that the Minister withdrew it, and we are not likely to hear any more of that particular one.

Perhaps selecting specific phrases from their contexts is a dangerous game in arriving at what a particular politician means. In this connexion I should like to refer to the letter of my friend Mr. Steele in the same issue. I was, unfortunately, prevented from meeting Sir John Jarvis, but I really am astounded to hear that our contribution to the world's problems is to be compared with "a very small drop in the bucket of post-war problems and expenditure." If so, I most heartily endorse Mr. Steele's suggestion that all study groups should make great efforts to meet their members of Parliament, if only to instruct and explain matters to them. After all, they are laymen and may consider that our work consists of a bottle of medicine, an operation, and—with a flourish of trumpets—diphtheria immunization; whereas general practitioners have for generations been labouring in the field of higher medicine, by which I mean all and more than Mr. Churchill referred to under the nation's health and education in his broadcast.

What better body of men could there be to report on local housing conditions than an active group of practitioners working under conditions visualized in the draft interim report? Practitioners have in the past been frustrated in such work—although they have been acutely aware of the need for it—by constantly having their attention and energies diverted into unproductive drudgery.

Finally, there is one aspect of this discussion which has forced itself upon me. The panel system was a "Departmental measure." Such success as it has achieved in the past is due almost entirely because the working of it has lain in the hands of general practitioners, 99% of whom are honest craftsmen. It is a poor workman that blames his tools, and in this lies the panel success. Would it not be far better in the future for medical men to plan a scheme that ensures that the public has real attention and care? Then let the scheme be presented to the Departmental authorities and bureaucrats, and let them devise Departmental rules that will fit our scheme, and not the other way round as was done in the National Health Insurance panel scheme. Whatever form the new practice takes let us insist, "These are the tools. Give them to us. And we will tackle the job."—I am, etc.,

TERENCE TURNER,

Godalming. Chairman, Guildford Study Group.

Highlands and Islands Medical Service

SIR,—It is to be hoped that the Scottish Representative Committee will take steps to acquaint themselves very fully with the conditions prevailing in the island practices of the West and North of Scotland, where, at the moment at least, an assistantship is less remunerative than it would be in the South. There are not too many doctors who would be willing to make the sea passages in rough and stormy weather that the island medical man is called on to do, and that in a small fishing boat for 20-odd miles; and the earnings of such a practice is gross £650, out of which come drugs, house, car, boat, etc.—I am, etc.,

Shetland Isles. M. M. C.

The Home Office announces that Dr. Alec Gordon Douglas Gavin of London, S.W.16, Dr Ian Fleming McLeod of Stirling, and Mr. Oswald White, dentist, of Bedford, are no longer authorized to be in possession of or to supply dangerous drugs.

H.M. Forces Appointments

ROYAL ARMY MEDICAL CORPS

Capt J. Walsh to be Major.

LAND FORCES: EMERGENCY COMMISSIONS

ROYAL ARMY MEDICAL CORPS

War Subs. Capts E A Clegg and J H. Scott have relinquished their commissions on account of ill-health, and have been granted the honorary rank of Capt.

To be Lieuts: A J. Kalisch. K Aschkanasy R. J. Elsberg, W Brinitza, E Aron, R. W Adam J. H Adams, R H. Andrews, H G Biggart, W. J Birchall, W. A. Busby, M. S Campbell, S Ciappara, W. Clark, N. Cowley, D. J. Crawford, A Essex, F A Elliott, A Forrest, R. Friedlander, H. K. Goady, K P D Griffiths, W. R. Hatswell J. L Hampson, I. P. G Howells, A. G Jones, E. D. Jones, H V Jones, M Kelman A. I. K Kerr, C. M. Kesson, J Ledingham, R Levy, R L Lunt, J. R. Mark, J C. Newbold, P. J. Pablot, C. G Phillips, P. C. Reynell, N. H L. Ridley, H. L Settle, D E. Sharvill, J. A Squire, M G P. Stoker, G. N J. Thomas, H. G. Whitworth, A. E Wilson.

WOMEN'S FORCES

EMPLOYED WITH THE R.A M.C.

Lieut F H. Heron-Watson has relinquished her commission on account of ill-health.

Anne N. M Llewhelin to be Lieut

WEEKLY POSTGRADUATE DIARY

FELLOWSHIP OF MEDICINE, 1, Wimpole Street, W.—*Royal Cancer Hospital:* Lectures daily, 3 p m and 4 30 p m. Revision course in anaesthetics *London Homoeopathic Hospital:* Wed. afternoon, F.R C S. clinical demonstration *St. Mary Islington Hospital*. Wed, 2 p m, F R C S clinical demonstrations. *London Homoeopathic Hospital:* Sat., April 17, 2 30 p m., F.R C S clinical demonstration *National Hospital for Diseases of the Heart:* Tues. and Wed., 10 a m., Out-patient clinics

DIARY OF SOCIETIES & LECTURES

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W C—*Mon.*, 4 p m. Mr. J. C. Ross Injuries of the Urinary Bladder. *Wed*, 4 p m Mr C. R Greene: Frost-bite and Kindred Conditions *Fri*, 4 p m. Mr. S M. Cohen: Traumatic Arterial Spasm.

LONDON ASSOCIATION OF THE MEDICAL WOMEN'S FEDERATION—At B M.A. House, Tavistock Square, W.C, *Thurs* 5 p m Subject Some Therapeutic Uses of Endocrines in Obstetrics and Gynaecology.

MEDICAL SOCIETY FOR THE STUDY OF VENEREAL DISEASES, 11, Chandos Street, W.—*Sat.* (April 17) 2 30 p m. Major Marjorie Bolton: Sulphonamide Treatment of Gonorrhoea in Women.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W.—Mon, 4 p m. Pathological meeting 5 p m Discussion.

SOCIETY OF THORACIC SURGEONS.—At Royal Society of Medicine, 1, Wimpole Street, W., *Wed*. 2 p m: First-aid Treatment of Chest Wounds and Injuries; and Early and Late Treatment of Retained Foreign Bodies. *Thurs.*, 9 30 a.m. Role of the General Surgeon in Treatment of Chest Wounds in Forward Areas. 2 p.m Treatment of Pleural Empyema.

B.M.A.: Branch and Division Meetings to be Held

GLASGOW AND WEST OF SCOTLAND BRANCH—At Institution of Engineers and Shipbuilders in Scotland, 39, Elmbank Crescent, Glasgow, Wed, April 14, 3.30 p.m. Prof. J M Mackintosh: Medicine and the Problem of Unemployment.

NORTHERN COUNTIES OF SCOTLAND BRANCH.—At Air Cadet Corps Hall, Bank Street, Inverness, Mon, April 12, 6 p m. Dr R L Kelham and Capt. A Maxwell. Amputations and Limb Fitting All medical practitioners in the area of the Branch are invited

NORTH OF ENGLAND BRANCH—At Newcastle General Hospital, Thurs., April 15, 7.15 p.m. Clinical demonstrations in Ward A1. Short papers by Dr. George Davison: Jaundice; Mr. J Collingwood-Stewart: Injuries of External Semilunar Cartilage; and Mr. Linton Smith: Sterility All members of H M. Forces serving in the area of the Branch are invited.

BIRTHS, MARRIAGES, & DEATHS

DEATH

MASTERMAN—In Jerusalem, Palestine, Ernest W. Gurney Masterman, M D, F R.C S, late Medical Superintendent, St. Giles Hospital, Camberwell, S E.5.

SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
LONDON SATURDAY APRIL 17 1943

SPECIAL REPRESENTATIVE MEETING

PROPOSAL FOR DISCUSSIONS WITH GOVERNMENT

The Special Representative Meeting, following the Joint Conference of members of the Representative Body and of the Panel Conference,[1] was held on the afternoon of March 31. Dr. PETER MACDONALD of York was in the chair.

The principal motion on the agenda, to which there were a large number of amendments, was a recommendation of the Council affirming the willingness of the British Medical Association, with certain important provisos, to co-operate in the preparation of a scheme for comprehensive health and rehabilitation services should Parliament decide to accept the assumptions of the Beveridge report and put into operation its proposals, taken as a whole. The CHAIRMAN OF COUNCIL (Mr. H. S. Souttar) formally moved this recommendation, but said that circumstances had changed since the Council formulated it, and in view of the debate in the Joint Conference a different form of resolution might be preferable.

Dr. H. GUY DAIN, who had been chairman of the Joint Conference, explained that it was not competent for an outside body such as the Joint Conference to bring forward a proposal to the Representative Meeting, and therefore in his own name, with Dr. J. B. Miller as seconder, he proposed the tripartite resolution which the Joint Conference had adopted, and technically it would be an amendment to the Council's proposition. He moved accordingly the first section of the resolution:

"That the Government's invitation to enter into discussions without commitment be accepted."

This was agreed to without dissent.

The Representative Committee

Dr. DAIN then proceeded to move the second section:

"That a committee representative of the profession as a whole should, in response to the Government's invitation, now enter into discussions with representatives of the Minister of Health on 'a scheme for comprehensive health and rehabilitation services, for the prevention and cure of disease and restoration of capacity for work, available to all members of the community' (Assumption B of the Beveridge report), in the light of the following undertakings now given:

"(*a*) That, at the conclusion of the discussions and at the appropriate time or times during the discussions, but in any case before negotiations open and before any proposals are submitted by the Government to Parliament, the full machinery of the Association, including the Council and its Committees, Groups, Panel Committees, Divisions, and the Representative Body, will be used to consider the Government's proposals and to decide the Association's view thereon.

"(*b*) That every practicable step will be taken to give all members of the profession, whether members or non-members of the Association, an opportunity to express their views and in particular that every practicable step will be taken to give to members of the profession on service an opportunity of expressing their views, to assess those views, and to present them to the meeting or meetings of the Representative Body called to consider any proposals by the Government."

Dr. J. B. MILLER, in seconding, said that in passing this resolution, the Association was mindful of its great history and traditions. Practically every great improvement in the health services had been ventilated at the Annual Meetings of the Association, in some cases years before it was brought about. The foundation of the Ministry of Health, for example, was advocated by the Association fifty years before it was established. The reform of the Poor Law, the institution of the school medical service, and many other important innovations really had their birth in Association discussions. It was only right, therefore, that when this great scheme for comprehensive services was before the country the Association should be in at the very beginning. The CHAIRMAN pointed out that the effect of passing this motion would be that a large number of the amendments on the paper, which were to the Council's original proposition, would fall to the ground.

Dr. C. I. SCHIFF (City of London) said that if some of these amendments were not taken the result would be a feeling of frustration in the Divisions. Dr. D. L. S. JOHNSTON (Halifax) said that the question centred on the phrase "available to all members of the community." He desired to move that the committee which went into discussion with the Minister should do so on the understanding that the Association was not committed to a comprehensive scheme. Mr. H. J. MCCURRICH (Brighton) asked whether such a motion would not be equivalent to rescinding the resolution in favour of the inclusion of the whole community which was carried by a small majority at the last Annual Representative Meeting, and for this purpose two months' notice would be necessary. The CHAIRMAN said that that was overruled by the by-law which authorized the calling of a Special Representative Meeting. Eventually, however, Dr. JOHNSTON withdrew his motion.

The amendment moved by Dr. Dain was carried, with four dissentients, and became the substantive motion, and as such was carried.

Dr. C. A. BINNEY (Reigate) moved that approval of the part of the Beveridge report which applied to the medical profession should be postponed until after the war, the reason being the impossibility of obtaining, in present circumstances, the views of the large number of doctors now serving with the Forces. It was not a fitting time, he said, at the height of the greatest struggle in our history, to divert our thoughts and energies from the supreme task of getting on with the war. The CHAIRMAN said that such a motion could be put up at an Annual Representative Meeting when decisions were to be taken, but in the present stage of discussion he did not think it was appropriate.

Dr. DAIN, in reply to some further discussion, said that the word "available" did not necessarily mean "provided free of cost." Some of those who had amendments on the paper seemed to fear that the time spent in the Divisions in considering detail would be lost. There need be no such fear. The opportunity of using the opinions of the Divisions would arise at a later Representative Meeting, and it would then be not only competent but very desirable for these to appear on the paper again as an expression of Division opinion. He also explained that the "undertakings" mentioned in the resolution were between the Representative Body and the committee which was set up to do the work, but the word also referred to an undertaking given at the preliminary meeting by the Minister of Health that such a course would be adopted by him.

Composition of the Committee

Dr. DAIN then moved the third part of the resolution which had been carried in the Joint Conference:

"That the composition of the representative committee, as reported in the statement published in the *Journal* of March 20, with the additions announced at this meeting, be approved."

He again reminded the meeting that this was a discussions committee, not a negotiations committee, and it had no power to commit the Association in any way. Its task would be to explore the possibilities of a national health service scheme on the understanding that the matter would in any case come back to the Representative Meeting. Approval was asked on the distinct understanding of the limited functions of the committee and on the undertaking that opportunity would be afforded for its reconstruction when a negotiating committee was required.

Dr. G. DE SWIET (Kensington) said that the number of amendments which had been ruled out of order proved that there was a good deal of uneasiness in the minds of the profession about the way in which this body had been chosen. Uncomplimentary remarks had been made in some quarters about the "old gang." It was true that this was not to be a negotiating body, but how could they be sure that another crisis of urgency would not arise and the committee become a negotiating one before the rank and file could do anything about it? The meeting ought to express its opinion on the composition of this body and not be stampeded into accepting this list of names without further scrutiny. Dr. **Johnston** (Halifax) said that he had been impressed by the assurances given that the committee would not undertake negotiation, but he felt that a protest should be made against this arbitrary selection, especially at a time so near to the Conference. The choice might have been delayed until the Conference had indicated some preferences. Accordingly as a matter of protest he moved a resolution of lack of confidence in the present constitution and method of selection of the committee. Dr. J. **Beck** (Glasgow) stated that many of the members proposed for this committee had preconceived notions as to the form of practice which should be adopted by the Government; some were in favour of a whole-time State Medical Service. Dr. **Dain** said that the meeting either should turn down the committee altogether and set up a new one or should have complete confidence in it. To agree to the committee and yet to withhold confidence, as the Halifax motion proposed, was surely the most unsatisfactory course of all.

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[1] See last week's *Supplement*, pp. 43-6.

The Halifax amendment was lost, with only about a dozen hands being held up in its favour, and Dr. **Johnston** then withdrew certain other amendments standing in the name of Halifax, calling for a higher proportion of general practitioners and recommending that the practitioner representatives on any committee negotiating with the Minister of Health should be elected by a plebiscite from the Divisions. The representatives of Middlesex, however, urged an increase in the number of general practitioners on the committee, to which Dr. **Dain** replied that in a body which now numbered 39 there were 19 general practitioners, and having regard to the diverse medical interests which had to be represented it seemed to him that the general practitioners were a very solid body and corresponded fairly well with the proportion of general practitioners on the *Register*. A motion to increase the number of general practitioners was rejected.

Dr. J. A. **Moody** (Stratford) desired additional representation for public health, industrial medicine, and men on service, but in view of assurances that these interests would not be lost sight of he withdrew a motion he had on the paper to that effect. Dr. **Melville Hiley** (North Glamorgan) urged a larger representation of practitioners in whole-time work in general and special hospitals. Dr. **Dain** explained that whenever problems relating to specialist groups were under discussion they would be referred to the Association Groups, and subcommittees would be set up in which these interests would be represented. A motion to include this representation in the discussions committee was lost.

The motion approving the composition of the committee was carried, with four dissentients, and the recommendation as a whole which had come from the Joint Conference was put to the meeting and again carried, with little or no dissent.

A proposal that negotiations should be conducted by experienced legal representatives was made by Dr. **Howie Wood** (Isle of Wight), but after some debate he withdrew it as the question did not arise during the preliminary discussions, but only when the stage of negotiations was reached.

Safeguards for the Profession

Dr. A. F. **Wilkie Millar** (Edinburgh) moved a lengthy resolution which, *inter alia*, laid down the following essentials as regards character, terms, and conditions of the medical service:

(1) That the organization be such as to conserve the scientific and political freedom and the independence of the profession;

(2) That the administrative structure should secure that the interest of the profession be safeguarded by the establishment of statutory bodies, to which doctors would have access and on which they would be represented; and

(3) That the terms and conditions of medical service be determined by negotiation and agreement with the profession.

The motion further laid it down that in the best interests of the citizen, and for the maintenance of a high standard of medical service, private practice should continue to operate concurrently with a publicly provided service, and that a field for private practice could be achieved in accordance with the Beveridge report by the following proposals:

(1) That the proportion of contributions to the social insurance fund to be assigned to the health departments should be applied towards providing specialist, institutional, and rehabilitation services for 100% of the population.

(2) That a domiciliary medical service financed by the Exchequer be provided for that section of the population whose income is below a certain level, but that the section with a higher income should obtain this service on a private basis from doctors within and without the scheme.

(3) That those members of the community who decide not to avail themselves of the benefits of the specialist, institutional, and rehabilitation services open to them should not be precluded from obtaining these services from consultants and specialists who may be operating within the scheme, paying for these services privately.

He asked that this motion should be referred, through the Council, to the representative committee.

Dr. J. A. **Ireland** (Shrewsbury), in seconding, took occasion to complain that the agenda of the meeting had been side-tracked. He would not put it beyond the Minister himself, knowing the present meeting had been called, to have caused the letter by Sir John Maude, Secretary to the Ministry, published in the *British Medical Journal* of March 20 (p. 359), to be sent, so that this side-tracking might take place. Representatives had come at considerable inconvenience to find the agenda washed out. The only urgency was political, on the side of the Minister. Now the only course was to agree and to withdraw a number of matters which could have been usefully discussed at the present meeting.

Dr. **Dain** said that as one concerned in the arrangements he took the strongest exception to these remarks by Dr. Ireland. Instead of the meeting spending its time on detail, which would come forward later, a number of important decisions had been made and the time had been very well spent. Dr. J. B. **Jessiman** (Worcester) said that, if one was to believe the Press reports the Minister had made the statement that the public would have a family service with free choice of doctor. He suggested that the Minister had been guilty of a breach of faith in divulging details of the service of the future, and that the assurance that no plan had been preconceived was a scrap of paper.

Prof. R. M. F. **Picken** pointed out that one of the paragraphs in the Edinburgh motion (referring to people with a higher income obtaining service on a private basis) was contrary to the decision of the Annual Representative Meeting last September—the decision about which they were all rather uneasy because the majority was so small. Would it be proper for the Representative Body to commit itself even to the extent of referring this to the Council? The **Chairman** said that the proposal, if carried as a reference to the Council, did not commit the Representative Body to anything.

As a reference to the Council the motion was carried.

Dr. E. E. **Glenton** (Warrington) asked that practitioners should be kept fully informed of the progress of the negotiations. The **Chairman** said that that assurance had been already given.

Other relevant matters on the agenda were referred to the Council, and the Special Representative Meeting concluded.

SPECIAL PANEL CONFERENCE

The Government's Invitation

A Special Conference of Representatives of Local Medical and Panel Committees was held in London on March 31, following the Joint Conference and the Special Representative Meeting. Its purpose was to consider the Government's invitation to enter into discussions on a scheme for comprehensive health and rehabilitation services (Assumption B of the Beveridge report). Dr. J. A. **Brown** of Birmingham was in the chair.

Dr. H. **Guy Dain**, chairman of the Joint Conference, brought forward the recommendation carried by the Joint Conference and by the Special Representative Meeting, which has been published *in extenso* in the reports of those assemblies. The first section, that the Government's invitation to enter into discussions without commitment be accepted, was agreed to without dissent. The second section was then moved, that a representative committee should enter into the discussions, but that at appropriate times, and in any case before negotiations were opened, the full machinery of the Association should be used to consider the Government's proposals, and that every step should be taken to give all members of the profession an opportunity to express their views. This also was agreed to by an overwhelming majority.

The chief discussion centred around the proposal that the composition of the representative committee as reported in the *Journal* of March 20 (p. 359) be approved.

Claim of the Medical Practitioners Union

Dr. **Gordon Ward** (Kent) said that at the Joint Conference, in asking that the Medical Practitioners Union should be given representation on the committee, he had stated that the Union had between 5,000 and 6,000 members. This figure had been challenged by Dr. Gregg. He had now got the exact figures for the end of 1941—the latest date available—on which the Union had paid affiliation fees to the Trade Union Congress. The actual number was 5,327. Dr. Gregg had also stated that the Union had been a hindrance rather than a help at the Court of Inquiry into the capitation fee. But in fact the chairman at that inquiry had gone out of his way to compliment the Union on the way it had presented its case, and a chart which it produced dealing with the cost of living was almost immediately taken over by the B.M.A. representatives. There were differences of policy in the profession, but if there was to be a united front the upholders of different policies must sit round the table together.

Dr. R. W. COCKSHUT (Middlesex) said that to agree to this request of the M.P.U. would be a disaster. It was a body in favour of a full State salaried service, a thing which to the vast majority of the profession was abhorrent.

Dr. S. REVELS (Derby) moved that, in view of the desirability of maintaining complete co-operation of all sections, the M.P.U. be represented. Dr. C. F. R. KILLICK (Somerset) said that he was not a member of the M.P.U., but he thought other organizations must be treated fairly. Dr. F. M. ROSE (Preston) also thought that room should be found for minority opinion. He disagreed with a great deal of M.P.U. policy, but now a chance presented itself to bridge a most unfortunate gap. Dr. A. BEAUCHAMP (Birmingham) and Dr. HOWIE WOOD (Isle of Wight) spoke against the representation of this organization.

Dr. E. A. GREGG (chairman of the Insurance Acts Committee) said that he severed his connexion with the M.P.U. some years ago because he was satisfied that the organization was more interested in getting membership than in the welfare of the profession. As to the figures, the return for 1941 showed subscriptions amounting to £5,833. This with a two-guinea subscription worked out at very much less than the 5,000 or 6,000 membership which had been suggested. He placed no reliance on either the figures or the undertakings of these people. They would pursue the same course as they had done all along of endeavouring to discredit the B.M.A. in the eyes of the Ministry and everyone else. Nor had he the slightest fear of their negotiations—or whatever words they like to use—with the Ministry of Health, because he knew how little weight the Ministry would attach to their opinions. No one was more anxious for unity than himself, but a false unity achieved because of a desire to cover up differences which could not be covered was a source of danger.

Dr. GORDON WARD replied that Dr. Gregg was formerly president of the Union. After a time he was converted to other beliefs, and there was no one so fierce as the convert. The figures which he (Dr. Ward) had given were figures certified by the auditor. But to him the interests of the profession were more important than any sectarian interests, and it was for the sake of professional unity that he suggested it was important that such a body as the Union should be represented.

The Derby motion to include the M.P.U. was rejected.

The Scottish Representation

Dr. W. JOPE (Lanarkshire) moved that it be remitted to Scotland to elect its own representatives on the committee, the number not to exceed six, and this was seconded by Dr. R. C. HAMILTON (Ayrshire).

Dr. DAIN said that three of the Scottish representatives chosen were the nominations of the Scottish Royal Colleges and the Royal Faculty. For the other three the chairman of the Scottish Committee of the Association, the chairman of the Scottish Insurance Acts Subcommittee, and the deputy chairman of the Representative Body had been chosen. He suggested that the Scottish representatives in the conference could serve no useful purpose by altering the committee except to satisfy some theory.

Dr. JOPE said that Scotland was thoroughly dissatisfied at having her representatives nominated for her. He begged that she might be allowed in a contented way to proceed in this matter and not be estranged at the outset. (A voice: "If Scotland is to choose her own people, why not England?")

The amendment to remit it to Scotland to choose her own representatives, the number not to exceed six, was carried.

Dr. W. ARNOTT (Oxford) urged that there should be representation of men on service. Dr. KILLICK (Somerset) said that rural practitioners were not fully represented. He was glad to learn that there was to be an additional representative from rural Wales, but there were parts of England in which there were special problems attaching to rural practice. If discussion was to take place between the representative committee and a subcommittee representing rural practitioners it would satisfy him.

The motion to approve the committee's composition, amended by the decision to remit it to Scotland to choose her own representatives, was then put and carried, and the recommendation from the Joint Conference as a whole, again with this Scottish amendment, was adopted almost without dissent. Dr. J. G. THWAITES (Brighton) moved that in the event of negotiations failing to secure conditions satisfactory to the profession the Council should have a plan ready to carry on the treatment of the sick without participation in the Government plan. This was carried.

The Insurance Capitation Fee

Dr. J. R. LANGMUIR (Glasgow) moved:

> That a prior condition to any negotiations between the Government and the medical profession regarding the new medical service is the immediate settlement of the question of the basic capitation fee for the period that National Health Insurance has to run.

He said that this expressed the unanimous opinion of the Glasgow Panel Committee. The capitation fee dispute preceded by a long time the Beveridge report, and in Glasgow they had little confidence that the atmosphere of the negotiations on the latter would contain anything but suspicion and misgiving until the former was cleared out of the way.

Dr. BEAUCHAMP (Birmingham) said that any new negotiations must be separate from the whole question of the capitation fee. He was not satisfied with the position with regard to the capitation fee, but if the new negotiations were to take place from the ground up, this was pretty nearly the top story.

The motion was supported by Dr. J. BECK (Glasgow) and opposed by Dr. F. E. GOULD (Birmingham), who said that if by negotiating now for an insurance capitation fee an extra sixpence or shilling was obtained, this would be made the basis for negotiation of the entire new scheme and would be a very bad start.

Dr. PETER MACDONALD hoped that the negotiations with the Ministry would have no relation to the present capitation fee. That fee for general practitioner service would be grossly inadequate for any new service under the social security scheme.

Dr. GREGG said that he had a good deal of sympathy for Glasgow's point of view, for they were all smarting under a sense of frustration in that they had step by step presented to the Minister their soundly based claims and these had been rejected by him. But one of the things they had said to the Minister when he mentioned the Beveridge report was that the report had nothing to do with their action on the capitation fee, and he did not think it was desirable to wrap up their case with this new matter. That would be only to lay up for themselves a store of trouble.

The Glasgow motion was lost.

Compensation to Practitioners

A motion by Norwich was on the paper, that the Government be informed that to obtain the willing co-operation of the medical profession in any future scheme of medical services, it is fundamentally necessary to deal properly with the question of adequate compensation for loss of goodwill and capital.

Dr. GORDON WARD said that it was not only compensation which was wanted but also pension on compulsory retirement.

Dr. DAIN said that on the second occasion on which the Representative Committee met the officers of the Ministry Sir Wilson Jameson stated that the Government accepted the principle of compensation in the matter of capital value of practices. He did not go any further than that, and they at the present moment, on their side, were engaging actuaries in the endeavour to establish what sort of values should be payable as compensation.

Dr. N. J. COCHRAN (Burton-on-Trent) said that the statement just quoted as having been made by the Chief Medical Officer of the Ministry, along with other statements, suggested to him that the Ministry had at the back of its mind a State medical service. Dr. A. W. WESTON (Dudley) said that he was amazed at the "credulity" of Dr. Dain and Dr. Gregg in accepting the verbal statement that the matter of compensation would be kept in mind. After considering the treatment which the profession had had meted out to it by the Ministry of Health could any reliance be placed on a verbal assurance? Practitioners wanted it in black and white that they were not going to lose what they had worked for. Proper and adequate compensation should be insisted upon as a preliminary condition.

Dr. GREGG said that he was opposed to a whole-time service and would continue to oppose it. Therefore he hoped that this and similar resolutions would not be dealt with, as they might be supposed to indicate a direction in which their minds were working.

It was agreed to pass to the next business.

Dr. A. W. HALL (Hampshire) moved that contributions to health services should not be based on a flat rate but should be proportionate to income, and that the health services should be administered by a separate body on which the medical profession was adequately represented. A flat-rate assessment, he said, would preclude doctors from obtaining a reasonable remuneration.

Dr. **Gregg** said that it was clear from the Beveridge report that only a small portion would come from contributions directly related to health services, and that a very much larger amount would come from Treasury sources. But this was a point for the future in connexion with any negotiations which might take place, and could be left until a time came which was more appropriate for dealing with it.

The motion was withdrawn.

Insurance Practitioners and their Contracts

This concluded the motions on the paper relating to the Beveridge report and the ensuing conversations, but a motion stood in the name of Lancashire:

> That this Conference, being disgusted with the reply received from the Minister of Health, now calls upon the Insurance Acts Committee to consider the advisability of recommending insurance practitioners to terminate their contracts.

Dr. T. J. **Costello**, in moving, said that Lancashire went away from the last Panel Conference feeling very happy because of the strong resolutions which had been passed, but they were "horrified" when they found afterwards that the Insurance Acts Committee had not exercised the full powers given to it. It was urged upon them that for patriotic reasons they should not resign their contracts. It was not fair to place doctors in a quandary by asking them to decide on patriotic grounds when the Ministry had had no qualms on patriotic grounds about putting them in that quandary. He begged that this matter be finished with once and for all. Unless they were prepared to send in their resignations it was only a waste of time.

Dr. **Gregg** replied by quoting the last letter which the I.A.C. had sent to the Minister (*Supplement*, March 13). It was stated to the Minister in that letter that consideration of the national interest had deterred them from taking cerain action. They had expressed their dissatisfaction that he should have taken advantage of the public-spirited attitude of the medical profession. But they had not said that that deterrent influence would continue to operate. It would be a matter for each Panel Committee to determine whether, in view of this sustained resistance on the part of the Minister to what they believed to be a good case, they should continue to feel so deterred. It was not a question of saying in indignant haste: "We will resign," but of proceeding with deliberation and on the basis of organization in the different areas. If Panel Committees reported back to the I.A.C. that they were going to stand fast, and that their men were prepared to resign, the I.A.C. was prepared to carry this thing through to the very end. (Applause.) But it would need substantial support from the panel areas. For his own part he would feel honoured if it should fall to his lot to say to the Minister: "The medical profession has finished with the Insurance Act in view of the way you have treated us." Panel Committees would receive a communication from the I.A.C. along those lines.

In view of Dr. Gregg's statement the Lancashire resolution was withdrawn, and the Conference concluded.

BRITISH MEDICAL ASSOCIATION

Election of Members of Council

Notice is hereby given that nominations of candidates for election as members of Council, 1943–4, by the following Branches and by Public Health Service members must be forwarded in writing so as to reach me not later than Saturday, May 29, 1943.

Twenty-two Members by Branches in Great Britain and Northern Ireland

	No. of Members of Council to be elected by Group
Group A.—North of England	1
Group B.—East Yorks, Yorkshire .	1
Group C.—Isle of Man; Lancashire and Cheshire	2
Group D.—Derbyshire; Leicestershire and Rutland; Lincolnshire; Nottinghamshire	1
Group E.—Bedfordshire; Cambridge and Huntingdon; Essex; Hertfordshire; Norfolk; Northamptonshire; Suffolk	1
Group F.—Berks; Bucks and Oxford; Birmingham; Staffordshire	1
Group G.—North Wales; Shropshire and Mid-Wales	1
Group H.—South Wales and Monmouthshire	1
Group I.—Metropolitan Counties ..	4
Group J.—Bath; Bristol and Somerset; Gloucestershire; Worcestershire and Herefordshire	1
Group K.—Dorset and West Hants; South-Western Wiltshire	1
Group L.—Southern; Surrey	1
Group M.—Kent; Sussex	1
Group N.—Aberdeen; Dundee; Northern Counties of Scotland; Perth	1
Group O.—Edinburgh; Fife	1
Group P.—Glasgow and West of Scotland (Glasgow Division)	1
Group Q.—Border Counties; Glasgow and West of Scotland (Five County Divisions), Stirling	1
Group R.—Northern Ireland	1

Candidates must be nominated either (*a*) by a Division or (*b*) by not fewer than 3 members of the Branch or Branches in the Group. The nominations must be on the prescribed form, a copy of which can be obtained on application to me.

Public Health Service Members

Two members of Council are nominated and elected by members of the Association employed in the Public Health Service as defined in By-law (3). Candidates must be members of the Public Health Service as so defined.

A notice will be published by the Council in the *British Medical Journal Supplement* on June 19, 1943, of the candidates nominated. Where contests occur voting papers will be issued on June 19, 1943, containing the names of all duly nominated candidates, from the Head Office, British Medical Association, Tavistock Square, London, W.C.1, to each member in the Group or to the Public Health Service members. A notice will be published by the Council in the *Supplement* of July 10, 1943, giving the results of the elections where there have been contests.

G. C. Anderson,
Secretary.

Branch and Division Meetings to be Held

North of England Branch.—At Royal Victoria Infirmary, Newcastle-upon-Tyne, Thurs., April 22, 2.15 p.m. Clinical demonstrations in the Out-patient Department. Address by Dr. Freda K. Herbert. Investigation of Cases of Hepatic and Biliary Disease. All members of H.M. Forces serving in the area of the Branch are invited to attend.

Shropshire and Mid-Wales Branch.—At Royal Salop Infirmary, Tues., April 20, 3.30 p.m. Continuation of adjourned general meeting.

The Home Secretary announces that Andrew Thornton is once more an authorized person for the purposes of the Dangerous Drugs Acts, 1920.

PETROL FOR MEETINGS

The B.M.A. has represented to the Petroleum Department that doctors should be allowed to travel by car to medical meetings, such as meetings of B.M.A. Divisions, which will be necessary in connexion with the discussions between the Government and the profession on the comprehensive medical service envisaged in the Beveridge report. The Department has agreed that, where other means of transport are not reasonably practicable, doctors may use petrol granted for "professional purposes" for journeys to attend such meetings. This arrangement does not apply to regular meetings of Study Groups, but only to such occasional meetings as it may be necessary to arrange for consideration of specific proposals arising out of the central discussions with the Government. Regional petroleum officers have been authorized to grant an *ad hoc* issue of petrol for a journey of this kind when a doctor's normal allowance is insufficient to enable him to attend a meeting and his attendance depends on the use of his car.

H.M. Forces Appointments

ROYAL NAVY

Surg. Lieut. (Emergency) S. E. Cooke to be Surg. Lieut.-Cmdr. (Emergency).

Surg. Lieuts. S. E. Cooke and P. S. Edgecombe have been transferred to the Emergency List.

Royal Naval Volunteer Reserve

Surg. Lieut. R. M. Marshall to be Surg. Lieut.-Cmdr.

Prob. Temp. Surg. Lieuts. J. A. Sadler, J. W. Bringan, R. S. Smith, St. J. M. C. Birt, W. H. Yellowlees, A. J. Walton, J. F. Paxton, A. A. Murray, I. L. Maxwell, J. Lockie, G. W. E. Little, G. P. Hartigan, J. A. Cosh, S. N. Cole, E. J. W. Barnard, F. E. Fraser, J. Murphy, R. L. Norris, H. McColl, P. G. Dagleish, W. E. R. Budd, N. S. Daw, E. W. Guillaume, M. McFarlane, D. Micklewright, R. O. Wheeler, G. W. Burns, G. MacVicar, H. R. Claff, M. D. O. Plunkett, A. E. S. Wood, T. G. Griffith, and C. J. Thornberry to be Temp. Surg. Lieuts.

REGULAR ARMY RESERVE OF OFFICERS

Royal Army Medical Corps

Major P. Hayes, having attained the age limit of liability to recall, has ceased to belong to the Reserve of Officers, and has been granted the honorary rank of Lieut.-Col.

Major A. S. Cane, D.S.O., O.B.E., having attained the age limit of liability to recall, has ceased to belong to the Reserve of Officers.

DIARY OF SOCIETIES & LECTURES

Royal College of Surgeons of England, Lincoln's Inn Fields, W.C.—*Mon.*, 4 p.m. Prof. J. E. A. O'Connell: The Vascular Factor in Intracranial Pressure and the Circulation of the Cerebrospinal Fluid.

Royal Society of Medicine.—*Mon.*, 4.30 p.m. Sections of Odontology and United Services. Members of the Section of Epidemiology and State Medicine are invited to attend. *Tues.*, 5 p.m. General meeting of Fellows. *Wed.*, 2.15 p.m. Section of Comparative Medicine.

APPOINTMENTS

Rubinstein, L. H., M.D., D.P.M., Temporary Psychiatrist, Derby Child Guidance Clinic and Chesterfield Children's Centre.

BIRTHS, MARRIAGES, & DEATHS

The charge for inserting announcements under this head is 10s. 6d. This amount should be forwarded with the notice, authenticated with the name and address of the sender, and should reach the Advertisement Manager not later than first post Monday morning to ensure insertion in the current issue.

DEATHS

George.—Diane Adair, aged 5, on April 5, 1943, beloved daughter of Mr. and Mrs. Clive George, of Colindale, Heath Drive, Romford, Essex.

Sydenham.—At Walsall, on April 5, 1943, Frederick William Sydenham, M.D., F.R.C.S.Ed., 379, Harborne Road, Edgbaston, Birmingham.

SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
LONDON SATURDAY APRIL 24 1943

Correspondence

The B.M.A. and the Beveridge Report

SIR,—May I be allowed the publicity of your columns for the purpose of being immodest? The inherent modesty of the British is too well known, and in nothing before has it been so lamentably emphasized as, in the past and present discussions of medical planning and in the proposed obsequious attitude to the Beveridge plan. It is time for us to tell the planners of this "New (medical) Order," and the whole world if necessary, that the present system of British medicine is the finest in the world. The system provides adequate attention for every member of the community, however poor and friendless, whether through Public Assistance, the P.M.S., N.H.I., or private arrangement, and ensures them the services of a doctor who can hold his own in skill, honesty, and integrity against the graduate or licentiate of any other medical school in the world. The poverty of the patient does not deny him any essential medical service. It provides for the doctor a respected place in the community, and rewards his skill and initiative by increasing his practice and his income.

To encourage us to support plans for a new medical system it has been alleged lately by some people that the public is suspicious of us, and that we should endeavour to re-establish ourselves in its favour by bowing down in the House of Rimmon and accepting Sir William Beveridge's plan. Every doctor engaged in general practice knows in his heart that this is rubbish. The public has an almost exaggerated regard for the doctor and does not begrudge a skilful, conscientious, and kind practitioner any honour or reward. How often do we hear complaints of the present medical system or read in the papers of patients dying of neglect owing to its deficiencies? Such friction as does arise between doctor and patient is generated by the administration of the panel system, with its irritating regulations and impositions. Possessing initiative, resource, and intelligence, used to making decisions of importance and taking full responsibility for his actions, the doctor has all the very qualities which form the greatest barriers to advancement in the ranks of the Civil Service or any other State-controlled system.

Meetings all over the country have been called by the B.M.A. to give approval to prepared resolutions, which, in effect, say that we shall be ready to enter a comprehensive panel system embracing all members of the community, provided the Government negotiates with the profession for terms of service, and provided those who can afford it may obtain private treatment from doctors already under contract to give them a full service. The wording of this second proviso inflicts a serious indignity on the profession. Remuneration for contracted service is one thing, but payment for a preferential variation of the same service is what is commonly called "tipping." Hitherto, thanks to the support of private practice, it has always been possible to give the panel patients a service every bit as good as that afforded to private patients. It is difficult to understand the need for the second proviso. With regard to the first proviso, the events of 1911 and the more recent efforts by a most united and resolute medical front to obtain a reasonable increase in the panel fee should prove the futility of negotiation with the Government.

If the medical men of this country were growing rich on the spoils of incompetence and dishonesty the suggestion of a medical reformation would be hailed by the Press and public. As it is, the public does not appear dissatisfied with us, and our threatened attenuation and restriction can do no more than make political capital for some Party which wishes to boast that it has given the nation a new health charter. My very strong contention is that we must fight to maintain the present system for the good and the health of the community, and for the good of the profession, morally, scientifically, and financially.—I am, etc.,

St. Ives. E. C. ATKINSON.

The Profession and the Politicians

SIR,—It was refreshing to read the Insurance Acts Committee's letter to the Minister of Health (*Supplement*, March 20, p. 35), and I trust that this spirit will animate the Committee's present discussions and subsequent negotiations. If this fighting spirit is kept up, I have no doubt that all of us who have wavered in our faith in the I.A.C. will forget the past history of negotiations, and will back up the committee to the last ditch, and beyond if necessary. For too long have the decency and humanity of the medical profession been exploited by successive politicians, and the time has arrived to make a firm stand. It is to be hoped that the question of compensation for practices for those not wishing to join the scheme will be satisfactorily settled, as no doubt there will be a number of us who would not wish to cease to be "family doctors" and become mere civil servants, and be compelled to work on till, say, 65 years of age before "enjoying" a pension.

We must not be deterred in our fight by sloppy sentimentality, nor be impressed by such camouflage as "a charter of liberty for the overworked doctor," but deal like business men with a business problem; and keep always in our minds the fact that we fight not only for ourselves, but for the younger members of our profession on active service who are too busy to give serious consideration to this vital problem, but who look to us to see that they are not let down.—I am, etc.,

Blackburn. F. E. EDWARDS.

Medical Planning and the Elderly Patient

SIR,—Considerable alarm is spreading in the minds of the older section of the people on account of adumbrations of a reorganization of medical services, partly understood or misapprehended by them. The bogy is of some imminent change which will deprive them of the doctor they like and trust and hand them over to some impersonal roster or clinic. This fear is shared alike by the poor and the well-to-do. I myself, with some experience of a salaried medical service, am confident that such fears are groundless. I am sure that our negotiators, appointed by ourselves through the B.M.A., will be able to steer us between the Scylla of a cast-iron Civil-Service-controlled organization and the Charybdis of—well, things as they are. But one thing is clear: that the change-over must come gradually and piecemeal; the new service must feel its way, and there must be scope for the old-fashioned patient and doctor to exercise their right of choice. Doctors and always doctors, it is our duty to comfort our older patients with the assurance that no revolutionary changes will pass over the profession in their time at least.

One word more. The verdict of business men I have spoken to about future changes is always this: that they do not want their doctors run by either Civil Service or local government, and they have every confidence in the medical profession's ability to handle its own affairs in its own way to the benefit of the public.—I am, etc.,

Garelochhead A. GUTHRIE BADENOCH.

Preserving our Freedom

SIR,—I write in response to the excellent letter of Dr. Lindsey W. Batten (*Journal*, March 13), in which he speaks of the freedom we all want. It seems to me that a wave or miasma of State worship has spread over the country and infected our profession. Have the members visualized the future? A medical civil service monopoly organized and controlled by the State; every young man sent to fill the billet he is ordered to accept; no leave but at times fixed by the Department; no chance for a young man to travel or go to sea or study on the Continent unless he loses seniority for pension; no freedom to change from East London to Devonshire if he fee's inclined to do so and can afford it; salary, to judge by the payments of the Government so far, very likely to get lower, as it is always a minimum.

Sir, our profession, helpless, unpractical, and idealistic-philanthropic, is the servant of the people, but why should it be the slave of the State? The panel service, in which we are quite at the mercy of one man, against whom there is no appeal, is the result of the foolish terms we made in 1912. Imagine a time when the terms of service are rigidly enforced and tightened up and the remuneration cut down by a hard-driving

Minister, and remember we have no remedy. Can you see the members of the legal profession enrolling themselves as a State service? They know better.

Without this revolution, Sir, can we not depend on English evolution and compromise which have served us so well? The State is our servant. Let us serve the people and keep clear of the bureaucrats to preserve our freedom.—I am, etc.,

Fulham. Alex M. Ross.

B.M.A.: Diary of Central Meetings

May

5 Wed Journal Board, 1 45 p m.

B.M.A.: Meetings of Branches and Divisions

Belfast on the B.M.A.

At a meeting of the Belfast Division, held at the Whitla Medical Institute on March 3, the subject for discussion took the form of the question: "How can the wishes of the medical profession in Northern Ireland best be expressed, and how can the interests of the profession best be maintained?"

Dr. F. M. B. Allen, who opened the discussion, said it was not likely that the Government of Northern Ireland would be less sympathetic towards the Beveridge plan than was the Government of Great Britain. He urged the need for unified opinion, and stated that the B.M.A. was the agent and had the machinery for adequately expressing the views of the profession. Dr. Allen described his personal experiences of the B.M.A. in the Branch and as a member of the Council and of the Medical Planning Commission. He referred to the regard paid by Government Departments to the opinion of the Association and denied that it was "in the Government's pocket." He referred to the rapid action of the central secretariat in having the Beveridge report discussed by the various committees, and quoted the recommendation to the Representative Body which had been sent to the Divisions.

Dr. Robert Marshall said that it was so long since some of them qualified and were given the *Handbook* of the Association that they had forgotten a great deal of its contents. Some had never read it at all, and some did not belong to the Association. The *Journal* and the library were worth the annual subscription, apart from the Annual Meeting, but it was not for these only that he valued membership, but because the Association represented every section of the profession. Among its members were family doctors or general practitioners, public health officers, consultants, and whole-time teachers of medicine. Of 270 members of the Representative Body 19% were consultants; of the Council, which was elected by the members of the Representative Body themselves, 27% were consultants. The Past President, the Treasurer, the Immediate Past Chairman of the Representative Body, and the Deputy Chairman were all general practitioners. Thus it was ridiculous to say, as he had heard it said recently by a general practitioner, that the B.M.A. was a "consultants' ramp." He did not always see eye to eye with the decisions of the Association, but the interests of himself and his fellow practitioners, and indeed of the community, were safer in the hands of an organization representing the whole profession than in the hands of those who openly described themselves as representing only a sectional interest, and who restricted their membership to people belonging to that section. In conclusion Dr. Marshall said that the B.M.A. had gained much experience in carrying out negotiations in the past, and, difficult though they had been, future negotiations were likely to be even more difficult and perplexing. He then proposed the following resolution: "That in the opinion of this meeting the wishes of the medical profession in Northern Ireland can best be expressed and the interests of the profession can best be maintained by the B.M.A." This was seconded by Dr. Harold Gray and carried with 2 dissentients out of some 60 doctors who attended the meeting.

H.M. Forces Appointments

ARMY

Acting Col. W. J. Eastwood, R.A.M.C., Consultant, has been granted the local rank of Brig.

ROYAL ARMY MEDICAL CORPS

Major (War Subs. Lieut.-Col.) (Temp. Col.) T. L. Henderson to be Lieut.-Col.

TERRITORIAL ARMY, R.A.M.C.

War Subs. Major J. W. Leyack has relinquished his commission on account of ill-health and has been granted the honorary rank of Major.

War Subs. Capt. S. W. G. Hargrove has relinquished his commission on account of ill-health and has been granted the honorary rank of Capt.

Territorial Army Reserve of Officers: R.A.M.C.

Capt. T. Latham, from Cheshire Regt., to be Capt.

LAND FORCES: EMERGENCY COMMISSIONS

Royal Army Medical Corps

War Subs. Capt. J. P. S. Dunn has relinquished his commission and has been granted the honorary rank of Major.

War Subs. Capts. L. A. Willmott and J. J. Murray have relinquished their commissions on account of ill-health and have been granted the honorary rank of Capt.

Lieuts. P. L. F. Mortimer and H. W. Porter have relinquished their commissions on account of ill-health and have been granted the honorary rank of Lieut.

The surname of Lieut. J. J. McCann is as now described and not as stated in a *Supplement* to the *London Gazette* dated Feb. 26.

To be Lieuts.: A. P. Birks, W. G. Birrell, P. Buckley, F. C. Calvert, M. J. Colbourne, T. B. Dunn, J. J. Graham, P. J. Haga, K. N. Inman, J. E. Kerton, H. J. C. J. L'Etang, A. A. C. MacArthur, C. Moore, E. Morrison, R. Oddy, J. D. Paulett, J. Philip, J. Phillips, J. S. Pippard, L. Ruskin, B. Sheehan, C. P. Silver, J. M. Stewart, S. G. Tuffill, J. C. N. Westwood, F. W. C. Yardurnian, P. B. Adamson, M. Backwell, J. Barlow, G. E. Bent, B. Binnie, J. L. Boldero, F. Booth, H. B. Bouchier, J. McD. Brown, L. J. Bussell, D. S. Clark, G. E. Day, L. de Jongh, W. A. J. Donald, A. S. M. Douglas, E. N. Emmerson, M. Fogell, W. J. Fraser, J. W. Graham, A. T. Hendry, J. G. Jones, B. J. Kelleher, B. T. Kieft, D. R. McGaully, J. C. McGregor, A. J. McKendrick, A. A. Mackie, G. Millar, R. T. M. Paddicombe, W. M. Robertson, A. H. Smith, A. S. R. Stewart, G. R. Stoneham, O. C. Sugden, H. W. Thompson, J. J. W. O'H. Tobin, J. C. Watson, R. H. Wheeler, I. J. Williams, R. U. Whitney, G. Ashe, J. A. Bessett, H. I. C. Bowie, D. M. Brierley, R. Bryce-Smith, P. N. Cardew, R. D. Chalmers, W. H. Chase, J. D. Cooper, A. L. Ferguson, E. Grossman, J. D. Halford, B. Halpenny, G. E. Hicks, F. W. Jacobson, B. H. Jones, F. M. Lancaster, W. P. Lee, A. J. A. McCormick, J. R. McMichael, N. S. Malmison, V. D. R. Martin, A. C. Miller, I. Morris, W. L. Neustatter, A. Pearlman, D. S. Ridley, A. G. Scott, R. S. Starkey, J. M. Stuart, J. C. Swanson, C. J. O. Taylor, G. T. Wallace, H. Winch, H. N. Withan.

WOMEN'S FORCES

Employed with the R.A.M.C.

The following M.O.s have been granted commissions in the rank of Lieut.: Eileen M. Logan, Olwen B. Jones, Phyllis Morley, Dorothy P. Potter, Mary Pringle, Mary S. Smith.

ROYAL AIR FORCE

Squad. Ldr. (Temp.) R. S. B. McClean has been granted the rank of War Subs. Squad. Ldr.

Royal Air Force Volunteer Reserve

Flying Officers G. R. V. Coombs, R. R. Dickson, B. A. J. Arthure, D. J. N. Smith, J. Hood, F. A. Binks, J. Q. Craig, G. W. Senter, A. S. Majury, A. K. M. Macrae, and J. R. Hudson to be War Subs. Fl. Lieuts.

Flying Officer W. L. Milligan has relinquished his commission on account of ill-health and has retained his rank.

Flying Officer D. A. Davies has relinquished his commission on account of ill-health.

To be Flying Officers (Emergency): J. F. Swan, N. L. Birkett, J. S. Calnan, G. I. Davies, R. J. Evans, J. B. Foote, A. Inglis, D. G. Ismay, H. R. Kefford, J. C. Lloyd, H. E. Lockhart-Mummery, K. W. Lovel, E. A. Malkin, L. Mandel, R. M. Mason, G. J. Myers, C. R. Nash, P. N. Murphy, F. H. Stames, R. Stalker, J. O. Craig, C. N. D. Cruickshank, J. R. Fountain, A. G. Hardy, S. A. Holmested, T. F. McCarthy, E. S. Odbert, J. C. T. Reid, J. K. Russell, T. O. Scudamore, M. J. Smyth, E. B. Thornton, R. C. Rylance, B. G. C. Ackner, J. E. Adamson, I. J. Buchan, H. J. Fuller, P. R. Green, A. R. Harbinson, I. S. Kirkland, R. M. Laird, D. G. Simpson.

MEDICAL WAR RELIEF FUND

FORTY-FIFTH LIST

Amount previously acknowledged—£48,404 9s. 4d. and £100 3½% Conversion Stock and £40 3% Defence Bonds.

Individual Subscriptions

£422 7s. 5d. ($1,880.00).—Canadian Medical Association—per Dr. F. S. Patch (amount already sent, £1,487 12s. 7d.): College of Physicians and Surgeons, Saskatchewan, $1,500.00; Huron County Medical Association, Ontario, $80.00; Individual subscriptions from Saskatchewan, $183.00; Kent County Medical Association, Ontario, $35.00; Vancouver Medical Association, British Columbia, $40.00; Victoria County Medical Society, Ontario, $50.00 (5th donation).

£45 1s. 1d.—Northern Rhodesia Branch—per Dr. Fisher (amount already sent, £35).

£24 11s.—Consett Division—per Dr. K. M. Macdonald (amount already sent, £22 1s.): Dr. W. Benson, £6 6s.; Dr. W. M. P. Henderson, £2 2s.; Dr. M. D. Mackenzie, £1 1s. (2nd donation); Dr. G. Ewen, £1 1s. (2nd donation); Dr. C. J. B. Fox, £2 1s. (2nd donation); Dr. M. M. Macintyre, £2 2s.; Dr. C. Fenwick, £2 11s. (2nd donation); Dr. G. M. Macintyre, £1 1s.; Dr. S. F. Breakey, £1 1s.; Dr. T. Lyons, £1 1s. (2nd donation); Dr. C. L. Laurent, £1 1s.; Dr. F. M. Fyfe, £1 1s. (2nd donation); Dr. K. M. Macdonald, £2 2s. (2nd donation).

£19 18s.—Doctors in the Isle of Man—per Dr. D. Pantin (amount already sent, £135 16s.).

£12 6s.—South-West Wales Division—per Dr. Rhys Paton Dr. J. Cook.

£10 10s.—Dr. T. Brice Poole, Hove (2nd donation)

£7 7s.—Dr. P. G. Levick, Bungay (3rd donation).

£5 5s.—Lieut.-Col. J. F. Ritchie, R.A.M.C. (ret.), Gateshead

£5.—Lieut.-Col. F. R. W. K. Allen, I.M.S.

£4 4s.—Dr. P. B. Spurgin, Great Yarmouth (3rd donation).

£3 3s.—Mr. P. Maynard, Fleet.

£2 2s.—Dr. G. L. Davies, Hove; Dr. A. Gilpin, London; Dr. D. E. J. Mitchell, Manchester (2nd donation); Dr. W. B. Moody, London (2nd donation); Dr. W. E. Smith, Glasgow (2nd donation).

£1 1s.—Dr. I. Preiskel, Oxford.

5s.—Dr. A. Cropley, London.

Local Medical and Panel Committees

£44 10s. 9d.—County of Ayr (9th donation).

£32 4s. 3d.—Midlothian (10th donation).

£20 10s. 6d.—Dumbarton County (9th donation).

£19 8s. 2d.—East Lothian (8th donation).

£5 5s.—Montgomeryshire (2nd donation).

Total—£49,097 16s. 6d. and £100 3½% Conversion Stock and £40 3% Defence Bonds.

Cheques, payable to the Medical War Relief Fund, should be sent to Dr. G. C. Anderson, Honorary Treasurer of the Fund, British Medical Association House, Tavistock Square, London, W.C.1.

DIARY OF SOCIETIES AND LECTURES

Royal College of Surgeons of England, Lincoln's Inn Fields, W.C.—*Wed.*, 4 p.m. Mr. O. S. Tubbs: The Effect of Ligation on Infection of the Patent Ductus Arteriosus. *Fri.*, 4 p.m. Dr. G. Weddell: Cutaneous Innervation. Museum demonstrations: *Tues.* and *Thurs.*, 4 p.m. Prof. A. J. E. Cave: Osteology of the Shoulder Girdle and Upper Limb.

Royal Society of Medicine.—*Tues.*, 4 30 p.m. Section of Medicine. *Fri.*, 5 p.m. Section of Ophthalmology.

BIRTHS, MARRIAGES, & DEATHS

The charge for inserting announcements under this head is 10s. 6d. This amount should be forwarded with the notice, authenticated with the name and address of the sender, and should reach the Advertisement Manager not later than first post Monday morning to ensure insertion in the current issue

BIRTHS

Bateman.—To Gwen, wife of Surgeon Lieut.-Cmdr. A. Daunt Bateman, O.B.E., R.N.V.R., on April 7, 1943, at Grosvenor Nursing Home, North Shields, a daughter.

Scott.—At Bournemouth, on April 16, 1943, to Rhoda, wife of Surgeon Lieut. Kenneth B. Scott, R.N.V.R., a son.

Correction

The reference to the Scottish amendment to clause (3) of the resolution before the Special Panel Conference (*Supplement*, April 10, p. 43) should read as follows: ". . . an amendment was carried recommending that it be remitted to Scotland to elect its own representatives, not to exceed six in number. With this amendment clause (3) was agreed to."

SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL

LONDON SATURDAY MAY 1 1943

Correspondence

Policy: General and Medical

SIR,—In the present discussions regarding our future medical service attention is being focused on details of organization and administration, and very little is being said about policy. It would not be wise to assume from this that policy is a matter of small importance and so may be safely disregarded. Probably one would be nearer to reality in taking it as an indication that most of those engaged in the discussions are being kept in ignorance of the nature and source of the policy which is, in fact, being relentlessly pursued. It would seem, therefore, that some enlightenment on this subject is called for, and so an attempt will be made to provide it in as few words as possible.

Broadly speaking, there are only two possible policies for the world—freedom or domination. In a true democracy the source of policy is the will of the people (freedom). Under a dictator regime policy is imposed upon the mass of individuals from a centre of power (domination). Discerning lovers of freedom (for themselves and for others) rightly regard all centralizations of political power with suspicion, and those with some knowledge of present-day political developments are appalled at the rapidity with which centralization of this nature is being pushed forward. These persons realize that a centralized organization is a convenient instrument for the imposition of dictatorship, and that even democratic associations which have been brought into being by individuals for mutual help and protection may (and indeed in numerous cases have) become perverted and pressed into the service of domination of the individual.

A correspondent in the *Journal* wrote: "State medicine is the system in Hitlerite Germany, where it is used to support the Fascist theories of blood and the sterilization of political and racial 'undesirables.'" It is not likely that in this country a centrally controlled medical service (whether of salaried or extended panel type) could ever be used for these particular purposes, but it might easily become a useful instrument in the hands of those who are determined to turn England into a slave State. At any rate, Assumption B of the Beveridge report (now officially accepted by the B.M.A.) should put us on our guard. I, for one, cannot believe that it has been inspired by a genuine democratic policy. The people of this country simply do not believe that man's chief end is work. The end-point of a comprehensive health and rehabilitation service is not "restoration of capacity for work." It *may* be restoration of capacity for "life, liberty, and the pursuit of happiness."

The latent policy of the Divisions of the B.M.A. is freedom for doctors as individuals. This policy must be made effective throughout the B.M.A. from the circumference to the central executive. A very hopeful sign is that medical policy groups have begun to spring up in different parts of the country.—I am, etc.,

Bexley. E. U. MACWILLIAM.

State Medical Service

SIR,—A State Medical Service may appeal to many of the younger members of the profession, but whether it would be an advantage to the doctors or the public is open to question. There is not much fault to be found with the present state of the medical services in this country. The highest skill in medicine and surgery is available for every individual—male or female—however poor his or her circumstances may be, thanks to the voluntary hospitals. One would think it would be time enough to discuss the question of a State Medical Service not sooner than six months or a year after peace is declared, so as to give sufficient time to the practitioners at present serving with the Forces to get back to their normal civil work. Until such a time arrives it appears to me to be taking a mean advantage of these men even to discuss the question of a State Medical Service.

In the many articles and letters appearing in the *Journal* recently there is little mention made of how medical practitioners are to be remunerated under a State Medical Service, and at what age superannuation would take place, and in the event of earlier death what provision would be available for their dependants. These are vital considerations for the general medical practitioner.

There are very many general practitioners at home and serving with the armed Forces who have sunk money, often borrowed, to purchase practices or partnerships. How does the Government intend to recoup these men for the loss of their money and practices? Before the war the goodwill of both panel and private practices could be sold at one or two years' purchase, or even more, but if a State Medical Service came into force the goodwill of these practices would be worthless. In many cases when a practitioner died the saleable value of the goodwill of his practice was often the chief means of livelihood available for his widow or dependants.

The Beveridge scheme holds many attractions for the working man, and we would all like to see social security for everyone, and the gaunt spectre of poverty removed from every home. The Prime Minister, however, does not see his way to commit the Government to all the scheme entails, and I ask, Why should the profession be committed to the medical side of the scheme until such time as the Government sees its way to implement the scheme *in toto*?

The lot of the general practitioner is not an enviable one. Day and night in fair and foul weather, and at every season of the year, he is at the beck and call of his patients, and the strenuous life he leads is not conducive to longevity. He is often cut off before he has had time to make provision for his wife or dependants. Knowing his patients' financial circumstances he often has to do a lot of his work gratuitously. If compelled, therefore, to serve under any Government scheme he is entitled to a fair and honourable deal.

I have been nearly 50 years in general practice, but have never served under the National Health Insurance Acts.—I am, etc.,

DUNCAN MACDONALD, M D., C.M.
Oban, Argyll.

Materialism in Planning

SIR,—Dr. Terence Turner (*Supplement*, April 10, p. 48) in his comments on my letter points out that Mr. Churchill declared himself as being whole-heartedly in favour of compulsory national insurance. It cannot be denied, however, that he also said, "Let private enterprise and State enterprise combine to pull along the national wagon." I am sure Mr. Churchill would not wish to single out the medical profession especially and alone for State enterprise. I should be very grateful if my solicitor and my chartered accountant would deal with my affairs on comprehensive terms applicable to the whole nation.

I am pleased that Dr. Turner has not made any adverse comments on my previous letter of March 27, and I think this shows the general swing of the medical profession from its previous totally idealistic view to a more materialistic one of our grave situation. I am sure that everyone will agree that the very large section of the public for whom a comprehensive medical service is particularly designed has shown a very materialistic attitude during the past four years.

Dr. Turner, as chairman of the Guildford Study Group, has called attention to a letter from Mr. Steele, the secretary of the Study Group, in your issue of April 3, in which he recommends other Study Groups to follow the lead of Guildford and invite their local M.P.s to hear their views. I think it would be better if the local Divisions would invite their M.P.s to their Division meetings rather than to the smaller Study Group meetings, as I am quite sure that if Sir John Jarvis had come to the Guildford Division meeting in March he would have formed quite different impressions from those he took away from his meeting with the Study Group. I cannot be dogmatic on this point as no mention of this meeting of the Guildford Study Group was made beforehand, and I have never seen any report of its proceedings.

In my opinion there have already been far too many secret sessions and far too much of the "run away and play, little doctor" about this subject which concerns us all. I cannot see this great need for secrecy, for surely there is no enemy greedy for information. It cannot have been forgotten that the last great step in the socialization of medicine—that is to say, the raising of the income limit for insured persons to £420 a year without any increase in the capitation fee—became a *fait accompli* while we thought it was still under discussion. The fact was announced casually over the wireless owing to an oversight on the part of the Ministry. It was a succession of such *faits accomplis* and such oversights on the continent of Europe which led up to Munich and after.—I am, etc.,

Camberley LESLIE HARTLEY.

CHILD WELFARE IN THE UNITED STATES

At a recent meeting of the Maternity and Child Welfare Group of the Society of Medical Officers of Health, Dr. Catherine Morris Jones presiding, Major Becker of the United States Army Medical Corps, who was until recently paediatric consultant to the Kellog Foundation and consultant to the Michigan State Department of Health, spoke on child welfare in the United States. He drew attention to the impracticability of applying a scheme of medical or social welfare to the whole of the United States, owing to the wide variations in population, conditions of living, and environment in different parts of the country. The agencies for maternal and child welfare were Government-controlled (Federal, State, city, or county Government) and private agencies—i.e., mainly philanthropic foundations and trusts or voluntary societies dealing with a particular branch of child welfare. After the last war, under pressure of public opinion arising out of the reports of the children's committee appointed by the Federal Government, co-ordinated Government schemes were started, the Federal Children's Bureau was organized, and a committee on the cost of medical care was appointed, also by the Federal Government. This last committee found that adequate curative and preventive medical care was then beyond the reach of a large proportion of the middle and lower classes. Federal Government aid was directed primarily to education and to fact-finding activities It was not executive in function and did not directly subsidize treatment or relief. Grants were made to a State under conditions and subject to agreed expenditure by the State also, which might in turn distribute financial aid and allocate responsibility to constituent counties. The privately controlled agencies for health and welfare numbered thousands. Many were in touch with Government Departments and might be used by them for specific purposes.

Describing the work of the Kellog Foundation, Major Becker said that its resources were first directed towards improving the health of the children of the State of Michigan by creating or financing clinics, hospitals, etc The absence, however, of any appreciable permanent effect on succeeding generations led to a shifting of the emphasis on to education, and especially the education of doctors and of the public through schools, the clergy, and the newspapers. For doctors the Foundation arranged meetings and postgraduate courses in paediatrics and obstetrics, and supplied the services of consultant paediatricians, whose work was deliberately educative as well as clinical.

H.M. Forces Appointments

ROYAL NAVY

Surg. Capt M. S. Moore has been placed on the Retired List

ROYAL NAVAL VOLUNTEER RESERVE

R. G. Henderson to be Temp Surg Capt

Prob Temp. Surg Lieuts. P. A. Adam, P B. Maxted, T. A. M Johns, S. N Cole, R. H Alexander, and H A. Fleming to be Temp Surg. Lieuts

The notification concerning G. E Mallock published in the *Supplement* to the *B.M.J.* dated March 20, p 38, should have read G. C Malloch

ARMY

Col (Temp. Brig) (acting Major-Gen) P. H Mitchiner, C.B.E., T.D., K H S, T.A., to be Temp Major-Gen.

Col A S. Heale, M.C., late R A M.C., having completed four years in the rank, has been retained on the Active List supernumerary to the establishment.

ROYAL ARMY MEDICAL CORPS

Lieut.-Col. (Temp Col) F S. Gillespie, from R A.M.C., to be Col.

Lieut.-Col A L. Robertson, O.B.E., having attained the age for retirement, has been retained on the Active List supernumerary to establishment

Major (Temp. Lieut.-Col.) R. H C. Pryn to be Lieut.-Col

TERRITORIAL ARMY, R A.M.C

2nd Lieut. J D. Caldwell, from R A, T.A, to be Lieut.

LAND FORCES: EMERGENCY COMMISSIONS

ROYAL ARMY MEDICAL CORPS

Capt A. D M Pyle has relinquished his commission on account of ill-health and has been granted the honorary rank of Capt.

War Subs Capt. W G. M. Elliott has relinquished his commission on account of ill-health and has been granted the honorary rank of Capt.

Lieut E. R. V. Sarfati has relinquished his commission on account of ill-health and has been granted the honorary rank of Lieut.

To be Lieuts: E. W. Petzel, C. M Wolff, E R. Ormerod, J R. Hughes, D Thomson, G Wynne-Griffith, A Ashworth, C. D Calnan, C. O Carter, J O. Y Cole, S H. Foulkes, A V. Garscadden, H. Harris, G L. Herbert, F. P. Horowitz, R. H Hughes, B Kessel, A. A. G. Lewis, R. T S Louttit, B T. Mann, E W Moore, L. B Peters, M Rapoport, R L. Richards, J. Russell, H N Smith, B A. F. Stephens, I. H Stokoe, W. A Timperley

2nd Lieut E. Bradbury, from General List, to be Lieut

WOMEN'S FORCES

EMPLOYED WITH THE R.A M C

The following M O.s have been granted commissions in the rank of Lieut: Hilda I. Goodall, Ruby Bird, Agnes U Campbell, Georgina Hill, Brenda M. Jones, Jean M. Lewis, and Mary C. Maclean.

ROYAL AIR FORCE

Squad Ldr. (Temp) H H S. Brown has been granted the rank of War Subs. Squad Ldr.

Fl. Lieut. H S Lillie has resigned his commission

Flying Officer T. J G. Price has ceased to be seconded to St. Mary's Hospital.

RESERVE OF AIR FORCE OFFICERS

Wing Cmdr (Temp) W P. Stamm has been granted the rank of War Subs. Squad Ldr

ROYAL AIR FORCE VOLUNTEER RESERVE

Flying Officers K S B Bletchley, R J Whiting, F. E G Hopkins, G. H. D. Channing, R. C B Pugh, M C Head, O. P Dinnick, and G. H Pearson to be War Subs Fl Lieuts

To be Flying Officers (Emergency): H. Anderson, M. R. Gardiner, D. G. McCann, R. G. Magner, G. A. Miller, E N Moyes, N F Murphy, C. V S Murray, A J. Rook, D G. Sloan, W. A. W Small, G. F. Willson

WOMEN'S FORCES

EMPLOYED WITH THE MEDICAL BRANCH OF THE R.A.F.

To be M O.s (Emergency) with the rank of Flying Officer: Kathleen M Bower, Enid M Clow, Wilhelmina M Craig, Josephine S Finn, Margaret F. Fry, Jane M Fullerton, Isabel E. Mackenzie, Agnes L. Scott, Jean M Terry Thomas, Mary Corbett, Mary B Gallagher, Mary Hamill.

INDIAN MEDICAL SERVICE

Cols H S. G. Hali, M C, and P. B. Bharucha, D S.O, O B E, have retired

Lieut.-Cols B R. Chandhri and S D. Sondhi, M.C., have retired.

EMERGENCY COMMISSIONS

To be Capts: F. G Miller, J G. Davies, T J. Davies, G A Flann, J. E E Hughes, J. L. E. Millen, C. V. Oldroyd, D. S Piper.

Lieut. H Chapman to be Capt

Lieut. (on probation) J M. R. M. Johnson to be Capt. (on probation).

J. G H Davidson to be Lieut.

POSTGRADUATE NEWS

A course of postgraduate lectures on ophthalmology will be given in the Department of Ophthalmology of the University of Glasgow on Wed., May 5 12, 19, and 26, and June 2. Details will be published in the postgraduate diary column of the *Supplement* week by week.

A series of postgraduate lectures will be given in the West Medical Theatre of Edinburgh Royal Infirmary on Thurs, May 6, 20, 27, and June 3, 10, and 17, at 4.30 p m

WEEKLY POSTGRADUATE DIARY

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane Road, W.—*Daily*, 10 a m. to 4 p m, Medical Clinics, Surgical Clinics and Operations, Obstetric and Gynaecological Clinics and Operations *Daily*, 1 30 p m, Post-mortems *Tues.*, 10 a m, Paediatric Clinic; 11 a m., Gynaecological Clinic; 2 p m, Genito-urinary Clinic *Wed.*, 11.30 a m, Medical Conference. *Thurs.*, 2.15 p.m, *X*-ray Demonstration Dr. Topham: Pneumonia and Bronchitis. 3 p.m., Dermatological Clinic. *Fri*, 12.15 p.m., Surgical Conference; 2 p m., Gynaecological Conference; 2 p m., Neurological Clinic

EDINBURGH POSTGRADUATE LECTURES.—At Edinburgh Royal Infirmary, *Thurs*, 4.30 p m. Dr A. R. Macgregor: The Causes of Foetal and Neonatal Death.

GLASGOW UNIVERSITY: DEPARTMENT OF OPHTHALMOLOGY—*Wed.*, 8 p m. Dr. A Garrow: The Problem of the Young Myope

DIARY OF SOCIETIES AND LECTURES

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W C—*Mon*, 4 p.m. Dr. G. Weddell Cutaneous Innervation *Wed.*, 4 p.m. Mr. H E Griffiths. The Treatment of the Injured Workman Museum demonstrations: *Tues*, 4 p m Prof. A. J. E. Cave: Osteology of the Shoulder Girdle and Upper Limb. *Thurs*, 4 p m Prof Cave: Osteology of the Pelvic Girdle and Lower Limb.

ROYAL SOCIETY OF MEDICINE.—*Wed*, 2.30 p m Section of History of Medicine; 4.30 p.m Section of Surgery. *Fri*, 10 30 a m Section of Otology; 2.15 p m Section of Laryngology; 2.15 p m. Section of Anaesthetics

ROYAL SOCIETY, Burlington House, W.—*Thurs*, 4.30 p.m. Pilgrim Trust Lecture by Dr. K. T Compton: The Organization of American Scientists for the War.

EDINBURGH UNIVERSITY.—At University New Buildings, Teviot Place, Edinburgh, *Thurs.*, 5 p m, fifth Sharpey Schafer Memorial Lecture, by Prof E D. Adrian, F R S The Sensory Areas of the Brain.

KING'S COLLEGE, Newcastle-upon-Tyne.—*Wed*, 5 p m Prof. J C Spence Health of the Child

B.M.A.: Diary of Central Meetings

MAY

6 Thurs. Representative Committee, 11 a.m.

B.M.A.: Branch and Division Meetings to be Held

KENSINGTON DIVISION—At British Postgraduate Medical School, Ducane Road, W, Tues, May 4, 9 p.m. Annual election of Local Medical War Committee, to which all medical practitioners in the area of the Division are invited to attend 9 30 p m Annual meeting

SHEFFIELD DIVISION—At Church House, St James's Street, Sheffield, Thurs., May 6, 8 p m Annual general meeting

BIRTHS, MARRIAGES, & DEATHS

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BIRTH

WILLIAMSON.—On April 8, 1943, at the Rubislaw Nursing Home, Aberdeen, to Enid (*née* Thornber), wife of Lieut D. Macgregor Williamson (on active service), a son

DEATH

HARDY—On April 10, 1943, Percy Hardy, B.A (Camb), M B, B Ch., M.R.C S, L R C P., aged 65, dearly loved husband of Kathleen Hardy of 1, Magdala Road, Nottingham

SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
LONDON SATURDAY MAY 8 1943

SHEFFIELD DISCUSSION GROUP

VIEWS OF HOSPITAL ASSISTANTS AND RESIDENTS

The honorary secretary of the Sheffield Hospitals Assistants and Residents Medical Planning Discussion Group has sent the following report of its procedure and conclusions for publication.

The group was formed in March, 1942, for the purpose of providing the more recently qualified members of the medical profession in Sheffield with opportunities for discussing medical planning and expressing their views on future medical organization. It was felt that the younger men and women who had qualified within the last ten years and many of whom would shortly join the Forces had too little representation on the medical planning bodies already in existence.

A series of discussion meetings was held, and at the end of these a questionary was sent out to all the assistants and residents in the Sheffield hospitals, voluntary and municipal. This was designed to elicit the opinion of the group on the issues which had been raised in discussion. Twenty-three questionaries (about a third of those sent out) were completed and returned. Of the twenty-three who filled in the questionaries, eighteen were men; five of these are now serving in the Forces. None has been qualified more than ten years and the average time since qualification is four years. The group includes graduates of seven British universities.

The conclusions contained in this report represent the opinion of three-quarters or more of those who completed the questionary. Where a majority but less than three-quarters were in agreement this is stated as a majority opinion.

Conclusions

The preventive and curative medical services should be integrated into one health service and should not be separately directed. To this end the following criticisms and proposals were made.

1. Hospital Services

Administration.—There is lack of co-ordination between voluntary hospitals, municipal hospitals, and nursing homes. Municipal hospitals are at present directed by a medical superintendent, whose responsibilities are so widespread that he cannot do justice to both administrative and medical duties. Hospitals should be co-ordinated and directed by regional councils, to be responsible to a National Medical Corporation. This corporation might be constructed on similar lines to the B.B.C., and 50% of its Governors should be medical men. Hospitals should be co-ordinated within regions larger than the existing local government areas, and in each region a teaching hospital should act as the key hospital. Each hospital should be administered by a medical committee and a lay committee. The medical committee, consisting of the senior medical staff, would be responsible for the appointment of medical staff and for the direction of all medical matters. The lay committee, composed of representatives of local organizations, would, in association with representatives of the medical committee, direct the general and financial administration of the hospital.

Staffing.—All consultants should be associated with a teaching hospital and should receive a salary for their hospital work. Each consultant should possess a higher qualification in his particular specialty, and should have spent a preliminary period variously estimated at from 2 to 12 years in the practice of the specialty. It was recommended that he should have devoted a period of at least one year to study abroad. The majority were opposed to the retention of private consultant practice.

Finance.—The methods at present employed to finance voluntary hospitals were condemned. The majority favoured financial support from a compulsory health insurance scheme. Others suggested financial administration by the Exchequer from a fund derived directly from income tax.

2. General Practice

General practitioners often have too many patients and too much clerical work. With the surgery in the home, the doctor's home life is disturbed, particularly by having to stand by for telephone calls. General practitioners become professionally isolated and find it difficult to attend study courses and visit other centres. The buying and selling of practices was considered undesirable, and difficulties often arose in the assessment of fees. Much interesting work was being taken over by the public health departments—e.g., ante- and post-natal work, infant and school welfare. This resulted in a still greater lack of co-operation between general practitioners and public health departments.

The group thought that general practice should be carried out from health centres, each of which should cover a population of approximately 15,000 and be staffed by about ten doctors working in close collaboration, thus providing a rota for night calls and opportunities for holidays and visits to other medical centres. The health centres should be co-ordinated with the hospitals in the regionalization scheme, thus eliminating unskilled specialization in group practices and small town hospitals. Public health personnel and services should be unified with general practitioners in health centres, and the centre doctor encouraged to do some of the medical work now taken over by the public health departments, provided he had undertaken special training. Doctors should be appointed to the centres by the regional medical authority on the basis of ability, and paid a basic salary in addition to a capitation fee for each patient attracted up to a maximum of 2,000.

A clerical staff would deal with all financial matters and be responsible for a well-kept system of records, filed and analysed, thus facilitating the work of locumtenents and stimulating interest in investigations and follow-up inquiries. The principle of free choice of doctor should be maintained.

3. Medical Education

Selection of Students.—This should depend upon the student's character and motives for entering the profession. Inability to pay the fees should not debar an otherwise suitable candidate. The majority thought that the number of doctors needed by the population should also be a controlling factor.

Qualifications.—A more uniform qualification is desirable, and a resident hospital appointment following qualification should be required before admission to the *Register*.

Teaching and Teachers.—In the appointment of medical teachers more consideration should be paid to the possession by the applicant of the ability to teach. Teachers should be allowed to do research, but the majority thought that they should not engage in private practice or accept public appointments. It was thought that the general practitioner should play some part in the teaching of students.

4. Medical Research

More facilities should be available in hospitals for the prosecution of research. Research departments should be created in all teaching hospitals, with a paid director, whose duties would include the initiation and co-ordination of research within the hospital.

5. General Questions

Payment of the Doctor.—The group considered that the doctor should not be paid directly by the patient or through doctors' clubs, but should be paid either by means of an insurance scheme open to the whole population or by the State on a salary basis with pension, or by a combination of these two methods.

Health and Environment.—The medical profession should have more power to ensure satisfactory health standards of housing, water supplies, nutrition, and other environmental factors affecting health.

There was a pleasing interlude at the annual meeting of practitioners of the North Glamorgan and Brecknock Division of the B.M.A. on April 18 at Pontypridd. The honorary secretary of the Local Medical War Committee, Dr. R. Melville Hiley, was presented with a cheque by Dr. Gwilym Pierce, chairman of the Division, on behalf of the profession for his valuable services over many years. Drs. Watson (Talgarth) and Melbourne Thomas spoke of Dr. Hiley's services. Dr. Hiley has been honorary secretary of the South Wales and Monmouthshire Branch, a chairman of the Division, and is honorary secretary of the Division in addition to his onerous duties as honorary secretary of the Local Medical War Committee.

CONSULTANTS AND SPECIALISTS GROUP: REGIONAL MEETINGS

Regional meetings are being arranged throughout the country under the auspices of the Consultants and Specialists Group of the B.M.A. These meetings will afford opportunities for discussion of the proposals relating to the future of consultant and specialist practice upon which consultants and specialists may desire to express an opinion to the Representative Committee appointed to enter into discussions with the Ministry of Health. In view of the Government's proposals arising out of the Beveridge report, consultants and specialists who are not members of the Group are invited to attend these meetings and to participate in the discussions. Membership of the Group is, however, restricted to those members of the Association who sign a declaration that they are not engaged in general practice in any form but practise exclusively as consultants or specialists. Forms of application for membership of the Group may be obtained from the Secretary, British Medical Association, B.M.A. House, Tavistock Square, London, W.C.1. Details of the regional meetings arranged to date are given below:

Region 11: London (the geographical counties of Essex, Hertfordshire, London, and Middlesex).—Wednesday, May 19, at 5 p.m. at B.M.A. House, Tavistock Square, London, W.C.1. The discussion will be opened by the following speakers, Mr. H. S. Souttar presiding: Dr. W. Russell Brain, Dr. Geoffrey Bourne, Mr. A. Dickson Wright, Mr. Donald Barlow, and Dr. G. C. Anderson.

Region 2 (Manchester and that part of Lancashire not within the Liverpool Region).—Thursday, May 20, at 5 p.m. in the Lay Board Room, Manchester Royal Infirmary. The discussion will be opened by Prof. Harry Platt.

Region 5 (Sheffield, Rotherham, Doncaster, and the county of Rutland).—Thursday, May 27, at 3 p.m. at the Royal Infirmary, Sheffield. The discussion will be opened by Mr. R. St. L. Brockman.

Region 6 (the geographical counties of Derby, Nottingham, and Lincoln).—Wednesday, May 19, at 2.30 p.m. at 64, St. James's Street, Nottingham. The discussion will be opened by Mr. S. Alan S. Malkin.

Region 7 (Birmingham and the geographical counties of Stafford, Salop, Hereford, Worcester, Warwick, Leicester, and Northampton).—Saturday, May 22, at 2 p.m. at the Nurses Home, Queen Elizabeth Hospital, Birmingham. The discussion will be opened by Prof. Philip C. Cloake.

Region 9 (the geographical counties of Berkshire, Buckinghamshire, and Oxford).—Wednesday, June 2, at 2.30 p.m. at the Nuffield Institute of Medical Research, Woodstock Road, Oxford. The discussion will be opened by Dr. A. M. Cooke.

Region 12 (the geographical counties of Kent, Surrey, and Sussex).—Saturday, May 15, at 3.30 p.m. at the Royal Pavilion, Brighton. The discussion will be opened by Mr. H. J. McCurrich.

Region 13 (the geographical county of Hampshire and the Isle of Wight).—Thursday, May 13, at 3 p.m. at the Royal South Hants and Southampton Hospital, Fenshaw Street, Southampton. The discussion will be opened by Dr. R. H. Balfour Barrow.

Region 14 (the geographical counties of Devon and Cornwall).—Wednesday, May 19, at 2.30 p.m. at the Prince of Wales Hospital, Greenbank Road, Plymouth. The discussion will be opened by Dr. T. H. G. Shore.

Region 15 (Wales and Monmouthshire).—Thursday, May 20, at 3 p.m. at the Cardiff Royal Infirmary. The discussion will be opened by Mr. David Ioan-Jones.

Hypodermic needles and syringes for the self-administration of adrenaline are now available as part of medical benefit under the N.H.I. Acts.

Correspondence

Basic Principles

SIR,—The West Norfolk Division of the B.M.A. has noted the publicly expressed intention of the political parties to introduce a national health insurance scheme for the population as a whole. The members of this Division have met many times and have sent to the Medical Secretary of the B.M.A. suggestions for safeguarding the interests of doctors. We now tabulate various principles which we consider should be insisted upon by any committee representing the medical profession in discussions or negotiations.

1. Full compensation for the loss of capital assets, practice, premises, and equipment, and also for loss of income that may arise from any scheme adopted.
2. Equal rights with other citizens in the matter of weekly duty hours and yearly holidays.
3. The terms of remuneration discussed shall be deemed to apply to the national working week. Those who at first of necessity will work longer hours shall have special additional overtime remuneration.
4. There should be comprehensive safeguards against the possibility of our wives and children becoming unpaid assistants and domestic servants in the scheme.
5. Freedom to treat our patients according to our knowledge and conscience and not according to the rules laid down by some administrative body.
6. If, by restricting the number of patients or by any other means, our maximum income is limited, then a minimum net income must be guaranteed.
7. No impediments or limitations must be placed on a doctor continuing to practise after he has contracted out of the scheme.
8. Complete freedom of the doctor in his off-duty time to do medical or other work as he wishes.
9. Any controlling body or committee shall include a percentage of doctors doing clinical medicine as in the panel committees.

We consider that these principles should apply to any generalized national medical service (whether 85% or 100% of the population are included) no matter if the remuneration is by salary, session, or capitation fee. We are anxious to know the opinions of other Divisions on these or other general principles (details can be discussed later) either through your columns or by letter direct to us.—I am, etc.,

J. LEWIN,
Hon Secretary, West Norfolk Division.
Gaywood Hall, King's Lynn.

A Disclaimer

SIR,—An anonymous communication dealing with a speech of mine upon co-operation between the M.P.U. and the B.M.A. has recently been widely distributed. It emphasizes certain aspects of disunion between those two bodies which I was anxious to avoid, and I trust you will allow me space to state that I have no responsibility whatever for the document in question.—I am, etc.,

Sevenoaks. GORDON WARD.

Doctors as Civil Servants

Dr. B. H. SHAW (St. Mawes) writes: From time to time it has been suggested that the medical profession should have greater representation in Parliament. It is pertinent to ask how, if the profession is to be converted into a Civil Service, can this be effected in such an event, or even the appointment of a medical man to a Commission of the Peace?

POSTGRADUATE NEWS

The Fellowship of Medicine announces: (1) M R.C.P. course in chest diseases at Brompton Hospital, Tues and Thurs., 4.30 p.m., May 18 to June 10. (2) M R.C.P. course in chest diseases at London Chest Hospital Victoria Park, 2.30 p.m., on Fri., May 28 and June 4, and Tues., June 1 and 8 (3) Clinical surgery demonstrations at London Homoeopathic Hospital, every Wed. afternoon during May and June Further details of these courses can be had from Fellowship of Medicine, 1, Wimpole Street, W 1.

WEEKLY POSTGRADUATE DIARY

FELLOWSHIP OF MEDICINE, 1, Wimpole Street, W—*London Homoeopathic Hospital*: Wed. afternoon, F R.C S clinical demonstration in surgery. *National Hospital for Diseases of the Heart*: Tues. and Wed., 10 a.m., Out-patient clinics

GLASGOW UNIVERSITY: DEPARTMENT OF OPHTHALMOLOGY—*Wed.*, 8 p.m Dr. C. W. Graham: Ophthalmic Experiences in the Middle East.

DIARY OF SOCIETIES AND LECTURES

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W C—*Mon.*, 4 p m, Prof. H. A. Harris: The Anatomy of Posture in Industry *Fri*, 4 p.m. Prof. H A Harris: The Clinical Anatomy of the Veins. Museum demonstrations: *Tues.* and *Thurs.*, 4 p m., Prof. A. J E Cave: Osteology of the Pelvic Girdle and Lower Limb.

ROYAL SOCIETY OF MEDICINE.—*Tues*, 2 30 p m. Section of Psychiatry; 4 p.m. Section of Pathology. *Fri*, 5.30 p.m. Clinical Section.

CHADWICK TRUST—At Royal Society of Tropical Medicine and Hygiene, 26, Portland Place, W., *Tues.*, 2 30 p.m. Mr C. F. White, O.B E.: Health Problems in Rebuilt London.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W.—*Mon*, 5 p.m., General meeting. 5 30 p.m., Annual Oration by Dr C. E. Lakin, F.R.C.P., Outside the Textbooks.

B.M.A.: Branch and Division Meetings to be Held

EAST YORKSHIRE BRANCH.—At City Restaurant, Lowgate, Hull, Wed., May 12, 8 p m Annual general meeting. Presidential address by Dr. N. Gebbie: The Doctor and the People

ISLE OF WIGHT DIVISION.—At County Hall, Newport, Wed., May 12, 3.15 p m. Meeting to review present hospital facilities. All medical practitioners in the area of the Division are invited to attend.

METROPOLITAN COUNTIES BRANCH—At B.M A House, Tavistock Square, W.C, Sun, May 16, 2.30 p m. Dr. Charles Hill, Deputy Secretary of B.M A: Beveridge and Medical Practice.

MID-CHESHIRE DIVISION.—At Altrincham General Hospital, Sun, May 9, Annual meeting, preceded by meeting of all practitioners in area of Division for election of Local Medical War Committee, 1943-4.

BIRTHS, MARRIAGES, & DEATHS

The charge for inserting announcements under this head is 10s. 6d. This amount should be forwarded with the notice, authenticated with the name and address of the sender, and should reach the Advertisement Manager not later than first post Monday morning to ensure insertion in the current issue.

BIRTHS

KAHAN—On April 21, 1943, at the Southern Hospital, Dartford, Kent, to Dr. Nest Kahan (*née* Thomas), wife of Dr. Alexander Kahan, a son.

McKEE—On April 25, at the Royal Infirmary, Sunderland, to Dr. and Mrs John McKee of Harton, South Shields, a daughter.

MARRIAGE

LANGLEY—PORTER.—On April 29, at Buxworth Parish Church, George Johnson Langley, M.D., F.R C.P., of West Acre, Oldfield Lane, Altrincham, to Elsie Porter, M D., daughter of Lady Porter, 9, Lyme Park, Chinley.

The Glasgow Panel Committee has passed a resolution unanimously declaring that "it would deprecate the general practice side of any National Medical Service being put under the administrative control of the present local authorities or any future groupings of the same. It would favour the administrative control of general medical practice being regional, or, alternatively, the control being the direct responsibility of *ad hoc* bodies."

SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
LONDON SATURDAY MAY 15 1943

Correspondence

Why Reorganize ?

Sir,—Like many others, when the Beveridge report came out with its prepublication boosting *à la* Goebbels, its B.B.C. blessing and so forth, I thought it was, basically, a good and desirable measure, but having read the letter of Dr. Leach (*Supplement*, April 3), I have been communing with myself and asking myself if this report is really the only panacea for all the ills and shortcomings of the medical profession. It is, I think, tacitly admitted that the medical profession is far from perfect. I should, indeed, be deeply indebted if you could inform me of any section of the community which is perfect. They all, I take it, in our present system of civilization suffer from greater or lesser degrees of imperfection, but, as Dr. Leach implies, the medical profession stands out above all others in the eyes of the reformers or regimentators as the one deserving of their united frontal assault. Apparently they consider that this great and noble profession is a perfect sitting target which will immediately capitulate at their first broadside. The public, generally, considers that the medical profession is the strongest trade union in Britain to-day; indeed, many of my patients and friends have frequently so described it to me. No amount of argument can alter this conviction on their part. The reformers know this.

One has heard nothing, as yet, of any scheme which is going to regiment the herbalists, the naturopaths, the osteopaths, the physiotherapists, and those super-scientists, the manipulators of the black boxes. They, presumably, with their intensive, all-embracing correspondence courses to gain new graduates, are to be allowed to retain their freedom of action. Of course they will still not be allowed to issue death certificates or prescribe dangerous drugs, or will they? Judging from the support they have already received from certain of our reactionary Members of Parliament one can expect almost anything. We, however, having spent many years in the study of our profession and having, in most cases, laid out a considerable amount of money on the purchase of a practice, are now to be put on one common level and treated as the office boys of the great Ministry of Health, or Ministry of Positive Health, as it may well be renamed.

We are, if our propaganda is to be believed, fighting this war for the preservation of all that democracy means. Democracy, surely, does not mean that the State rules the individual, but rather that the individuals rule the State. We are fighting against all the evils of Nazism and Fascism, and the greatest evil of these two systems of government, as I see it, is that each puts the State first and foremost and the individual is only considered as a means to the continuance of the paramount position of the State. Yet our so-called planners are evidently striving to bring Britain into line with the Reich and Italy. If they have their way this great country of ours will be in no way different from the Axis countries. Indeed, it will be a case of totalitarianism excelled.

If we believe that the principles for which we entered this war are worth fighting for it is high time we asserted ourselves. Let us unite and tell the planners and the Ministry of Health that we will not submit to their demands. We know, and the general public knows, that on the whole we are doing a good job of work. We know, as Dr. Leach has said, that the availability of service is at hand for rich and poor alike. That certain matters can be improved is denied by nobody, but it does not need the regimentation of the whole medical profession to get the needed improvements. The time is short. The Minister of Health has said that plans for a State Medical Service are well under way, and we can believe him: he means what he says. Let us, therefore, get together and show a united front for once. Let us, for the first time, be a real trade union, and fight to preserve our freedom. President Roosevelt has said that we are fighting for four freedoms: freedom from want, freedom from fear, freedom of speech, and freedom of religion. And an ex-President, Herbert Hoover, has added a fifth—freedom of economic enterprise. The G.P. who does his work badly loses his practice. The G.P. who does his work properly keeps his practice and increases it—all by his own effort and enterprise. Shall we stand quietly by and allow the rewards of hard work and enterprise to be filched from us without a struggle? Let us rally to the old slogan of the Jacobins—"Liberté ou la mort"—rather than adopt the defeatist slogan of "Esclavage plutôt que la mort." Only thus may we hope to thwart the evil designs of the regimentators.—I am, etc.,

William Mottershead.

Little Lever, Nr. Bolton.

The Rural Doctor

Sir,—Some twenty-odd years ago the cause of the rural practitioner was championed with great effect by Dr. Williams Freeman of Hants, whom many may remember. It is perhaps a good omen that Dr. E. R. Williams, a truly rural doctor, has been added to the Representative Committee appointed to meet the Minister of Health. Certainly the needs and desires of this important section of the profession must have careful consideration in the "new deal," and I suggest that the Rural Practitioners' Subcommittee of the Insurance Acts Committee of the B.M.A. is well qualified to ensure that this is done. Doctors working in rural areas should make contact with their Panel Committees, so that their views may be brought to the notice of the authorities. As a basis for discussion I submit the following suggestions.

For obvious reasons the countryside needs a capable, self-reliant doctor, well equipped in all branches of general practice, and no whit inferior to his urban colleague. In the rural areas there can be little free choice of doctor or of patient. His practice must stand on its own financial feet and ought not to depend on a subsidy from private means or pension. The rural areas have a fairly stable population, and doctors should be encouraged to settle there early in their professional career and to stay there. A rural doctor has several handicaps. Under present circumstances he cannot make a fair income. He cannot sell so much of his professional time as his town colleague, as so much of it is spent travelling. Facilities for his children's education are more expensive and difficult. Association with his colleagues is not easy.

The future plan must provide him with an income equal to that of an urban practitioner. The present unsatisfactory method of supplementing his income from the reserved portion of the Mileage Fund by application to the Panel Committee must be abolished. The mileage fee in rural areas ought to take into account payment for time spent in travelling as well as the actual cost of getting about. He must have a postgraduate course provided every few years, and also an annual holiday for which a locumtenent should be provided and paid. He needs a dispenser-bookkeeper so that all his time may be devoted to professional work, and to help him keep branch surgeries in different parts of his area. This help will be the equivalent of the health centre in the towns.

If the countryside is to become more popular and important in the future its medical needs must be satisfied with service as good as that in the towns.—I am, etc.,

Weymouth. J. A. Pridham.

A Call for Leadership

Sir,—Many of us have left behind a dull resignation to the medical planning of the Beveridge report, a resignation forced upon us by the realization that the medical profession, by its organization to discuss details and conditions of service, had accepted or at least were prepared to tolerate the scheme itself. What we need now is a leader, a Churchill. Letters such as the one from Dr. Lindsey Batten (*Journal*, March 13, p. 328) give real encouragement. Let those of us who share his opinions gather together under the same banner. Will a leader come forward?

It is to be noted that: (*a*) Our opposition is not directed against the Beveridge plan as a whole but merely to the medical scheme contained therein. (*b*) Suggested changes come from politicians and not as the result of any demand from the general public or from the body of our profession. (*c*) The present system is not perfect and cannot be static. Nevertheless its gaps are few, and these can be filled by simple extension of the N.H.I. scheme.

To take two instances: (1) The patient who, while too ill to attend hospital, is considered by his G.P. to need the advice of a consultant. It is believed that a sufficient number of consultants would serve on a panel for this purpose in each area under conditions agreed upon between representatives of themselves and of the Ministry of Health. (2) The patient who, not being an insured person and being unable to maintain the small regular subscription towards medical service under the P.M.S., is not agreeable to asking for the services of the P.A. ("parish") doctor. These patients could be treated as insured persons, and temporary cards, renewable at intervals, could be issued to them.

Any extra cost involved would be a very small proportion of the sum necessary to extend the present service to that of the Beveridge scheme, and although extra work would fall on the staff of insurance committees no fresh machinery of organization would be entailed. What would be our lot under a Fascist regime? Surely a regimentation of the Beveridge type. I am not deterred from this view by the fact that the Government has promised us that in the preliminary discussions our voice may be *heard* (without prejudice to any *decision* subsequently taken by Parliament!).

If we are to be sheep, let us follow a good-shepherd rather than be driven by a political sheep-dog. Who will come forward to lead us?—I am, etc.,

Leicester L. Duncan Porteous.

MEDICAL WAR RELIEF FUND

FORTY-SIXTH LIST

Amount previously acknowledged—£49,097 16s 6d and £100 3½% Conversion Stock and £40 3% Defence Bonds.

Individual Subscriptions

£62 11s. ($279.60).—Canadian Medical Association—per Dr F. S. Patch (amount already sent £1,910): Oxford County Medical Association, Ontario, $99.60; Prince Albert District Medical Society, Saskatchewan, $60 00; individual subscriptions from Saskatchewan, $120 00.

£7.—Birmingham General Medical Practitioners' Union—per Dr M. G. Sheldon (amount already sent £49 7s) - Drs Morison and Watt, £3 (2nd donation); Dr J. Radnor, £1; Dr. J. A. Brown, £1 (2nd donation); Dr. N. F. Haslam, £1 (2nd donation); Dr. M. G. Sheldon, £1 (4th donation)

£5 5s.—Dr W. D. Calderwood, Birmingham (3rd donation)

£1 1s.—Major J. Duncan White, R.A.M.C.

£1.—Dr G. D. Denlow, Kingston (3rd donation).

Local Medical and Panel Committees

£280.—Surrey (6th donation)

£80.—Stirling County (3rd donation).

£42 17s. 6d.—Newcastle-upon-Tyne (7th donation).

Total—£49,577 11s and £100 3½% Conversion Stock and £40 3% Defence Bonds

Cheques, payable to the Medical War Relief Fund, should be sent to Dr. G. C. Anderson, Honorary Treasurer of the Fund, British Medical Association House, Tavistock Square, London, W.C.1

The Ministry of Health has informed insurance committees that medicated (lethane) hair oil may properly be prescribed for insured persons as part of medical benefit. Extensive trials have now proved that it is thoroughly efficient and safe when the official directions given in the *National War Formulary* and on the label are followed.

CONSULTANTS AND SPECIALISTS GROUP: REGIONAL MEETINGS

In the *Supplement* last week (p. 58) attention was drawn to the regional meetings being arranged throughout the country under the auspices of the Consultants and Specialists Group of the B.M.A. Details of further regional meetings are now available and particulars are given below:

Region 1 (the geographical counties of Northumberland, Durham, Westmorland, and Cumberland).—Thursday, May 20, at 6 p.m., at the Royal Victoria Infirmary, Newcastle-upon-Tyne. The discussion will be opened by Brig. A. Hedley Whyte.

Region 3 (Liverpool, Merseyside, and Cheshire).—Wednesday, May 26, at 5 p.m., at the Liverpool Medical Institution. The discussion will be opened by Mr. F. J. Strong Heaney.

Region 8 (the geographical counties of Huntingdon, Bedford, Cambridge, Norfolk, and Suffolk; Soke of Peterborough and Isle of Ely).—Thursday, May 20, at 2 p.m., at Addenbrooke's Hospital, Cambridge. The discussion will be opened by Mr. A. J. Blaxland.

H.M. Forces Appointments

ROYAL NAVY

Surg. Lieut (Emergency) W. B. Teasey to be Surg Lieut.-Cmdr (Emergency)

Royal Naval Volunteer Reserve

Surg. Capts. J. B. Ronaldson, O.B.E., V.D., and T. B. Dixon, V.D., have been placed on the Retired List.

Prob Temp Surg Lieuts. J. J. Emmitt, J. W. A. Mackenzie, N. F. Donaldson, J. Wishart, F. E. Woodthorpe, R. H. Jones, C. E. Matthews, J. S. Stead, S. E. Gordon, J. A. R. Bickford, W. Bingham, J. B. Allan, H. C. Llewellyn, J. McClement, P. G. Jeffries, A. O'Connor, J. F. North, R. C. P. Aldridge, H. D. Doyle, G. K. Riddock, R. L. Skea, A. O. Foster, J. M. Thom, D. G. Reinold, J. A. Oddie, I. MacC. Macleod, E. R. Jones, to be Temp. Surg. Lieuts.

ARMY

Col (Temp Brig) E. C. Beddows, M.C., late R.A.M.C., having attained the age for retirement, has been retained on the Active List supernumerary to the establishment.

Lieut.-Col. A. L. Sheppard, I.M.S. (ret.) has reverted to the rank of Major at his own request whilst so employed.

ROYAL ARMY MEDICAL CORPS

Lieut.-Col. (Temp. Brig.) R. R. G. Atkins, M.C., to be Col.

TERRITORIAL ARMY, R.A.M.C.

Supernumerary for Service with Birmingham University Senior Training Corps (Medical Unit)—Lieuts I. L. MacKinnon and F. R. Hurford have ceased to be employed.

Territorial Army Reserve of Officers, R.A.M.C.

War Subs. Major G. S. Phillips has relinquished his commission on account of ill-health and has been granted the honorary rank of Major.

ROYAL AIR FORCE

R.A.F.V.R.: Dental Branch

E. N. Stevens, M.R.C.S., L.R.C.P., to be Flying Officer (Emergency).

WOMEN'S FORCES

Employed with the Medical Branch of the R.A.F.

The following M.O.s with the rank of Flying Officer to be War Subs Fl. Lieuts.: M. Organ, G. M. McGuffie.

To be M.O.s (Emergency) with the rank of Flying Officer: Anne C. McKenna, Kathleen Mathers

INDIAN MEDICAL SERVICE

Major-Gen. A. A. C. McNeill, K.H.S., has retired.

Col J. S. S. Martin, K.H.S., to be Major-Gen.

Lieut.-Col. W. M. Will has retired

Majors G. M. Irvine, D. Kelly, and S. D. Gupta to be Lieut.-Cols.

Capts. G. S. N. Hughes, A. D. Barber, T. K. White, C. J. Hassett, W. G. Kennedy to be Majors.

Emergency Commissions

To be Capts.: J. G. Bentley, J. W. Brown, L. N. O'Hara.

Lieut. B. Fife to be Capt.

Lieut. S. McClatchie to be Capt. (provisional).

POSTGRADUATE NEWS

The Fellowship of Medicine announces: (1) M.R.C.P. clinical course at Brompton Hospital, Tues. and Thurs., 4.30 p.m., May 10 to June 10 (Limited to six) (2) M.R.C.P. clinical chest course at London Chest Hospital, Victoria Park, E., 2.30 p.m. Fri., May 28 and June 4, and Tues., June 1 and 8 (Limited to six.) (3) F.R.C.S. clinical demonstrations at London Homoeopathic Hospital, every Wed. during May and June, at 5.30 p.m. Further details obtainable from Fellowship of Medicine, W.

WEEKLY POSTGRADUATE DIARY

Fellowship of Medicine, 1, Wimpole Street, W.—*Brompton Hospital*: Tues and Thurs., 4.30 p.m. M.R.C.P. clinical course. *London Homoeopathic Hospital*: Wed., 5.30 p.m. F.R.C.S. clinical demonstration *National Heart Hospital*: Tues and Wed., 10 a.m. Out-patient clinics.

Edinburgh Postgraduate Lectures.—At Edinburgh Royal Infirmary, *Thurs.*, 4.30 p.m. Dr. W. G. Clark: The Town-dweller and his Environment.

Glasgow University: Department of Ophthalmology.—*Wed.*, 8 p.m. Dr. J. Hill: Observations on Ocular Tumours.

DIARY OF SOCIETIES AND LECTURES

Royal College of Surgeons of England, Lincoln's Inn Fields, W.C.—*Mon.*, 4 p.m. Prof. H. A. Harris: Relation of Lymphatic System to Arterial and Venous Systems. *Wed.*, 4 p.m. Prof. J. Beattie: Changes in Peripheral Vascular System after Haemorrhage. *Fri.*, 4 p.m. Prof. J. Beattie: Value of Sulphydryl Compounds as Detoxicating Agents. Museum demonstrations: *Tues.*, 4 p.m. Prof. A. J. E. Cave: Mechanism of the Foot. *Thurs.*, 4 p.m. Prof. Cave: Visceral Bones.

Royal Society of Medicine.—*Wed.*, 2.30 p.m. Section of Physical Medicine. *Thurs.*, 4 p.m. Section of Dermatology; 4.30 p.m. Section of Neurology *Fri.*, 3.30 p.m. Section of Obstetrics and Gynaecology; 4.45 p.m. Section of Radiology

Faculty of Radiologists.—At R.S.M., 1, Wimpole Street, W., *Sat.* (May 22), 11 a.m. Skinner Lecture by Prof. B. W. Windeyer: Malignant Tumours of the Upper Jaw.

London Association of the Medical Women's Federation.—At Royal Free Hospital, Gray's Inn Road, W.C., *Sat.* (May 22), 2.30 p.m. Clinical meeting. Diseases of children will be demonstrated.

B.M.A.: Diary of Central Meetings

May

19 Wed. Journal Committee, 12 noon.

B.M.A.: Branch and Division Meetings to be Held

City Division.—At Metropolitan Hospital, Kingsland Road, E., Fri., May 21, 8.15 p.m. General meeting

North Staffordshire Division.—At North Staffordshire Royal Infirmary, Sun., May 16, 2.30 p.m. and 3 p.m. General meetings.

BIRTHS, MARRIAGES, & DEATHS

The charge for inserting announcements under this head is 10s 6d. This amount should be forwarded with the notice, authenticated with the name and address of the sender, and should reach the Advertisement Manager not later than first post Monday morning to ensure insertion in the current issue.

MARRIAGE

Essex-Lopresti—Harrop.—On May 1, 1943, at Brompton Oratory, Peter Essex-Lopresti, F.R.C.S.Ed., D.A.Eng., to Mary Muriel Harrop, M.B., B.S.Lond.

DEATHS

Craighead.—During March, 1943, at sea, through enemy action, Alexander Clifton Craighead, Lieut.-Colonel, Indian Medical Service, beloved husband of Ellie Campbell McKenzie, 32, Park Road, Dundee, in his 53rd year. (Indian and Australian papers please copy.)

Cunningham.—On May 7, 1943, Richard Graham, M.B., Ch.B.Ed., aged 64, dearly loved husband of Jean Hunter Cunningham of The Firs, Bamburgh, late Sunderland.

A suggestion in a recent issue of the *Yorkshire Post* that medical men and women employed by local authorities should, where possible, help overworked G.P.s has provoked a reminder from the West Riding that this has been the practice there for nearly three years. School, tuberculosis, and maternity and child welfare medical officers of the West Riding County Council have been giving their help in hospitals and private practice wherever urgent need for assistance arose.

SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
LONDON SATURDAY MAY 22 1943

THE GOVERNMENT'S PROPOSALS

MASS MEETING OF METROPOLITAN COUNTIES BRANCH

The Great Hall of the B.M.A. House in Tavistock Square was entirely filled on Sunday afternoon, May 16, for a special meeting of members of the Metropolitan Counties Branch to discuss the tentative proposals of the Government for implementing Assumption B of the Beveridge report. Sir CRISP ENGLISH (President of the Branch) was in the chair, supported by Mr. H. S. SOUTTAR (chairman of the Representative Committee), and the meeting was addressed by Dr. CHARLES HILL (Deputy Secretary of the Association). The address was received with unusual acclamation, and more than one speaker subsequently described it as the most cogent he had ever heard in a medico-political assembly.

Dr. Hill began by saying that non-committal discussions were now taking place between officials of the Ministry and representatives of the medical profession. Before long a White Paper embodying the Government's tentative conclusions would be published, and in the light of its consideration by the public and by interested bodies the Government would proceed with legislative preparation for a comprehensive medical service scheme at or soon after the end of the war. These confidential discussions had received attention in the Press, and what was in the Government's mind had been revealed in the *Daily Express* and in the *Evening Standard*; in the circumstances he felt compelled to tell the meeting frankly the substance of the exchanges. What the Ministry of Health had put forward were so far non-committal suggestions, but they represented the workings of the Ministerial mind.

The Administrative Set-up

On the "dusty subject" of administration the Ministry rejected the conception of a corporate body, preferring departmental control under the political leadership of the Minister. At the centre it was proposed to elaborate the machinery for securing professional advice by setting up a Medical Service Council, three-fourths of its members to be nominated by the profession and the remainder by the Minister. This body would have a statutory basis and the right to issue its own reports. In addition there would be a Central Medical Board with executive authority in certain domestic matters. Locally there would be a grouping of most local authorities for health purposes by means of joint boards. The Minister's mind was not closed to medical membership of these boards, but such membership would probably be small.

The Minister proposed that general practice, at least in areas of considerable population, should be based on health centres, where—although this was rather vague—such local authority clinical work as normally came within general practice would also be done. Believing that health centres should be the basis of the service, and that competition between doctors for patients under the roof of the centre was undesirable, the Minister proposed that, in the main, general practice should be conducted on a salaried basis. Those now in general practice would enter the service, if they chose, either as whole-time or part-time officers; in the latter case they would engage in private practice among that section of the community which, although entitled to State services at the health centre, preferred to consult a doctor privately. New entrants would have no choice except between whole-time salaried service and staying out. The proposals included compensation for loss of practice. He had not intended to mention the salary scale, but it had been published in the *Evening Standard*: after an initial period as house officer, an entrant into the service would have a salary of £400 a year for three years; thereafter he would normally expect to become a principal at a salary of £650, rising by annual increments of £30 over approximately 18 years to £1,200. Expenses, including travel, would be paid in addition. On completing his house appointments the future practitioner would make application to enter the service, and one of the functions of the Central Medical Board would be to prepare a roll of members. Having got over this hurdle, he would, with the help of the board, seek appointment by a health authority, with which his contract would be made, and he would be subject to three months' notice.

The proposals for the consultants were more vague. The consultants would be centred on a hospital, but their appointment, based on nationally accepted criteria, would be by the local authority and would be whole-time or part-time "according to circumstances."

Why the Hurry?

Having sketched the proposals, Dr. Hill proceeded to make some comment. First of all, why the hurry? Why was the Government pressing forward with such energy one section of the Beveridge proposals? It might be that it was anxious to do something, and found a body of 50,000 men and women comparatively easy to handle; but in his view the fact was that the Government had decided that before the major structure of the security scheme could be elaborated it was necessary to control the medical profession so that certification could be controlled. Remarks in the Beveridge report and in Ministerial statements therewith suggested that interpretation. Medical certification would be responsible for the major outgoings of the proposed security fund, and as these outgoings were to be increased it was necessary to establish a stricter control over certification. "Our answer is obvious. The doctor's job is to decide whether a man is fit for work, no matter whether the cash value of his certificate is five or fifty shillings a week" (Applause.)

As for the "comprehensiveness" of the scheme, it was not "comprehensive" so far as Government Departments were concerned. There was no proposal by the Government to put its own house in order and bring in all the scattered medical services in its Departments. Local authority government was embedded in the social fabric. But was this a genuine proposal to abolish smaller authorities and to concentrate health functions in bodies of sufficient strength and financial capacity to discharge them? The fact was that rural and urban district councils were still to be left with environmental health functions; that education authorities would remain responsible for the school medical service. Again, the mental health services were to be left as a separate entity, simply because mental health legislation was in a terrible mess, which would take time to clear up. From the Government's point of view there was no time for this.

"A Branch of Local Government Service"

As for the health centre, it was agreed that group practice would produce a better service; but before a single health centre had been built, let alone tried out, the Government proposed to recast medical practice and place it *in toto* on a health-centre basis. They declared the health-centre method to be inconsistent with free competitive practice, but they showed great zeal for the salaried method of service before one health centre was in being! This had been described as the translation of a free profession into a branch of local government service. Whatever might be thought about methods of remuneration, as a profession they could not accept such translation of status. (Loud applause.) Central and local government might be a sound and delightful theoretical concept of political science, but some of them knew from experience that the calibre of membership of local authorities would not justify the handing over to them of personal domiciliary and other medical practice. He reminded the meeting of the action of the L.C.C. two years ago in attempting to reduce the salaries of district medical officers because the population of their areas had been denuded by the "blitz," an attempt defeated by the Metropolitan Counties Branch.

Dr. Hill read some paragraphs from the letter sent to the Minister by the Representative Committee on the previous Wednesday, in which the committee made the suggestion that the only really effective way to deal with the whole problem was to remove it from the ambit of the present discussions and to place it before a Royal Commission.

"You need not have any doubt," Dr. Hill said in conclusion, "about the line which the Representative Committee is taking. It is difficult to avoid at this time of great apprehension an emotional approach to these problems, but I ask you to wait awhile and to leave the matter to those who at the moment are speaking on your behalf. We must avoid a repetition of 1912. Let us have no disunion during the next few months. Let us await the Government's White Paper. Trust the people who are doing the talking for you and hold your forces until the time comes, as it may come, for a fight." (Applause.)

Sample Opinions

Some brief speeches were then made by members of the crowded audience. Dr. E. A. Gregg mentioned the sense of dissatisfaction with the spirit of hurry and bustle which pervaded the whole affair. If the Minister found his task made more difficult he had only himself to blame, having committed himself already to the local authorities. Dr. W. W. Fox suggested that the real reason for the hurry was that the Minister in the immediate post-war era might be able to recruit a large number of men from the Services—men who had never been in practice or whose practice had been disorganized because of change in the area—and who would be rather glad to enter such a service instead of having, perhaps, to approach people to finance them in a new practice. Dr. R. W. Cockshut said that any proposal to turn the family doctor into a local government employee would be killed by public opinion.

Dr. P. Inwald said that this comprehensive health service was not being introduced by a revolutionary Government but by a Government whose prevailing political complexion was a deep blue; therefore the pressure of public opinion must have been very great for the Government to have sponsored a scheme of this kind. It would be very foolish of medical men to oppose something that was for the public good. Mr. W. McAdam Eccles said that consultants, like others, desired first and foremost the good of the community. The author of the Beveridge report had paid little attention to that large section of the profession. There were various alternatives: should all consultants and specialists be whole-time officers of a State salaried service, should they be part-time officers, or should they occupy a position of benevolent neutrality? Dr. M. F. Malony said that in the past nobody could have pretended that the medical services of the country were all that was desired from the doctor's point of view. He thought that in certain respects the Minister's proposals offered an improvement. Dr. Joan McMichael cited the Public Health Service and medical service in the Army as examples of devotion to medicine without reference to a cash incentive. Dr. G. de Swiet asked whether the present Representative Committee would become the negotiating committee. He was afraid that when the White Paper was issued the profession would have no choice but acceptance. Mr. P. W. L. Camps considered that the haste of the Government was due to the feeling that they must strike while the profession was divided within itself. Mr. John Sophian asked why doctors, doing a particularly individualistic work, should be the first to be fettered down and nationalized by these unfair means. The Government were taking medical capital and reissuing it at a very much depreciated rate. He described the service to be provided as a "utility doctor service."

Mr. H. S. Souttar said, as chairman of the Representative Committee which was meeting the Minister on the morrow, that he only wished he could carry the atmosphere of that meeting with him. The committee was asking for a Royal Commission, not because it was dissatisfied with the financial terms suggested, but because it was considered that this was not a matter to be settled by simple discussions between officers of the Ministry and small groups of representative people. There was a wider public which must be informed about what was going on. It was not for the Ministry nor for the medical profession to say whether private practice should or should not be maintained; it was for the country as a whole to decide.

The Men on Service

Dr. Hill, in reply, speaking of the attitude of practitioners away on service, said that there was no reason to believe that an experience of three or four years in whole-time service in the Army would leave them with a predilection for that form of service as one to which they would wish to devote the rest of their lives. There was a note of ill-founded optimism in some of the speeches as to what would be possible under a State system in the way of shortened hours, holidays, and refresher courses. If it was true that there were only sufficient doctors in peacetime to do the work of the country, it would not be possible to shorten hours of labour or to make life easier for the doctor until after a generation or two when there was a great accession to their ranks.

The Association was prepared at the right time, with the co-operation of its members, to find out what the public, and their patients, really wanted. If the people wanted a medical service of a particular kind they would get it, but that stage had not been reached. The public did not yet know what was going on. The public, in his belief, would probably demand that the service of the future should be available to 100% of the community, but he did not believe that they were prepared to look to the town hall as the administrative medical centre. The administrative set-up proposed by the Government was timid, incomplete, and based on the central-plus-local government formulae of which so much had been seen in recent years. It was not a genuinely comprehensive service and it proposed measures which would involve interference with the freedom of the doctor-patient relationship. While it might offer lip service to the principle of free choice, administrative reasons would make free choice less and less possible.

The profession was prepared for serious reforms and reorganization of services which might not be acceptable to them all, but the Government proposals went further and aimed at transforming a free profession into a branch of local government service. At this stage he begged them not to consider the issues of salary and compensation but to stick to fundamentals—the administrative set-up, the right of doctors to be heard authoritatively in the administration of a medical service, and their fundamental distrust of a form of service which brought them under a type of administration not competent or equipped to deal with their main problems. "We must steel ourselves for changes which we may not like, but at this stage let us assert in the public interest the fundamental issue of our freedom."

(On page 641 of the Journal *there will be found a brief report of the interview with the Minister which took place on the day following this London meeting.)*

WEEKLY POSTGRADUATE DIARY

Fellowship of Medicine, 1, Wimpole Street, W.—*Brompton Hospital:* Tues and Thurs, 4.30 p m M R C P clinical course in chest diseases *London Chest Hospital:* Fri, 2 30 p.m, M R.C P course in chest diseases *London Homoeopathic Hospital:* Wed. afternoon; Clinical surgery demonstration. *National Hospital for Diseases of the Heart:* Tues and Wed, 10 a.m, Out-patient clinics.

Edinburgh Postgraduate Lectures.—At Edinburgh Royal Infirmary, *Thurs*, 4 30 p m Dr J M Robson: The Control of Sepsis.

Glasgow University. Department of Ophthalmology—*Wed.*, 8 p m. Dr. George Bell. The Visual Physiology of the Cinema

DIARY OF SOCIETIES AND LECTURES

Royal College of Physicians of London, Pall Mall East, S.W.—*Tues.* and *Thurs*, 2 45 p m. Croonian Lectures by Air Commodore C. P. Symonds, R.A.F.V.R: Flying Stress

Royal College of Surgeons of England, Lincoln's Inn Fields, W C—*Wed*, 3 30 p m Mr Victor Bonney. The Forces behind Specialism in Surgery Museum demonstration: *Tues.*, 4 p m Prof. A. J. E. Cave: The Thoracic Operculum.

Royal Society of Medicine.—*Mon*, 4 30 p m. Section of Odontology *Tues*, 4 30 p m Section of Medicine *Thurs.*, 5 15 p m. Section of Urology. *Fri*, 2 30 p m Section of Epidemiology and State Medicine *Sat.* (May 29), 1 30 p m. Section for the Study of Disease in Children.

Medical Society for the Study of Venereal Diseases, 11, Chandos Street, W.—*Sat* (May 29), Fl. Lieut. J H Morton: *Trichomonas vaginalis* Infestation

B.M.A.: Branch and Division Meetings to be Held

Leigh Division—At Boar's Head Hotel, Leigh, Tues, May 25, 8.15 p.m Dr. J H Young: Curiosities of Caesarean Section. All practitioners in the area of the Division are invited to attend

BIRTHS, MARRIAGES, & DEATHS

The charge for inserting announcements under this head is 10s. 6d. This amount should be forwarded with the notice, authenticated with the name and address of the sender, and should reach the Advertisement Manager not later than first post Monday morning to ensure insertion in the current issue.

BIRTHS

Morrison—On May 13, 1943, at Moraig, Stirling, to Nan, wife of Lieut-Col J E Morrison, R.A M.C., of Williamfield, Stirling, a son

Robertson—On May 7, 1943, to Rosemary (*née* Malim) and Dr. Patrick A M Robertson, a son, at Warren Hill Nursing Home, Woolston, Warrington.

Temple.—On March 30, 1943, at Birkenhead, to Kathleen Mary, wife of Capt. R J D. Temple, R.A M C (M E F), a son (Ian Dunbar).

A medical woman is required for whole-time general practitioner service in a group of Royal Ordnance Factory hostels (residents mainly women). Further particulars from Central Medical War Committee, B.M.A. House, Tavistock Square, London, W.C.1.

Two insurance committees, those of Cheshire and the North Riding of Yorkshire, have adopted resolutions urging that the administration of a national medical service should be in the hands of insurance committees. The North Riding committee also decided to oppose any proposal to hand over the medical services to local government authorities.

SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
LONDON SATURDAY MAY 29 1943

INSURANCE ACTS COMMITTEE OF THE B.M.A.

DISCUSSIONS ON THE COMPREHENSIVE MEDICAL SERVICE

A meeting of the Insurance Acts Committee, with Dr. E. A. Gregg in the chair, was held on May 13, when there was a full attendance of 40 members. The committee first considered the resolutions passed by the recent Special Conference at which the Government's invitation to enter into discussions, without commitment, on a comprehensive medical service was accepted. In reply to one Scottish member, who protested against what he considered to be the undue proportion of representatives of consultants and specialists among the Scottish representatives, the chairman pointed out that it must not be assumed that the interests of consultants were necessarily confined to their branch of the profession. The consultant was sometimes chosen because he occupied a position of influence and responsibility in medicine and would align himself with his colleagues in medicine generally.

The chairman also said that, although the Insurance Acts Committee was not a constituent member of the Representative Committee, several of its members were on that committee and it would be kept as fully informed as possible of the course of the discussions. In reply to further questions, he said that the Representative Committee had not yet reached the stage of reporting back, though that might happen soon. There would come a time when it would have to take the views of the profession and the profession would be called upon to determine whether that or another committee should pass to the negotiating stage. A long discussion took place on possible eventualities, but certain of the points mentioned were cleared up when the Representative Committee met the Minister on the following Monday.

The Capitation Fee

In connexion with some recommendations and correspondence relating to further action on the capitation fee the chairman said that the Minister had by implication put aside any question of arbitration. It was agreed by the committee to postpone the consideration of this matter until the next meeting.

A letter was read from the Hull Panel Committee suggesting that an ascertainment be now made in advance of the support which would be forthcoming in the event of negotiations for an increase in the capitation fee breaking down The chairman said that he thought it was desirable to find out how many members of the profession would obey a request to refuse service.

After a discussion of all the bearings of the subject, it was agreed that the matter be considered at the next meeting of the committee, when a draft letter would be available for criticism.

Pension and Insurance Scheme for Practitioners

It was reported that, following a discussion with representatives of the insurance companies on outstanding points, the executive committee had authorized a communication to the companies informing them that, subject to the inclusion of the civilian war risk clause under the previous scheme, together with an undertaking that the scheme in its final form would not be offered to any other body of medical practitioners, the committee was prepared to enter into an agreement for the operation of the scheme proposed in a letter, on behalf of the three companies, from the Legal and General Assurance Society. A communication had since been received from that society intimating that all policies, including full benefits (pension, family provision, and disability) issued under the revised scheme, would contain a special condition relative to war risks. The chairman said that he thought congratulations were due to those who had carried through this piece of business.

Medical Records of Men Discharged from the Forces

It was reported that the question of access to medical records of men discharged from the Forces on medical grounds was still under discussion with the War Office and the Ministry of Pensions. One member of the committee stated that insurance practitioners could on application obtain more information about a man's disability, but the methods whereby this information was afforded were not uniform.

Medical Benefit for Juveniles

An explanatory memorandum was laid before the committee on the question of medical benefit for juveniles. In the case of juveniles who joined approved societies the benefit was administered in the same way as for adult members. Juveniles who had not joined approved societies but had surrendered their contribution cards to the Department were registered as members of the Juvenile Deposit Contributors Fund, which had a membership of about 12,000. The memorandum explained how this fund was used, and it was added that, if in any year the fund found itself with an insufficient balance to meet the full cost of medical benefit for all its members, the deficiency would become a charge on the Reserve Suspense Fund. The chairman said that it was not clear that adequate payment was made into the fund to cover juvenile cases, and he would continue to watch the position.

Chemists' Early Closing Hours

The committee, at the instance of one member, considered the effect on insured persons and doctors of the early closing hours now adopted by most chemists. It was pointed out that practitioners were obliged to keep their own surgery hours, but chemists had apparently determined on an earlier closing, which caused great inconvenience to insured patients. The chairman said that this trouble had been experienced also in London, but an undertaking was obtained from the chemists that a rota would be displayed. The thing to be done was to press for action by the insurance committee.

Other Business

The committee agreed to a request from the Somerset Panel Committee that vitamin B_1 tablets should be included in the list of drugs appended to Part II of the Distribution Scheme.

The minutes of the Insurance Acts Subcommittee for Scotland, which had been largely concerned with the proposals for the comprehensive medical service, were noted; and, finally, sitting as the National Insurance Defence Trust, the committee received reports from a number of Panel Committees agreeing to support the proposal to increase the fund to a total of £1,000,000.

Correspondence

Informing the Public

Sir,—Recent correspondence in your columns indicates that an increasing number of medical men are becoming aware of the implications of the Beveridge report and concerned at the methods employed by the Ministry of Health to institute a national medical service. This is very much to the good, for whether or not one favours a State Medical Service an understanding of what is involved in projected legislation is always valuable, and a careful watch on Ministerial behaviour is the privileged duty of every citizen of a democracy. Unfortunately, however, there is little sign either of awareness or concern in other sections of the public or among our Members of Parliament.

Why is it that although doctors are usually popular with their individual patients, yet collectively we are not so with the general public? I think it is because we take our individual patients into our confidence, but never the public as a whole. The time has now come to take the public into our confidence, and I suggest therefore that the profession should take the following steps immediately to acquaint the public with the present situation. The services of first-class expert propagandists should be employed and a flood of propaganda put across by pamphlets, posters, and publications in every newspaper, national and local. Such advertisements would be short and simple, yet striking and pertinent, of the type now published by the Ministry of Food. They would deal briefly with the history of medical practice, the daily work and duties of medical practitioners, the changes effected by the N.H.I., Public Health, and Local Govern-

-ment Acts; in some detail with the fluctuations of the capitation fee, Ministerial rule over doctors and examples of how it has been exercised during the last thirty years; the Public Medical Services, hospital contributory and other schemes inaugurated or supported by the profession; and, finally, the advent of the Beveridge report and the negotiations with the Ministry to date.

The public as well as the profession will then begin to ask, among other things, what is the urgency in the midst of a war, with one-third of our doctors and an equal proportion of our young men and women away in the Services, with taxation already on the topmost notch, to concentrate on the medical provisions—the most expensive, the least demanded, and the most misunderstood—of these revolutionary social proposals, without having any fair time or opportunity for considering them.

We want to serve the public. We want to put our own house in order and be masters in it (within constitutional limits, of course). But time is short. We must stand firm and united. We must mobilize our resources. We must use our strength. We must be prepared for sacrifices. But to win the fight we must enlist public sympathy and support; without them we are not likely to succeed; with them we cannot fail.—I am, etc.,

Liverpool. ARTHUR G. C. FFOLLIOTT.

SIR,—At present widespread discussions are being held among members of the medical profession on the future of medical practice, but there is no guarantee of any official notice being taken of the views of the profession in formulating the national medical service we expect to be brought into existence, in spite of energetic presentation of these views by the British Medical Association to the Government.

As yet there seems to have been no attempt to show the public how vitally they are affected by the steps under consideration, and they are generally unaware of the changes envisaged in the future conduct of medical practice, although any legislation introduced to form such a service will affect them personally more than any legal measure passed in the past fifty years. If we, as practising members of the profession, consider that we are best qualified to judge in what way we can provide the best service for the nation, surely we should make urgent endeavours to show the public the intimate and personal nature of the issues being decided. Our only real voice in legislation is through our Members of Parliament, and it is only by making contact with the public through the Press, public meetings, and otherwise that we can impress our convictions on them and their parliamentary representatives.

The time has surely come for us to shake off our reserve, and we will not lose in dignity by showing confidence in the public, who must have realized by now that we only wish to serve to their best advantage.—I am, etc.,

Hove E. MILLINGTON.

United Action: A Suggestion

SIR,—May I add my voice to those of Dr. Mottershead and Dr. Porteous, who expressed their views so ably and openly in the *Supplement* of May 15 (p. 59). The realization is spreading rapidly throughout our ranks that the proposed conscription of the medical profession—for it means little else—can have only one result—the loss of freedom and the disappearance of all our individual liberty. Our greatest danger—in fact, I think, our only danger—is that we delay too long before we act, relying on our own isolated and uncoordinated feelings to overcome the juggernaut of political plotting. The need for a united front is urgent and compelling or we shall most assuredly lose that freedom which we have struggled to preserve.

Might I therefore suggest the first step toward united action in this matter for those of us who cherish our right as free men to determine our future and the future of our children? What we need is a conclusive and unofficial vote of the profession on the question of State service. My suggestion is that a central address—either a willing individual practitioner, or the B.M.A., or some other suitable agency—should be chosen, and to that address we each should send a postcard with a short, signed statement such as the following:

"I declare that after due consideration of such schemes for State control of the medical profession as have been so far put forward I should refuse all co-operation with them should they be brought into being."

If all of us sent in such a statement and persuaded our professional colleagues to do likewise, I am sure that such a weight of opinion could not fail to bring about the complete overthrow of those political racketeers who threaten by their actions to engulf not only the freedom but also the respectability of the medical profession. Action is now called for. The time for dreaming is past, or, like dreamers, we shall be suddenly and rudely awakened to find that only a memory of our dreams remains. Let us therefore put talk aside and unite, proving to the public and to ourselves that we have a common strength to preserve all that is ours by heritage and tradition.—I am, etc.,

Paisley. A. KENNETH YOUNG

Entry to Consultants and Specialists Group

SIR,—I wonder if my fellow members of the B.M.A. would be interested in this modern version of a Grimm's fairy story.

"Once upon a time in the palmy days of peace and long before the Beveridge report, a fairy godmother known as the B.M.A. instituted a group called the 'Consultants and Specialists Group' of the B.M.A., and gave it a serial number D.45 (B)/1934–5.

"A young surgeon, who was eleven years qualified and who had practised his art for seven years in voluntary hospitals, both teaching and specialist, and for four years in the wicked municipal hospitals, was a little bewildered by the number of societies and groups which were springing up around him, for none of which he appeared to be eligible. He chanced to see an announcement in the columns of his medical journal inviting consultants and specialists who were not engaged in general practice to apply for an application form for membership of the group. Knowing that he was either ineligible or unwilling to join (1) the Society of Medical Officers of Health; (2) the Medical Superintendents' Society; (3) the Medical Practitioners' Union; (4) the Royal College of Nursing; or (5) the Incorporated Association of Hospital Administrators, he realized that no longer was he a forgotten man, for now he had a full-blown society of his own to join.

"Now this young man was something of a freak because he saw good and bad points in both voluntary and municipal hospitals, and he thought his views might be of interest to those less fortunate who had worked in only one particular type of hospital and who were anxious to discuss the pros and cons of a State Medical Service. Unwittingly, therefore, he applied for a membership form, which was duly received together with the compliments of his fairy godmother—the B.M.A. He was embarrassed and humiliated to find that because he was a whole-time public health officer his application would not be considered. He was intrigued by Section 4 of the said application form, which stated that should he not be a consulting physician, surgeon, or obstetrician he would still be eligible for membership of the group if he would state his specialty.

"Visions of 'specialists' in weird and wonderful subjects such as 'specialists in extraction of the first molar tooth' who might be eligible for membership of the group came before his eyes and made him angry, for although he was a Fellow of the Royal College of Surgeons of England and of Edinburgh he held a whole-time appointment as surgeon in a municipal hospital, which automatically rendered him ineligible."

There is a moral in this story which should not be hard to find. If seen and corrected in time it might lead to greater harmony in our profession, which we all follow according to our lights, and ultimately prove of benefit to our patients.—I am, etc.,

Brighton. HAROLD PARK.

*** The Secretary of the B.M.A. writes: The question of the criteria for eligibility for the Consultants and Specialists Group will be reconsidered at the first meeting of the newly elected Group Committee.

A Defeatist Attitude

SIR,—I feel that I speak for many other senior medical students as well as for myself when I say that the attitude of many members of the profession towards the establishment of a State Medical Service is causing grave concern. There is a deplorable lack of initiative evidenced by many of the practitioners, especially those of the older generation. The tendency seems to be to sit back and say: "A State Medical Service is coming whether we like it or not; we can do nothing to stop it and we might as well accept the fact." This, no matter what their opinions of State medical service may be, is a dangerous attitude, which can lead only to slavish and unquestioning acceptance of the terms of service laid down by the Government for their new Civil Service department.

It is a defeatist attitude of the worst type, and one which is becoming much too popular. At present it is put before students, it is put before the meetings of the local practitioners, and it is put before the public through such bodies as the insurance committees. Local and national committees of all kinds are passing recommendations that the provisions of the Beveridge plan—including, in particular, a State Medical Service—be put into effect in this country as soon as possible. The medical profession, although in many cases represented on these committees, is raising no voice in question of the practicability, far less of the advisability, of State Medical Service.

The younger generation, including both undergraduates and medical men in the Forces, has no voice at present. It is their careers and their lives which are being thoughtlessly left to the doubtful mercy of a Government Department. Let those members of the profession who can raise a cry consider carefully before abandoning all hope of managing the profession by their own efforts and without Governmental aid. Let them see that the trust of the younger generation which perforce must meanwhile rest in them is not betrayed.—I am, etc.,

WALTER L. N. PERRY.

Medical School, University College, Dundee

Medical Services and the Public Health

SIR,—Few can be so sanguine concerning the present organization of our health services as Dr. E. C. Atkinson expresses himself to be in the *Supplement* of April 24 (p. 53). While the skill and integrity of individual doctors compare with any in the world, the fact nevertheless remains that our health services are so badly co-ordinated that the country has to pay a high price for the maintenance of our present system.

Many thousands of men were discharged from the Army in the first year of the war on grounds of ill-health. In the Pioneer Health Centre at Peckham 86% of an average group of a comfortable artisan community were found to be suffering from some malady which could be diagnosed. According to the *Lancet* forty million "work weeks" are lost annually because of accidents and disease. Many other facts could be adduced to prove that there is a grave deficiency in the health standard of the country.

Any defence of the present organization of our health services is an acquiescence in the perpetuation of this undesirable state of affairs. To suggest that the average practitioner is prepared to accept this position is, I believe, unjust, and certainly it is no service to the country or to the profession to imply that the present state of health of the population is a reflection of the real capacity of the British health services to supervise the health of the community.—I am, etc.,

Edinburgh. S. LIPETZ.

Absent Doctors

SIR,—Many doctors, whether labelled reactionary or progressive, hold the opinion that now is the time to plan a national health service, but that after the war is the time, unless there is an unexpected social upheaval, to inaugurate such a service, and for the following reasons.

1. The greatest wartime drawbacks in medicine are: (*a*) scarcity of doctors; (*b*) scarcity of specialists; (*c*) lack of hospital accommodation, leading to crowded waiting rooms, crowded hospital out-patient departments, and long waiting lists. Alteration to an organized comprehensive medical service free to all can only aggravate the above conditions and bring discredit on any proposed service.

2. It is unfair to doctors in the Forces materially to alter the status of the medical profession in their absence because: (*a*) They are now otherwise fully occupied and can have little opportunity of group discussion, a vastly different affair from receiving a sheaf of printed matter. (*b*) Most of the younger doctors have no experience of civilian medical practice, and cannot decide wisely now on the best medical service. They would be advised to occupy a brief post-war period in finding their bearings. (*c*) The older doctors will have a nucleus of practice to which to return. Both younger and older will, we hope, receive a gratuity from a grateful country and so will not be in immediate want. There will in any case be plenty for them to do.

I am far from seeking to argue against any change. Surely the course I have advised above is in the best interests of the public and doctors, and is prudent and practical.—I am, etc.,

G. W. M. MACKAY, M.B.

Eighty Fateful Days

SIR,—Just a year ago we were all living under the spell of Mr. Oliver Lyttelton's eighty fateful days. Mr. Ernest Brown's disarmingly simple statement to the House that he contemplates publishing, during the course of the next two or three months, his proposals for comprehensive medical services creates a comparable period of anxiety for all who have the interests of such services at heart.

The private practitioner and voluntary hospital still form the main roots of the system of medical services upon which the people of this country rely. That these roots, which are generally accepted as sound in themselves, do not tap with equal success all strata of the community is a circumstance which may or may not be treated by the radical operation of severing the private and voluntary portions. On evidence so far available it appears that decisions likely to favour this radical procedure are being formulated by politicians. That being so, I humbly submit that the profession should be praying as it has never prayed before that the Lords of Council be endued with "grace, wisdom, and understanding." I would hope, too, that in their ears would ring certain words which Lord Brougham addressed to the House of Lords in debate on the educational system: "It behoves us to take the greatest care how we interfere with a system which prospers so well of itself; to think well, and long, and anxiously, and with all circumspection and all foresight, before we thrust our hands into a machinery which is now in such a steady, constant, and rapid movement; for if we do so in the least degree incautiously, we may occasion ourselves no little mischief, and may stop that movement which it is our wish to accelerate."—I am, etc.,

IAN E. MCCRACKEN.

Newcastle-upon-Tyne

The G.P.'s Wife

SIR,—May I write in support of Mrs. St. Clair Mackenzie's letter (April 10, p. 48). She has my entire sympathy, but may be interested to hear of the plight of another G.P.'s wife.

Saddled with a large, old-fashioned house and without maids (a woman for a few hours to help with the rough work in the early morning), I am marooned at home all day. The door bell rings on an average 70 times daily (sometimes more often on market days), and I often have to run downstairs to answer it. All cooking, bookkeeping, door and telephone answering, helping in dispensary, washing, ironing, dusting, etc., is done by the G.P.'s wife, who has two children, luckily of school age. Cooking is distinctly difficult; for instance, if pastry is attempted, it usually means doffing apron and washing hands several times to answer the door or 'phone.

There are three very busy surgery "hours" in the house daily and medicine to be handed out in between. Dinner is at 8.30 after the last surgery; then come the constant drudgery of washing up, laying the breakfast, black-out to be done, ending with the booking, which is usually completed about 11.30. There is no leisure; we are never able to go to the cinema, etc. The front-door bell is being extended to sound in the garden to enable the doctor's wife to weed, cut the lawn, etc., in odd moments.

Before the war we had three maids and a charwoman and a dispenser-receptionist; now the practice is far larger and we have no maids or dispenser. When illness creeps into the doctor's home, or spring cleaning, or sending out the quarterly bills—all these I leave to the imagination!—I am, etc.,

Leominster. KATHLEEN THOMPSON.

⁂ This is but one of many letters that have reawakened our sympathy with the wife who keeps the doctor's practice and home running in wartime.—ED., *B.M.J.*

Medical and Sickness Benefit: An Invidious Distinction

SIR,—I should like to draw attention to a great injustice from which panel practitioners are suffering. Insured persons pay in for two chief benefits—medical benefit and sickness benefit, to neither of which they are entitled while in the Services. So far as medical benefit is concerned no contribution is made to keep that alive, although if their health breaks down and they are discharged from the Services they are immediately placed on full medical benefit. This is a travesty of insurance which no insurance office would accept and which the approved societies are not asked to accept so far as sickness benefit is concerned. The Services pay in a contribution for each man or woman in the Services, and this is paid to the member's society, although the member has no call upon sickness benefit until discharge.

Why is this distinction made between the two benefits? Because the societies have political power. What is just and fair for one type of benefit should be applied to the other. We should insist that medical benefit is kept alive by some contribution for each member in the Services. The whole principle of insurance is being violated by this injustice to the profession, and we should make it known publicly and insist on the matter going to arbitration.—I am, etc.,

New Malden, Surrey. H. R. CRAN.

FEES FOR MEDICAL EXAMINATION OF N.F.S. PERSONNEL, ETC.

In most areas arrangements have been made under which local doctors are invited to undertake the independent medical examination of members of the National Fire Service, Civil Defence Reserve, the local authority civil defence general services, and the Fire Guard. The examinations are conducted primarily for the purpose of advising the employing authority whether sick or injured personnel are fit or likely to become fit for further civil defence duty, and the fee ordinarily payable for each such routine examination is 5s. In cases in which a medical report asked for involves a specially extensive examination or an exceptional degree of investigation or correspondence on the part of the examining doctor a fee of 10s. 6d. may be paid, and a claim for this higher fee, accompanied by a statement of the special circumstances, will receive consideration.

H.M. Forces Appointments

ROYAL NAVY

Surg. Capt. J. G Boal has been placed on the Retired List.

ROYAL NAVAL VOLUNTEER RESERVE

Surg. Lieuts R. F. Hand and C. P. Nicholas to be Surg. Lieut -Cmdrs

Prob Temp. Surg. Lieuts. J. C. Henry, J. W. McKendrick, P R. C Evans, J. H W. Fagan, D. W. Gould, D H Teasdale, J. G. Taylor, C S. Savage, P. E D. S Wilkinson, A. C. Higgitt, H. P. E MacFarlane, P. J Poels, J H Capon, T. A. B Edwards, T. N. Fison, A. H Golledge, J. J Hayward, W Hewitt, J. T. M. C. Jenkins, E. R. Keyworth, V. H. Martindale, T G. S Murray, R C E Norman, J. E. Russell, T. H E Richards, J. I. Thomas, R. R Wilson, H. C Harley, P A. Thorn, J W. G Evans, M. C. Binnie, R. Fothergill, C St. J Davies, A. MacLeod, R. D Maclean, D. M. Keedy, J. H. C. Hill, J G. H. James, B. de la H Meyer, L. A McAfee, E. Robinson, W. L. F. Pilsworth, R E M. Thompson, A. G. M Wilson, H. G. B Slack, F. P Kay, J. J Hargadon, and N. Frank to be Temp Surg Lieuts

ARMY

Col W B Rennie, M C, late R A.M C, has reverted to the rank of Lieut.-Col at his own request whilst so employed

Lieut -Col W. Frier, from R.A M C., to be Col.

ROYAL ARMY MEDICAL CORPS

Major (War Subs. Lieut -Col) (Temp. Col.) B J Daunt to be Lieut -Col

Lieut.-Col. R. A. Flood, M.C, has retired on retired pay

Major (Temp. Lieut -Col.) A J. Bado to be Lieut.-Col.

Capt. A. J Clyne to be Major.

Short Service Commission.—L S. P. Divers to be Lieut. (on probation).

REGULAR ARMY RESERVE OF OFFICERS

Col. B Johnson, D.S.O., late R.A M C, having attained the age limit of liability to recall has ceased to belong to the Reserve of Officers.

Lieut -Col (Acting Col) L Murphy, D.S O., R.A.M.C, has been restored to the rank of Col

LAND FORCES: EMERGENCY COMMISSIONS

ROYAL ARMY MEDICAL CORPS

War Subs. Capt. W H. B. Magauran has relinquished his commission on account of ill-health and has been granted the honorary rank of Major

War Subs Capts. W. W. B. Kelly-Wiseman, W. S W. Guthrie, M McAlley, L. H. Ashken, and R. F. O'Donnell have relinquished their commissions on account of ill-health and have been granted the honorary rank of Capt.

Lieut. H Diggles has forfeited six months' service for the purpose of promotion

To be Lieuts: J St. G. Anderson, J. B. Bell, T. H B'ennerhassett, J. Cantlie, D S. Chapman, G. R. Clark, L G Clayton, I N Darbyshire, I. T Donaldson, P. W. Griffin, J. G Hunter, C. E. B. Lynch, L. F. O Maclaine, R. H Mears, J W. Montgomery, P. D Moss, A. S. Philips, R. K. W. Sharp, W B. G Simmonds, W G Tait, H. Walker, A. M. Watt, W. H. Whiles, A. H Williams, F Aberbach, J D. Alleyne, W. H. Allan, J. R. F. Buchanan, W. H. Burnett, G W. Csonka, J. Diamant, R. Dobson, F. Earlam, R Evans, P. S. Gardner, J. Glaser, J. Gluck, S. Gordon, N. J. Graham, D M. Graham-Service, T R. Griffiths, W. J. C. Hill, E. P. Jones, J. Kudrna, J. Kraus, S. L. Last, L. A Ledingham, Z. Lefkovits, M. Lustigman, V. Macharacek, W. E. McIlroy, A J. M. Matheson, L. H. H. May, G. O Mayne, D. G. Milne, J F. Neil, H. Neuner, J. K. Rowntree, R H. Russell, A J. Slessor, P. S. Steen, W. Tausig, W. N. Taylor, Z. Urbanek, J. A Urquhart, J. Voracek, J. A. K. Wallace, W Werner, E. Williams, C. B O'Carroll, C. P. Scott, J. R. Armitage, J. P. B Arthur, G. H. Barnes, A. S Boyd, B Broadbent, N. Budge, E. R. Carter, J. Chamberlain, P. Cliff, S. Conlan, J Deighton, T G Harvey, N. A. M. Mackinnon, A. T. Macknight, W. J. Morrissey, C. D. Needham, J. P. Paul, I L. Roy, N. C Scott, R. J Steeds, L. G. Taylor, H C. Warrington.

The surnames of Lieuts. A. S Dill-Russell and G D. Mariani and Lieuts. (now War Subs Capts.) A. A. Alderdice and N. Hochman are as now described and not as stated in *Supplements* to the *London Gazette* dated Oct. 20, 1942, March 9, 1943, Jan. 14, 1941, and Jan. 10, 1941, respectively.

WOMEN'S FORCES

EMPLOYED WITH THE R A M C

The following M O s have been granted commissions in the rank of Lieut: Margaret R. D. Bankes, Harriette G. Bogle, Mary H Bunney, Dorothy J Collier, Cecil M. Drillien, Morfudd E. Humphreys, Joyce Kennard, Thora A M Oehlers, Muriel E Gray, Hilda M Tennon, Jean C Willison.

ROYAL AIR FORCE

Air Vice-Mshl. W Tyrell, C.B.E., D.S.O, M C, has been placed on the Retired List, and continues to be employed on Air Force Service.

RESERVE OF AIR FORCE OFFICERS

Wing Cmdr. E. G. Howell has relinquished his commission on account of ill-health and retains his rank.

Squad. Ldr (Temp.) A R. Ffrench has been granted the rank of War Subs. Squad. Ldr.

ROYAL AIR FORCE VOLUNTEER RESERVE

Fl. Lieut. G. L. Pett has relinquished his commission on account of ill-health and retains his rank

Flying Officers D Laing, R. Hill, A. H. Cutting, R. N. Rycroft, R. G. Feast, W. H Laird, J. McM. Cole, M J. Howlett, C. P. F. Quinnell, H Cameron, T M. Chalmers, E. H. Hemsted, R. M. Jones, R. C. Bellingham, R. A. Forbes, F. L. F. Innes, J. F. Millen, D. McD. Foubister, G. J. McFarlane, J. I. Stafford, W. H. Davies, H. H. W. Jackson, G. R. M. Sutcliffe, M. C. Edmond, R. G. Vine, H Coates, T Lawrie, R. C. R. Loane, J V. Maher, W. S. Noble, K. B. Thomas, E C. B. Bramwell, G. E. Phillips, J. J. G. Reid, J. F. Smyth, J. C G. Mercer, S. E. Cupples, B. D L. Johnson, J T McCarthy, J. Lillie, J. Simpson, F. W. Parke, R. J. S. Wilson, M. H Kinmouth, T. Primrose, F. B. Cockett, H. T. Philips, A. B. Morrison, P. Somerville, W Birnie, F. P O'Sullivan, and E G. Hardy to be War Subs Fl. Lieuts.

Flying Officer I. I. Thomas has relinquished his commission on account of ill-health and retains his rank

To be Flying Officers (Emergency): R. I. Kynaston and A J Marshall.

INDIAN MEDICAL SERVICE

EMERGENCY COMMISSIONS

To be Lieuts. (on probation): Beryl A. Barlow, Lilian M Reeve, Lorna C Peterson.

BRITISH MEDICAL ASSOCIATION

Diary of Central Meetings

JUNE

23 Wed. Council, 10 a.m.

Branch and Division Meetings to be Held

WEST SUFFOLK DIVISION.—At West Suffolk General Hospital, Bury St. Edmunds, Sun., May 30, 5 30 p.m. Meeting. Non-members of the Division in practice in the area are invited to attend

Meetings of Branches and Divisions

GLASGOW DIVISION

At a meeting of the Glasgow Division, held on April 18, with Dr. Knox in the chair, the Representatives gave a full account of the proceedings of and decisions taken at the recent conference in London. The feeling at the conference, they pointed out, was that the profession throughout the country was averse to local authority control.

The secretary was instructed to call a meeting at an early date, open to all practitioners in Glasgow, to re-elect representatives to the Local Medical War Committee for the ensuing year.

HYDE DIVISION

At a recent meeting of the Hyde Division the following resolutions were carried unanimously:

1. That the Minister of Health be requested not to publish to Parliament or the Press his "general statement of proposals" until they have been considered and agreed by the profession.

2. That control of any scheme of general medical service should be vested in a corporation or similar body which shall be divorced from political control.

3. That the Lancashire and Cheshire Branch be requested to organize central meetings to consider the Minister of Health's proposals for a general medical service—so that we can arrange concerted action by a large and solid body of the profession.

SOUTH MIDDLESEX DIVISION

At the annual general meeting held on April 15, with Dr. J. Murray Scott in the chair, the following officers were elected: chairman, Dr. A. Anderson; hon. secretary, Dr. J. Leach Brown; representative on Representative Body, Dr. P. W. L. Camps.

The Beveridge report and its implications were discussed, and a subcommittee was appointed to study any proposals affecting the profession arising out of that report.

REGIONAL MEETINGS OF CONSULTANTS AND SPECIALISTS

Attention is drawn to further regional meetings arranged under the auspices of the Consultants and Specialists Group of the B.M.A. as follows:

Region 9 (the geographical counties of Berkshire, Buckinghamshire, and Oxford).—Wednesday, June 2, at 2.30 p.m., at the Nuffield Institute of Medical Research, Woodstock Road, Oxford. The discussion will be opened by Sir Farquhar Buzzard, and not by Dr. A. M. Cooke, as stated in the *Supplement* of May 8 (p. 60).

Region 4 (Leeds C.B. and all geographical county of Yorkshire not within the Sheffield region).—Wednesday, June 23, at 3 p.m. at the Medical School, Leeds. The discussion will be opened by Prof. W. MacAdam.

POSTGRADUATE NEWS

The Fellowship of Medicine announces: (1) M.R C P. course in neurology at West End Hospital for Nervous Diseases, Tues and Fri, 3 p.m., June 8 to July 2 (2) Clinical surgery demonstrations on Wed afternoons at London Homoeopathic Hospital (suitable for final F.R.C.S. candidates).

WEEKLY POSTGRADUATE DIARY

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane Road, W.—*Daily*, 10 a.m. to 4 p m Medical Clinics, Surgical Clinics and Operations, Obstetric and Gynaecological Clinics and Operations *Daily*, 1.30 p m. Post-mortems. *Mon*, 10 a.m., Course on Special Problems in War Surgery commences. *Tues.*, 10 a m., Paediatric Clinic; 11 a m, Gynaecological Clinic; 2 p m., Genito-Urinary Clinic. *Wed.*, 11.30 a.m, Medical Conference. *Thurs.*, 2.15 p.m X-ray demonstration, Dr Topham: The Biliary Tract; 3 p m, Dermatological Clinic. *Fri.*, 12 15 p m., Surgical Conference; 2 p.m., Gynaecological Conference; 2 p m Neurological Clinic; 2 p m. Sterility Clinic.

FELLOWSHIP OF MEDICINE, 1, Wimpole Street, W.—*Brompton Hospital:* Tues and Thurs, 4 30 p.m., M R C P. course in chest diseases. *London Chest Hospital:* Tues. and Fri., 2.30 p.m, M.R.C.P. course in chest diseases. *London Homoeopathic Hospital:* Wed. afternoon, Clinical surgery demonstration. *National Hospital for Diseases of the Heart:* Tues. and Wed, 10 a.m., Out-patient clinics.

EDINBURGH POSTGRADUATE LECTURES.—At Edinburgh Royal Infirmary, *Thurs.*, 4 30 p.m. Dr E. K. Dawson. Mammary Cancer and the Menopause.

GLASGOW UNIVERSITY: DEPARTMENT OF OPHTHALMOLOGY.—*Wed*, 8 p m Dr I. S. MacGregor: Toxic Blindness.

DIARY OF SOCIETIES AND LECTURES

ROYAL SOCIETY OF MEDICINE.—*Tues*, 5 p m. General meeting of Fellows *Thurs.*, 2 30 p.m Section of History of Medicine *Fri*, 10.30 a m. Sections of Laryngology and of Otology. *Sat* (June 5), 10.30 a m. Sections of Laryngology and of Otology.

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W.—*Mon.*, 5 30 p.m., First Lettsomian Lecture, by Mr. Lionel Colledge: The Pathology and Surgery of Cancer of the Pharynx and Larynx.

BIRTHS, MARRIAGES, & DEATHS

The charge for inserting announcements under this head is 10s. 6d. This amount should be forwarded with the notice, authenticated with the name and address of the sender, and should reach the Advertisement Manager not later than first post Monday morning to ensure insertion in the current issue.

BIRTH

DICKSON.—On May 15, 1943, to Betty (*née* Wood), wife of David C Dickson, F R C.S Ed.; at Upsall Grange, Nunthorpe, Middlesbrough, a son

DEATHS

ARTHUR.—On May 15, 1943, at Uxbridge (late of Ealing), David Arthur, M.D., D.P.H., aged 86 years.

BUTTERWORTH.—On May 23, 1943, after a long illness bravely and cheerfully borne, at the home of her daughter and son-in-law, Easedale, Prestbury, Cheshire, Charlotte Maud, the dearly-loved wife of Dr. J. J Butterworth, late of Southlands, Eccles Interred at Peel Green Cemetery on Wednesday, May 26

MARTYN-CLARK.—At Luton, Walter Ireland Martyn-Clark (aged 60), late of Nigeria and Gold Coast Medical Services.

SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL
LONDON SATURDAY JUNE 5 1943

FUTURE OF CONSULTANT AND SPECIALIST PRACTICE

MEETING OF CONSULTANTS IN LONDON

A meeting of members of the metropolitan region of the Consultants and Specialists Group of the B.M.A. was held in the Hastings Hall of B.M.A. House on May 19, and was well attended. The purpose was to consider the implications of the Beveridge report and the future of consultant and specialist practice. The chair was taken by Mr. H. S. SOUTTAR.

Dr. G. C. ANDERSON, Secretary of the Association, said that the first approach to this subject must be to appreciate that Assumption B of the Beveridge report meant a form of comprehensive service which was intended to cover 100% of the community. Was the medical profession prepared to accept that? If Parliament decided that the people of this country wanted a service which applied to everyone, was it right that the profession should raise objections, provided that the terms and conditions of the service were satisfactory? What was meant by the word "comprehensive"? Assuming that the service was to be administered by one central Government Department, was it right that the various health functions carried on by other Government Departments—the Ministry of Labour, the Post Office, the Ministry of Supply, the Mines Department, the Board of Education—should be left in their hands? Should not "comprehensiveness" apply from the centre outwards? All these civil health functions should be handed over to the one central authority. If that was not done it meant that the Ministry of Labour would continue to look after industrial hygiene, the Mines Department rehabilitation centres, and so on. The Ministry in charge of the comprehensive service must have available to it adequate medical advice. This meant the setting up of an Advisory Medical Council which would be able to initiate proposals as well as to deal with matters that the Ministry itself had referred to it, and it would be able to issue a report of its own for public consumption and for Parliament should the Minister take an opposite view to his advisers. In addition the Ministry proposed the setting up of some sort of medical board with executive functions to deal with such matters as superannuation arrangements, refresher courses, and so forth. He did not think there would be much quarrel with the Ministry concerning the central administrative fabric, provided an agreed definition of functions could be secured.

Local Machinery

When it came to the local machinery the situation was less clear. The interim report of the Medical Planning Commission suggested that it might be advisable to reorganize the whole of local authority machinery, setting up regional councils to cover wider areas than those of the existing local authorities and embracing populations of perhaps 300,000 to 500,000, and on these councils there should be representatives of the medical profession and of the voluntary hospitals. The proposal now emanating from the Ministry was for joint boards composed of representatives of the comprised local authorities, and it was suggested that there might be representation of the medical profession, but apparently it would be of a very slight character. What the Minister contemplated for the general practitioner service as at present advised was eventually a complete whole-time State salaried service. It was true that to begin with a certain amount of private practice would continue, but newcomers into the profession who joined the service would do so on a whole-time basis, and eventually general practitioners would be part of a whole-time State salaried service of the local authority.

So far as consultant and specialist service was concerned, the proposals of the Ministry were extremely nebulous. It was said that they could not be put forward in a more concrete form at this stage because the report of the Goodenough Committee was not yet available. So far as they went the proposals were that appointments to the service would normally be based upon the hospital service of the area. Payment would normally be on a salaried basis with superannuation rates. The service would be part-time or whole-time "according to circumstances." Those employed upon a part-time basis would have the right of private practice among those members of the community who had decided not to take advantage of their statutory benefit. There would be regular in-patient and out-patient work, with consultations also at associated hospitals, health centres, or, in some cases, the homes of the people. The Association desired the view of consultants and specialists on this question of employment by salary.

The voluntary hospital, while it would retain its autonomy under the new proposals, would receive part of its income direct from the local health authority. The suggestion of the Ministry was that the remuneration of staffs below the grade of assistant surgeon and assistant physician would be on a whole-time basis, and, of course, the medical staffs employed by the municipal hospitals would continue to be employed by them and paid by the local authority.

Such was the position until a day or two previously. But the Representative Committee had during that week met the Minister and put forward its objection to the proposals so far emanating from his Ministry. Indeed, it had asked for a Royal Commission, believing that that was perhaps the best way out of the impasse. After discussion the Minister gave an assurance that these present proposals would be, in his own words, "put in the discard," and it had been agreed to resume consultations with his officers in the hope that the whole situation might be reviewed in a manner perhaps more acceptable to the profession. These discussions were about to begin on the following Monday. In due course the Minister would produce a White Paper which would embody his own conclusions after consultation with the representatives not only of the medical profession but of the local authorities and of the voluntary hospitals. The medical profession (Dr. Anderson continued) was in no way committed by the present discussions. They were entirely non-committal. When this White Paper was forthcoming ample opportunity would be given to the medical profession to pronounce its verdict upon the proposals.

He concluded with a short description of the machinery which the Association had elaborated in order to obtain the views of the consulting section of the profession. In 1934 a Consultants and Specialists Group Committee for England and Wales was set up on the instruction of the Council and at the request of a number of members of the Association who were practising exclusively in a consultant or specialist capacity. The country was divided into fifteen regions. At the present moment elections of a new Group Committee were taking place. The Group was composed exclusively of members in the field of consultant and specialist practice. During the war it had not met very often, but as soon as the new committee was elected it would meet and it would report to the Special Practice Committee, and eventually any proposals would go forward to the Council and to the Representative Body. In this way a synthesis of the opinion of those practising on consultant and specialist lines would be obtained.

The Need for Unity

The discussion was opened by Dr. W RUSSELL BRAIN, who stressed the need for unity in the profession. Medicine, he said, was being thrown into the melting-pot, and what happened in medicine might have considerable influence upon what would happen in other branches of society after the war. With the advent of a State-provided system of medical services paid for by insurance a large part of the financial resources of voluntary hospitals would disappear, and if subscribers were swept away it would be difficult to justify the continuance of lay boards in their present form. Some unification of voluntary and municipal hospitals would probably be reached. The points which seemed to him to be of great importance were: (1) that medical issues should be decided by the medical profession; (2) that a medical committee system should obtain in the municipal hospitals, and medical appointments should be made by such committees, not by lay committees nor by single medical individuals the servants of such committees; (3) a doctor who had attained a position of responsibility in any service must be free to treat his own patients in any way that he thought right; (4) (a point of some value) any doctor who might be paid by the State or local authority, whether in whole-time or part-time service, should be free to sit in Parliament or on the local authority. It would be a great mistake to fix rigidly at this stage the structure of medicine. The aim should be to maintain the utmost possible elasticity with the greatest power to evolve in whatever direction events demanded.

Dr. **GEOFFREY BOURNE** said that medical science and practice must be free from politics, local or central. On the question of State control of medical science no compromise should be possible. There must be freedom of speech and criticism. As for remuneration, it was right to ask for such amount as would furnish a certain degree of comfort, because, after all, medicine was a dangerous occupation. In his view a man was of value to the community in proportion to the difficulty of replacing him, and in that connexion they had only to think of the years of study and preparation which went to the making of a doctor. If the country demanded a State Medical Service it must have it, but doctors had a right to insist that such a service should be placed outside party politics. Perhaps, like the Medical Research Council, it might be placed under the direction of the Privy Council.

Beveridge "Defeatism"

Mr. A. **DICKSON WRIGHT** strongly criticized the acceptance of the Beveridge scheme, which he described as defeatism and likely to make "a nation of parasites." The scheme was not the outcome of any popular demand. It was brought out by the politicians, the most frustrated people in the community. "They want to get the whole of the general practitioners in first, and get them discontented, and then they will get us in themselves." While the war had still to be won the nation was in no mood for arguing about or arranging a post-war medical service. He believed the scheme to be "in the nature of Munich" to the Labour leaders. "We belong to a noble profession; we have worked hard and served the country well, and the public is not dissatisfied with us." He pointed to the recent establishment of a State Medical Service in New Zealand as affording a useful commentary on the disadvantages of such an innovation, and he added that he had seen something of State services abroad and had always come home without any regrets.

Mr. **DONALD BARLOW** spoke of the position of consultants in non-teaching hospitals. He suggested that there were far too many teaching hospitals centred in London. If the number were reduced to half a dozen and the remainder were spread over the Provinces, and if non-teaching hospitals were allowed to take over senior students who had already received their groundwork, it would be a great advantage.

A Ten-point Programme

Sir **JAMES WALTON** put forward three assumptions which he thought must be accepted: that a national medical service was essential, that it must be run either by compulsory insurance or by taxation, and that it must be available to every member of the community. In order to run a service which would afford adequate medical treatment for the whole nation and would maintain the present high standard of medicine and surgery, ten points were essential (others were matters of detail):

(1) That the central control must be in large part medical

(2) That a regional system must be adopted, and the control of this regional system must again be in large part medical.

(3) That the higher posts in the service must be professional as well as administrative.

(4) That medical matters in all hospitals must be controlled by a medical committee

(5) That there must be complete freedom of publication and discussion. (In the last issue of the *British Journal of Surgery* one of the best-known surgeons in the country had to acknowledge permission to publish from an administrative medical officer, a thing which should not be necessary.)

(6) That there must be a unified hospital system.

(7) That there must be free promotion of medical and nursing staff from one hospital to another.

(8) That there must be an accepted standard for all consultants. (The three Royal Colleges had drawn up a standard based on adequacy of training, experience, and knowledge.)

(9) That appointments must be on a salaried basis.

(10) That there must be limited private practice.

He was convinced that these ten points were the essential basic requirements of an adequate national service, and that if a united profession presented them to the Ministry of Health they would be accepted.

Dr **JOHN CAMPBELL** said that he thought the proposals of the Ministry of Health with regard to a general practitioner service to be deplorable. The two solutions were a State Medical Service with a universal salaried basis—a scheme of which he was not enamoured—or an extension of the present insurance system, improved and enlarged as to its benefits, including hospital and consultant services. This could be brought about as a result of better organization, in particular co-ordination between central and distant hospitals.

Mr. **MCADAM ECCLES** said that in addition to whole-time and part-time salaried consultants there might usefully be a third class, described as benevolent neutrals—men and women with knowledge and experience who would be really good consultants and might be called in on occasion, paid either directly by the patient (which would be private practice) or by the State. Dr. **JOHN SPENCER** said that they were all agreed on the ideal of 100% medical service, but not on the machinery whereby it was to be attained. He thought a really efficient service might be built on what they had at present.

In reply to a member of the audience who questioned whether the country wanted the Beveridge scheme to be implemented, Dr. **ANDERSON** said that Parliament must be taken as expressing the will of the people. If Parliament said that the country was to have a comprehensive service (Assumption B) it was the duty of the medical profession to give it, provided the terms and conditions were satisfactory. The questioner here interjected that Parliament was elected eight years ago on entirely different issues and long before Beveridge had ever been heard of, but the **CHAIRMAN** ruled that they could not enter into a discussion on the British Constitution.

Another member of the audience questioned the competence of the Representative Committee, now in discussion with the Ministry of Health, to voice the opinion of the younger practitioners, and said that he would restrict its membership to those under 60. The **CHAIRMAN** said that the Association was asked by the Minister to form a body which would be able for certain preliminary purposes to talk with his officers in a manner representing the medical profession as a whole. With very great difficulty such a body was got together. It consisted of about forty members and included the Presidents of the three Royal Colleges and representatives of similar bodies in Scotland. It was the strongest assembly which could have been obtained. It had already been in consultation with the Minister and his officers for some time. The proposals of the Minister had been laid before it, but on its urgent representation these had been for the time withdrawn, and a small committee from within the Representative Committee had been set up to discuss the matter with the officers of the Ministry at closer quarters in the hope that a really substantial scheme acceptable to the medical profession might be eventually put forward by the Minister in his White Paper. The committee would not enter into any obligations with the Minister as to what the medical profession as a whole was or was not likely to accept without first obtaining the closest consideration by and the final consent of the profession it represented.

GENERAL MEDICAL COUNCIL

SUMMER SESSION

The summer session of the General Medical Council, under the presidency of Mr. H. L. **EASON**, was opened at Hallam Street, London, on May 25, and continued for the three following days. Mr. Henry Wade took his seat as representative of the Royal College of Surgeons of Edinburgh. Sir John Stopford was re-elected Chairman of Business.

The **PRESIDENT** delivered an address from the chair, in which he recorded with regret that Sir Arthur Newsholme had died on May 17. Mr. Alexander Miles on medical advice had been compelled to retire from the Council, and the President paid a high tribute to Mr. Miles's services, especially as a member of the Penal Cases Committee for twelve years. He announced that the Interdepartmental Committee on Dentistry, set up by the Minister of Health and the Secretary of State for Scotland, had invited both the Council and the Dental Board to give evidence before it, and the preparation of this on the part of each body would require serious consideration. Representatives of the Council had given evidence in March before the Interdepartmental Committee on Medical Schools on the lines of a memorandum already approved. During the session the Council would be invited to consider a memorandum prepared by the Executive Committee on a proposal to establish a Register of Consultants and Specialists in the light of such information with respect to the proposal as was at present available to the Council. Convictions of registered medical practitioners reported to the Council by the police in the normal course of administration had begun to include far too many convictions for misuse of petrol under the Motor Fuel Rationing Orders or the Control of Motor Fuel Order. The Penal Cases Committee, before whom these and other convictions of practitioners came in the first instance, had so far only once found it necessary to cause a practitioner to be summoned to appear before the Council in consequence of a conviction of this nature. The President was confident that the Council would share the view of the committee that any such conviction was reprehensible in itself and derogatory to the good repute of the profession. The special privileges rightly accorded to practitioners by the State in this as in other matters implied a special responsibility not to abuse a trust.

DISCIPLINARY INQUIRIES

Wrongful Certification

The Council considered the case of Charles Liddell McHarg, M.B., Ch.B., registered as of Abertillery, Monmouthshire, who appeared on the charge that in the case of eleven evacuated children he had given certificates (in eight of the cases over forty certificates for each child) which were untrue, misleading, or improper. The certificates were given under the Government evacuation scheme, and related to the home nursing of unaccompanied children. The certificate was in the following form:

> I hereby certify that . at present billeted on . . . of . is suffering from . . . and is therefore confined to the billet; that the conditions of the billet appear to me to be suitable for the adequate care and nursing of the child (including the prevention of the spread of any infection); and that such care and nursing are likely to necessitate a material increase in the costs of maintenance, or in the care and attention required.

This certificate had to be sent by the householder to the medical officer of health, and in return the householder received an extra allowance It was alleged with regard to all the children concerned that they were not at any time during the period of several months over which he gave the certificates confined to the billet by illness, and of most of them that they were throughout the period, except for short absences, in regular attendance at a public elementary school.

The complainants, for whom Mr. Michael Bull, counsel, appeared, were the Welsh Board of Health Mr Oswald Hempson, solicitor, appeared for the respondent. Evidence was given by several women from Abertillery, who had had billeted upon them the children whose names were mentioned in the case, that Dr. McHarg had never attended the children at their houses, that they had never taken the children to his surgery or authorized anyone else to take them, and during the time the children had been in their houses they had never suffered from the complaints—chiefly scabies, whooping-cough, and mumps—which were entered under their names in the certificates.

Dr. McHarg gave evidence in his own defence. He said that during the period covered by the complaint—August, 1941, to May, 1942—between 2,000 and 3,000 children came into his district. A number of them were suffering from various complaints, chiefly scabies, and as medical attendant of some of the people with whom they were billeted he saw a large number of these children from time to time. There might have been cases which he did not personally interview when signing the certificate, but as the form was brought to him with the name of the householder already filled in and had been issued from the billeting office, he assumed that inquiries had been made into the case by the billeting officer. At the time there was an acute shortage of doctors in the district, and he was working very hard. He alleged that certain women, in order to get the allowance, had brought children to him under false names, and indeed two women had been prosecuted and had admitted the offences, and during the hearing of these cases the lack of check or investigation at the council offices, to which the certificates were sent, was commented upon by the justices. Many of the women who had children billeted on them were out at work, and he did not think it strange that the same woman should appear with several children; he assumed that she was acting the part of a neighbour. The children were brought to the surgery and he assumed that they were those named in the certificates and acted in good faith. With regard to some of the children he was told by those who brought them that they were being treated at the school clinic, and when he suggested that the forms should be signed by the school doctor he was told (again by the women) that that officer was not allowed to do so and had asked them to see their own doctor. The women had taken an unfair advantage of a busy practitioner.

In the cross-examination of Dr. McHarg the following passages occurred:

How is it that you signed numerous certificates without seeing the children?—I saw them at frequent intervals. You are not supposed to see them every week; at least it does not say anything about it on the billeting note.

Do you think it is safe to go on issuing certificates at the rate of just over one a week without examining these children?—No, but take the matter of scabies; it will not clear up in a week.

So once you were satisfied that a child had scabies you would sign certificates at any time?—Within a reasonable time.

What do you call a reasonable time?—Three or four weeks.

Did you check up when the child had been last to see you?—I used to look at the child.

But sometimes the child was not there. Did you keep any record of what you had entered on your certificates?—No.

Had you kept any record of the dates on which you saw the children?—No, but I wish you to understand that it is not a London practice.

You had not any system either of interviewing or of examining the children on each occasion when you gave a certificate nor any system of keeping check on what occasion you had last made an examination?—I have told you already that it would be impossible owing to the pressure of work.

Would it be correct to say that in any given case you might have gone on signing certificates for months on end?—Not months.

You say in the certificates that the conditions of the billet appeared to be suitable for adequate care and nursing?—Yes.

And you had never been inside the billets?—Some of them, yes.

How many years before?—Oh, well, I do not know. All these houses were pretty much alike.

You knew them from their external appearance, but architecture is not the same thing as suitability. One house might be clean and another might be verminous?—I do not think many are like that in Abertillery.

You do not "think," but you were certifying?—Yes.

Mr. Hempson read a number of testimonials from medical men in South Wales and elsewhere testifying to Dr. McHarg's high character and the probity with which he had conducted his practice. After deliberation *in camera* the Council found the facts alleged against Dr. McHarg proved to its satisfaction, and that in respect of the facts so found he had been guilty of infamous conduct in a professional respect. The Registrar was instructed to erase from the *Medical Register* the name of Charles Liddell McHarg.

Dr. James Davidson, of Streatham, S.W.16, is no longer authorized to have in his possession or to supply dangerous drugs.

Correspondence

Serving Doctors' Practices

SIR,—I am directed by my committee to request that you will publish the following resolution passed by their last meeting.

"This committee, at the suggestion of the Central Medical War Committee and with the approval of the Government, entered into legal agreement with the practitioners in their area to protect their practices during the war and for a year after the termination of hostilities, in the event of their serving with the armed Forces or similar eventualities. As it would be impossible for this committee to carry out the obligations of the agreements if the Beveridge scheme is introduced in their absence, this committee urges the Central Medical War Committee to take all possible steps to prevent the introduction of any such scheme until one year after the termination of hostilities."

—I am, etc.,

KENNETH WATSON.
Hon Sec, Reigate Local Medical War Committee.

A Questionary

SIR,—After many conversations with colleagues it appears that the majority are absolutely opposed to the idea of a State Medical Service, and resent the implication that the profession is in such need of reformation that it must now be changed from top to bottom. Is the public so dissatisfied with the service we give them? No! From whom, then, come all the complaints about our inefficiency? Is there any large mass of abuses in our profession which would not be corrected by an extension of hospital services, by facilities for more frequent postgraduate study, and, possibly, by the extension of the present N.H.I. scheme to dependants of the £250-a-year income group? I make bold to say, "No!"

General practitioners as a class are patient, humble, and inarticulate, not because they are completely uninterested in the conditions under which they work but because they work so hard and so constantly that they have not the time to meet together and make their views and wishes known. Because of this I am afraid that, largely owing to the efforts of a noisy minority, steps may be taken and decisions arrived at that will really be against the interests and wishes of us all. Would it not be possible to find out what medical men want by circulating a questionary framed somewhat as follows:

1. Do you think the nation is adequately served by the present method of private and N.H.I. practice or do you think some new form of medical service should be set up?

2. If you favour the establishment of a new type of medical service, would you prefer a whole-time salaried service or a service where remuneration depended upon a capitation fee?

3. What is your idea of an adequate salary scale or capitation fee?

4. If a State Medical Service is decided upon do you wish for: (*a*) Group practice from a series of health centres? (*b*) Individual practice carried on from your own professional premises, with the provision of additional hospital and laboratory facilities and "general practitioner" beds in extra-hospital wards? (*c*) Administration of such a service by local authorities, as at present constituted, through the M.O.H. and his staff? (*d*) Administration by the Ministry of Health through regional authorities? (*e*) Administration by a committee equally representing G.P.s, hospital staffs (including nurses), and local authorities?

5. As the B.M.A. agreed in essence not to oppose the establishment of a State Medical Service if all the other provisions of the Beveridge scheme were implemented, would you be in favour of refusing to work any such State service if it became apparent that this was the only part of the Beveridge scheme which the Government proposed to implement?

If we got answers to these questions we should have a clear picture of the wishes of the profession as a whole, and if it was apparent that the majority wished to fight against any encroachment on professional privileges and freedom, then the B.M.A. should lead us into the fight without fear or shrinking. If, as a profession, we attain unity nothing can be imposed upon us from above unless we approve of it. We must not lose sight of this fact.—I am, etc.,

Wolverhampton. VICTOR RUSSELL.

Trust the Politician?

SIR,—The impasse into which the medical and allied professions and occupations are being driven by the political sheep-dogs calls for an immediate powerful and decisive counter-offensive. Assumptions are broadcast and accepted without demur, but one assumption has not, so far, been publicly questioned, and that is the veracity and integrity of politicians. One is tempted to ask, with adequate reason, whether one can trust the spoken or written word of any living politician. We have been used as the bait for political blackmail before, admittedly on policies conceived in the best national interests. However, our collective lack of practical organization and executive ability, together with the tenets of our national political system, have caused us to be the unwilling and grumbling sufferers; a misfortune in which no thinking person has any real sympathy with us. Our Council has been granted a short respite and a doubtful promise. Let us use the time gained to organize our forces and so achieve unity of thought and action with personal independence.

Criticism that is not constructive is useless; unfortunately constructive criticism is not usually well received, being classed as too disruptive. In these times, however, any plan is worth considering in the hope that something useful will materialize. I am prompted to suggest that the British Medical Association should be converted into a real B.M.A., a British Medical Alliance of all branches of the profession, its recognized auxiliaries, and allied occupations. The British Isles are small; the world is small; we still have and will continue to have an Empire. Communication in ordinary times will be rapid. Why not anticipate the inevitable and form a British Empire Medical Alliance?—I am, etc.,

London, N 11. RICHARD H. MOORE.

H.M. Forces Appointments

ROYAL NAVAL VOLUNTEER RESERVE

Prob. Temp. Surg. Lieuts D. L. Richardson, J. R Ellis, I R W Alexander, J A Henderson, F. M. McRae, D S. F Robertson, W H. Bayley, P H Colver, J. M. Ashton, R. K. Clough, R M. Alford, G D. Bonner, A. W. Kelly, F. C Oliphant, W. B. Whiston, K. W Wilkinson, J H. F. Mundie, A. K. Brown, J. E Gabb, G. A Binns, W. F. Dunham, R. H Heyland, P. F Rudd, F. C R. Picton, J L. Withey, M H C. Williams, J. M. R. Tytler, I. D. M. Nelson, L. R C. South, R. Stanley, J B. Randell, J. S Tomkinson, J. E Morton, H. B. M Lewis, C. H Creer, P. H. Cardew, G Cantu, R. R. Dodd, I. R. Moyle, and M. J. May to be Temp. Surg. Lieuts.

ARMY

War Subs. Lieut-Cols. (Temp Cols) (local Major-Gens') A W. Stott and C M. Page, D S O, to be Acting Major-Gens.

Lieut-Col (Temp. Col.) (local Brig) W. H. Ogilvie, R.A.M C, to be local Major-Gen.

LAND FORCES: EMERGENCY COMMISSIONS

ROYAL ARMY MEDICAL CORPS

War Subs Capt. J M. Lawrie, from half-pay list, has relinquished his commission on account of ill-health and has been granted the honorary rank of Major

War Subs. Capts. A Shaw, E M. E Decottignies, and S Soldberg have relinquished their commissions on account of ill-health and have been granted the honorary rank of Capt.

Lieut. W G Barrie has relinquished his commission on account of ill-health and has been granted the honorary rank of Lieut

To be Lieuts: L. H. Henderson, E. K. Malone, G D. Rankin, R. P Wilson, L Kramer, E G. H Koenigsfeld, J. S. T Goldie, F G. Prime, M K Martischnig, D. K. McI. Chalmers, P A. Crowley, R. Cutts, G M Fitzgibbon, H. H. I. Glennie, C. J Goodall, J. T. C. Haigh, J Haworth, K Heap, D D. Inch, P. D. James, C. M. Jones, J. M. Large, J H. T. Sawton, J H. MacAlpine, J. E. Mulholland, J. J Mullan, A. F Ollerenshaw, T A. Ratcliffe, T. W. Robson, G Ross, J H. Simpson, G M. Sinclair, R S Thorpe, N Waddie, W. A. Walker, B F Wickham, L. Willson, F. Morgan, J. E. Wilson, B C. E Aldous, G M. Ardran, C. W. Berriman, I. D B Bottomley, F. M. Braithwaite, J. Brittan, K. C Brown, L. S Bruce, P. J Capaldi, J. G. L Cole, R. L. Dodds, E. H. Duff, H Feldman, J. Fergusson, G G Gillam, C E Goldsborough, E J Holborow, F. P. Hudson, D. McM. Kennedy, G E Larks, A. D. Levay, J. C Lightbody, D. A McDonald, M Marcus, G. Martyn, J H. Maughan, K. Mellanby, C. L. Noble, A. C. Ritchie, G S. Robertson, S. H. Roe, J. H B. M Rowlands, T. D. Semple, L. V Sthyr, M H C. White, N. E. Williams.

The surnames of Lieut. W. Brinitzer and War Subs. Capt. J P Cosgrove are as now described and not as stated in *Supplements* to the *London Gazette* dated March 30 and April 30 respectively.

The initials of Lieut. A. C Jones are as now described and not as stated in a *Supplement* to the *London Gazette* dated March 30.

WOMEN'S FORCES

EMPLOYED WITH THE R A-M C

The following M O.s have been granted commissions in the rank of Lieut.: Ethel K Wacher, Marguerite P Elman, Silvia C. Lucas, Elfriede K. J. Paterson, Neith L. J B. Singleton, Margaret O Withoe-Keus.

CONSULTANT SERVICES AVAILABLE TO G.P.s

The Minister of Health thinks it desirable to remind general practitioners of the help that may be available in the treatment of their patients as the result of the redistribution of consultant services provided under the Emergency Hospital Scheme. Owing to the large measure of pooling of hospital resources under the scheme additional consultants may be attached to the local hospital to which a practitioner has been accustomed to refer his patients, or at other hospitals with which this hospital is linked under the scheme and to which patients are transferred in accordance with arrangements made by the Regional or Sector Hospital Officer.

It is suggested that doctors should familiarize themselves, if they have not already done so, with any additional facilities that have thus become available at hospitals in their area, and that they should make as much use of them as possible in appropriate cases. Should any practitioner find difficulty in informing himself of any such facilities the medical officer of health will be able to advise.

It is particularly important in the national interest that doctors should have access to help of this kind in the case of young industrial workers up to the age of, say, 25. If there are any who are failing to respond to treatment as well as the practitioner would wish he may feel that a further opinion would be helpful, and up-to-date information as to the facilities available will prove useful.

PUBLIC HEALTH AND SCHOOL MEDICAL OFFICERS

In a circular (No. 2818) from the Ministry of Health local authorities are required not only to make a return of their public health and school medical staffs but to notify the Ministry of any vacancy that occurs, to get permission from the Department to fill such a vacancy, and approval of the candidate proposed. The attention of doctors who are employed whole-time in public health and school medical work and who are of military age is drawn to the fact that they are reserved in the posts they now hold. If they wish to apply for other posts they must first obtain the permission of the Ministry. Similar permission is necessary in the case of married women who, if they were not married, would be liable for military service. Written application for permission should be sent through the Regional Medical Officer of the civil defence area in which the doctor is working. Local authorities advertising vacancies in the *Journal* should indicate that the appointment advertised has been approved by the Ministry.

WEEKLY POSTGRADUATE DIARY

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane Road, W.—*Daily*, 10 a m to 4 p.m, Medical Clinics, Surgical Clinics and Operations, Obstetric and Gynaecological Clinics and Operations *Daily*, 1 30 p.m, Post-mortems *Tues.*, 10 a m, Paediatric Clinic, 11 a.m., Gynaecological Clinic; 2 p m, Genito-urinary Clinic. *Wed*, 11.30 a m, Medical Conference. *Thurs*, 2 15 p m., *X*-ray Demonstration, Dr Topham: The Oesophagus; 3 p m, Dermatological Clinic *Fri.*, 12 15 p.m, Surgical Conference; 2 p m, Gynaecological Conference; 2 p m, Neurological Ward Clinic; 2 p m, Sterility Clinic

FELLOWSHIP OF MEDICINE, 1, Wimpole Street, W—*Brompton Hospital*: Tues and Thurs, 4 30 p m M R C P. course in chest diseases. *London Chest Hospital*: Tues, 2.30 p m, M R.C.P. course in chest diseases *West End Hospital for Nervous Diseases*: Tues. and Fri, 3 p m, M R.C P course in neurology. *National Hospital for Diseases of the Heart*: Tues. and Wed., 10 a.m, Out-patient clinics

EDINBURGH POSTGRADUATE LECTURES—At Edinburgh Royal Infirmary, *Thurs*, 4 30 p m Mr A. J. C Hamilton: Diverticulum of the Urinary Bladder.

DIARY OF SOCIETIES AND LECTURES

ROYAL COLLEGE OF SURGEONS OF ENGLAND, Lincoln's Inn Fields, W.C—*Thurs*, 4 30 p.m, Hunterian Lecture by Prof. E W Riches. Methods and Results of Treatment in Cases of Paralysis of the Bladder following Spinal Injury

ROYAL SOCIETY OF MEDICINE—*Tues*, 4 30 p m. Section of Therapeutics and Pharmacology *Wed*, 5 p m. Section of Proctology *Fri.*, 4.30 p m Section of Ophthalmology

MEDICAL SOCIETY OF LONDON, 11, Chandos Street, W—*Mon*, 5 30 p m Third Lettsomian Lecture by Mr. Lionel Colledge: Speech after Laryngectomy Treatment of Cancer of Pharynx. Results of Operative Treatment.

B.M.A.: Diary of Central Meetings

23 Wed **Council**, 10 a m.

B.M.A.: Branch and Division Meetings to be Held

WORCESTER AND BROMSGROVE DIVISION—At Worcester Royal Infirmary, Thurs, June 10, 3 p.m. Meeting of Division 3 30 p m. Annual meeting All medical officers in the Services are invited to attend the meetings

BIRTHS, MARRIAGES, & DEATHS

BIRTHS

O'CONNOR—On May 10, 1943, at Dublin, to Mary J. Ahern O'Connor, M B, wife of Peter J. O'Connor, solicitor, Waterford, a daughter.

RUSSELL—On April 22, 1943, at Mullinahone, to Evelyn, wife of Dr. J. J Russell, M O.H, Mullinahone, Co. Tipperary, a son.

VAUGHAN-JONES.—On March 16, 1943, to Maureen (*née* Cooke), wife of Surg. Lieut-Cmdr R. Vaughan-Jones, Royal Naval Air Station, Trinidad, B W.I., a son (Andrew Robert)

DEATH

MACLEAN—On May 29, suddenly, Dr. Finlay Maclean, 60, Grosvenor Street, Stalybridge; beloved husband of Ima Maclean, aged 49 years.

SUPPLEMENT TO THE

BRITISH MEDICAL JOURNAL

LONDON SATURDAY JUNE 12 1943

GENERAL MEDICAL COUNCIL
SUMMER SESSION

(*Continued*)

Inspection of Qualifying Examinations

The business before the General Medical Council at its summer session, other than he investigation of disciplinary cases, was ery slight. On the joint recommendation f the Education and Examination Comittees it was agreed that arrangements hould be made as soon as possible for n inspection on behalf of the Council of ualifying examinations held by all censing bodies or examining boards hose examinations. have not already een inspected in pursuance of a recomendation adopted by the Council a year go. That inspection was limited to the xaminations of bodies which have lopted the recommendation of the edical Personnel (Priority) Committee at, as a matter of emergency, students no produce evidence of having com- ted the whole curriculum after not less n 30 months' certified clinical studies l be admitted to the qualifying hinations. Of the 22 licensing bodies he United Kingdom 18 have already oted the recommendation of the rity Committee. Eire was not affected the recommendation, but its five sing bodies have all invited the attence of inspectors at their qualifying ination this summer. It is therefore osed now to arrange for an inspec- on behalf of the Council of the lifying examinations of the bodies ch are not within the scope of the rity Committee's recommendation. reason for this is to enable the ncil to use such information in its ding on any proposals for amendment the educational provisions of the lical Acts.

The "British Pharmacopoeia"

he report of the Pharmacopoeia Com- e to the Council embodied a report e British Pharmacopoeia Commis- in which its chairman, Prof. J. A. n, stated that in further planning for e revision of the *British Pharma- ia* the Commission believed that the cation of a complete new issue d be deferred until after the war, that the practice of publishing addi- s and amendments to monographs appendices, as they became ready, by eans of addenda should be continued. hese addenda should provide for the revision of the *Pharmacopoeia* both from e point of view of the war emergency d also from the general standpoint of he advancement of medical and pharmaeutical science. The preparation of the Sixth Addendum to the 1932 issue has now been completed. The addendum will contain formulae for a series of ointments prepared with an emulsion base. In these new ointments a considerable proportion of fats and paraffins is replaced by water, and a substantial saving in materials and ansport is effected.

DISCIPLINARY INQUIRIES

Wrongful Certificates

The Council considered the case of WILLIAM VINCENT SAINT JOHN SUTTON, registered as of Shadwell, London, who had been convicted at the Central Criminal Court of giving medical certificates to two persons in H.M. Forces and to a person engaged in the National Fire Service, having reasonable cause to believe that the certificates were likely to interfere with or prevent the performance of their duties. He had been sentenced to nine months' imprisonment.

Mr. Winterbotham, the Council's solicitor, said that there were four cases in the indictment, but Dr. Sutton had desired some fifty others to be taken into consideration. It appeared that the authorities had learned that a number of men in East London were getting extension of leave by visiting Dr. Sutton, who practised in a converted shop, which was in a filthy condition, and by paying a few shillings got a certificate stating that they were suffering from a cold or from some minor malady. Dr. Sutton had at first pleaded "Not guilty" to the charges, but afterwards, on the advice of his counsel, had amended his plea to "Guilty." The judge, in passing sentence, described his action as sabotaging the national effort. In defence of Dr. Sutton, who did not appear, a letter was read from his daughter, protesting that the certificates were issued in good faith, and that his plea of "Guilty" was foolishly made because counsel said that if he so pleaded he would be let off with a fine. It was also mentioned that a petition had been sent to the Home Office on Dr. Sutton's behalf signed by 280 persons in the East End.

The Council directed the erasure of Dr Sutton's name.

Convictions of Misdemeanours

The Council considered the case of WILLIAM ALEXANDER STEVENSON WELSH, registered as of Radnor Road, Handsworth, Birmingham, who had been convicted in April, 1942, at Manchester on four charges of obtaining money by false and fraudulent pretences, and sentenced to four concurrent terms of four months' imprisonment. He was also found guilty by a court martial in Dec., 1940, in two cases of conduct to the prejudice of good order and military discipline, and in seven cases of giving cheques without making arrangements for them to be honoured when presented. A further charge was added to the list, that in March, 1943, Dr. Welsh was convicted of obtaining £15 on false pretences, and sentenced to six months' imprisonment with hard labour. In a letter from prison Dr. Welsh declared that all his cheques had been honoured up to within a few weeks, the amounts were small in proportion to his then income, he had had no intention of defrauding anyone, and his difficulties had been the result of mental stress, partly caused by domestic worry.

The Council directed the Registrar to erase Dr. Welsh's name.

The Council considered the case of CHRISTOPHER WHITEHEAD, registered as of Greystone, Co. Wicklow, who was summoned on two convictions: one in July, 1942, at Leicester, of being found drunk, and the other in March, 1943, at Penarth, of obtaining a sum of money by false pretences. On the latter conviction he was sentenced to four months' imprisonment.

After hearing Dr. Whitehead's explanation, the Council, while finding the convictions proved, did not see fit to direct the Registrar to erase the name.

Motoring Offences

The Council considered the case of ERIC LLEWELYN WILLIAMS, registered as of Old Colwyn, Denbighshire, who appeared on the charge that on March 17 he was convicted at Southport of unlawfully using motor fuel for a purpose not mentioned in the application in response to which the coupons were issued, and on the same date of being in charge of a motor car while under the influence of drink to such an extent as to be incapable of having proper control of the vehicle. He was fined £20 for the first offence and £25 for the second, with £2 5s. 6d., witnesses' expenses, and his driving licence was endorsed.

It was stated that he had received a warning previously from the Council. Dr Williams appeared and made apology and explanation and produced evidence of character and good conduct.

The Council found the facts proved, but postponed judgment for two years.

Cases for Postponed Judgment

In the case of PATRICK JOSEPH MOLLOY, registered as of Hoe Street, London, E.17, in which, at the May, 1942, session, a charge of lax certification was proved but judgment was postponed for twelve months, and in that of PATRICK KENNEDY, registered as of South Harrow, in which, at the May, 1941, session, convictions of being in charge of a motor car while under the influence of drink had been proved but judgment was postponed for two years, the Council did not see fit to direct the Registrar to erase the names, both practitioners having satisfied the Council as to their practice in the interval.

Dental Erasure

The Registrar of the Dental Board was instructed to erase from the *Dentists Register* the name of IVOR LLEWELLYN EDMUNDS, registered as care of Lloyd's Bank, Regent Street, London, following convictions of falsification of accounts and embezzlement.

(*To be continued*)

CONSULTANTS AND SPECIALISTS GROUP

Membership of the Consultants and Specialists Group of the B.M.A. is open to those members of the Association who sign a declaration that they are not engaged in general practice in any form, but practise exclusively as consultants or specialists Forms of application for membership may be obtained from the Secretary, British Medical Association, B.M.A. House, Tavistock Square, London, W.C.1.

Correspondence

A Vote of the Profession

SIR,—One of the characteristic features of this controversy is the wide divergence of opinion shown, due to the peculiar caste system of medical practice, in which each member is inclined to regard such problems from his own particular angle. To organize a common front from such divergent types as consultants, colliery doctors, men in big industrial practices, those in fashionable resorts, not to mention the country doctor, will be no easy matter. If a doctor comes to the conclusion that on the whole he would be better off under a State system he will vote in favour of it; if, on the other hand, he is convinced that he would be the loser on the transaction he will certainly vote against it.

In such a case it is a question for the majority to decide by the method suggested by one of your correspondents—a postal referendum. Incidentally, it would be interesting to know what the public think about it all. So far as I can see they show little interest in the matter. One of them said to me: "Trust the doctors to look after themselves"; let us hope he is right.—I am, etc.,

Leicester. E. J. O'SULLIVAN.

Serving Officers' Views of Salaried Service

SIR,—I have recently returned to this country from abroad, where I was on active service at the time that the Beveridge proposals were made public. I should like to put on record the feelings to those proposals of the medical officers with whom I came in contact and the subsequent discussions.

At first there was a feeling of grave anxiety at the absence of immediate response from practitioners at home, who seemed to be too busy to realize that their future livelihood was at stake. Later much consternation was expressed at the outlook of the Press and the public, who seemed to stress that the medical man must be reduced in status and salary to the level of a clerk before any attempt was made to so interfere with any other profession or trade. Many medical officers gave me good reasons why the coal and automobile industries, banking, and shipping have merited prior places in national reform.

I spoke on the subject to a large number of officers in the course of my evacuation to a base hospital, and the general feeling was that *no* action can be too drastic to prevent us remaining after the war full-time salaried servants of the State.

I would like this letter brought to the attention of the Representative Committee. I have no personal axe to grind in general practice; disability from my wounds precludes that.—I am, etc.,

L. H. G. MOORE, M.B., Ch.B.

Birmingham

Dr. A. G. Davies, a doctor in general practice in Cardiff, appeared before the Stipendiary Magistrate on April 21, charged with failure to comply with the direction of a National Service Officer given under the Defence (General) Regulations, requiring him to undertake a resident hospital post. Dr. Davies, who pleaded not guilty, was found guilty and fined £5 and £10 10s. costs. Payment was suspended pending application for a case to be stated.

OPHTHALMIC GROUP COMMITTEE OF THE B.M.A.

A meeting of the Ophthalmic Group Committee was held, under the chairmanship of Dr. O. G. Morgan, on May 7. The question of the fee for ophthalmic medical examination under the National Eye Service was raised again by one member, who urged the enforcement of the guinea fee for all persons whose incomes exceeded £250 a year. He said that the only arguments in favour of postponement were based on the opposition of the approved societies, but if the Beveridge scheme came into effect the approved societies would presumably cease to exist, whereas if the Beveridge scheme were postponed for some years ophthalmologists could not be expected to wait indefinitely for adequate remuneration. In reply it was pointed out that the objection of the approved societies was not to the higher fee in principle but to the difficulty from an administrative point of view of distinguishing between two income groups of insured persons. Ophthalmologists were also reminded that the service was instituted to provide an ophthalmic medical examination for the lower-income section of the community. A motion in favour of the immediate enforcement of the committee's recommendation made in 1941—i.e., that all insured persons with an income exceeding £250 should be required to pay a fee of one guinea for an ophthalmic medical examination—was not carried.

A Post-war National Eye Service

The remainder of a long afternoon session was taken up with consideration of a draft scheme for a post-war National Eye Service. The scheme was amended in various respects and was referred to a number of ophthalmological organizations for their observations. It will then be considered by a meeting of the members of the entire Ophthalmic Group of the B.M.A.

H.M. Forces Appointments

ROYAL NAVAL VOLUNTEER RESERVE

Re-entered as Surg. Lieut. E. L James.

Prob. Temp Surg. Lieuts. A. H Dunkerley, S A. James, R. H Leaver, J C. A. Innes, M A. Slee, R F G. Lyons, J. H. Wainwright, S Moss, A. G. O'Malley, R. M Mathers, J. Le F Milburn, P E. Coffey, R. G. Samuel, J. S Rodgers, J M. Swithinbank, R. F. G. Barker, G. R. Kershaw, C. F. Cooper, R C E. Moffat, C. F. C Parkinson, W F. Frazer, L. R McLaren, W. M Brown, T. Cochrane, P W. Edward, G H. Bedwell, C. E R Payne, F. G. H. Watson, M L. Singer, C C. Shaw, E Millar, W A. Maclure, E V. Mackay, and T. E. L. J. McNair to be Temp. Surg. Lieuts.

ROYAL ARMY MEDICAL CORPS

Lieut.-Col R. A Flood, M.C., has reverted to the rank of Major at his own request whilst so employed

Capts (temp. Majors) J C. Reed and P. O'Shea to be Majors.

Capt. C King to be Major.

TERRITORIAL ARMY: R.A M C.

Lieut.-Col A MacG. Duff, M C., T D, has relinquished his commission on account of ill-health and has been granted the honorary rank of Col.

LAND FORCES: EMERGENCY COMMISSIONS

ROYAL ARMY MEDICAL CORPS

War Subs. Capt E. D Kinsey, M C., has relinquished his commission on account of ill-health and has been granted the honorary rank of Major

Capt D. G French has relinquished his commission on account of ill-health and has been granted the honorary rank of Capt.

Capt R. Y. Stones, O.B.E., M C., to be Lieut, and has relinquished the rank of Capt.

Lieut H James has relinquished his commission on account of ill-health and has been granted the honorary rank of Lieut.

The notification regarding Lieut Aitolia Georg adis in a *Supplement* to the *London Gazette* date March 5 has been cancelled

F Hennessey, M C, to be Lieut

WOMEN'S FORCES

EMPLOYED WITH THE R.A M C

War Subs. Capt. C M F Purves has relin quished her commission on account of ill-health and has been granted the honorary rank of Capt

Aitolia Georgiadis to be Lieut.

ROYAL AIR FORCE

Temp Squad Ldrs D. J Dawson, J H Neal, J F. Dales, J H Cullinan, J C Taylor, C. C Barker, H E Bellringer, J S Wilson, G. Gilchrist, J R Cellars, J R R Jenkins, H. L Willcox L. M Crooks, G. B. MacGibbon, J W Patrick J C. Blair, R L. Soper, R H Pratt, D F. S Shaw, and W T. Buckle have been granted th rank of War Subs. Squad. Ldr.

ROYAL AIR FORCE VOLUNTEER RESERVE

Fl. Lieuts C A Forssander and B Roditi ha relinquished their commissions on account of health and retain their rank

Fl Lieut J C Kitchin has resigned his co mission and retains his rank

Flying Officers W. H Craike, G W. Robe E J. Noble, J H P Davies-Sage, A P. Ha man, D Agnew, L. C. Lodge, M McMurrich, Read, A F Upton, R. T. Hastings-James, T Hynes, H J. L Dickinson, E C Eadie, P. Hay-Heddle, J. Dougall, and A L. C Harrop to War Subs. Fl Lieuts

The notification in a *Supplement* to the *Lond Gazette* dated Jan 29, p. 545, col 2, concern A P. Gastoni should have read A P. Gaston.

WOMEN'S FORCES

EMPLOYED WITH THE MEDICAL BRANCH OF TH R A F.

The following M Os with the rank of Fl Officer to be War Subs. Fl. Lieuts.. I. Shept J. B. T. Logan, E. Pearse.

INDIAN MEDICAL SERVICE

Lieut-Col J. R Katariya has retired.

Major K. R Sahgal to be Lieut-Col

EMERGENCY COMMISSIONS

Lieuts J. G. H Davidson and W B. Joh to be Capts

WEEKLY POSTGRADUATE DIAI

FELLOWSHIP OF MEDICINE, 1, Wimpole Street *West End Hospital for Nervous Diseases* and Fri, 3 p m, M.R C.P course in ne *London Homoeopathic Hospital* Wed. aft Clinical surgery demonstration *National pital for Diseases of the Heart* Tues. and 10 a m, Out-patient Clinics

EDINBURGH POSTGRADUATE LECTURES—At Edi Royal Infirmary, *Thurs*, 4 30 p m. M Pybus. The Protective Diet

DIARY OF SOCIETIES AND LECTU

ROYAL SOCIETY OF MEDICINE.—*Fri*, 3 30 Section of Obstetrics and Gynaecology Me of Section of Surgery are specially invit attend *Sat.* (June 19), 2 30 p m. Secti Psychiatry

CHADWICK TRUST—At Chelsea Physic G Swan Walk, Chelsea, S W, *Thurs.*, 4 p.m F. J Chittenden: Plants causing Irritation

B.M.A.: Diary of Central Meetin

JUNE

22 Tues Journal Board, 4 p m.
23 Wed. **Council**, 10 a m.

B.M.A.: Branch and Division Mee to be Held

EDINBURGH AND SOUTH-EAST OF SC BRANCH—At Edinburgh Royal Infirmary, June 16, 2 30 p m. Annual meeting. Mr. Graham A Consultant's Experiences in the East

APPOINTMENTS

RAFTERY, LILIAN, M R.C.O G., 1st Ass. Gynaecological and Obstetric Department, Lo Hospital, E

RIGGALL, R M, L R C.P, L R.C.S, Dep Medical Superintendent, Cefn Coed Hosp Swansea

BIRTHS, MARRIAGES, & DEATE

The charge for inserting announcements under t head is 10s. 6d. This amount should be forward with the notice, authenticated with the name a address of the sender, and should reach the Adve tisement Manager not later than first post Monda morning to ensure insertion in the current issu

DEATH

CRAWFORD.—On June 1, at Bidford-on-Avon, Henry Marston Laird, M C, M D., fifth son of the late Sir Thomas Crawford, K.C.B., LL.D., late Director-General, Army Medical Service.

SUPPLEMENT TO THE
BRITISH MEDICAL JOURNAL

LONDON SATURDAY JUNE 19 1943

GENERAL MEDICAL COUNCIL
DISCIPLINARY INQUIRIES

(*Concluded*)

Alleged Falsification of Records of Professional Services

The Council devoted one whole day and ts of two other days to the consideration the case of PARAVASTHU GOPAULA SAWMY, istered as of Warrington Road, Whiston, erpool, who appeared on the charge that order to support a counter-claim for a sum £352 for professional services alleged to e been rendered, he had falsified entries his visiting diary so as to make it appear t he had attended the complainant (Mr. G. B. Griffin, L.D.S., of Liverpool) and daughter during certain periods, whereas fact he had not attended them during e periods. It was further complained nst Dr. Sawmy that he had substituted an earlier letter which he had written to . Griffin's solicitors, in which he had ibed her condition as found by him on nation in 1936, another letter, bearing me date as the first, but written much wherein statements were made as to Griffin's condition at that time, and uch statements were to his knowledge e.

complainant was represented by Mr. Cairns, counsel, and respondent by Mr. Paull, K.C., and Mr. G. Blackledge. Cairns said there had been litigation en complainant and the respondent, in the former claimed the return of a f £400, and the latter counter-claimed 52 for professional services. To sup- his counter-claim he produced certain s in respect of attendances on Mr. n in 1939 and on his daughter in 1941. vidence would show that while some- similar services were rendered at a nt time, no services were rendered the periods indicated by the entries. two had for some years been on ly terms, and each had served the the one as doctor and the other as t, without fee. In Nov., 1940, Mr. and his son went to live with Dr. A year later the solicitor for Mrs. asked Dr. Sawmy for a certificate ng treatment which he had given to Griffin for certain injuries in 1936. letters were ignored, but eventually wmy replied that in his recollection uries were trivial and that Mrs. Griffin ven the history of a fall. Six weeks however, the relations between the two having in the meantime become ed, Dr. Sawmy rang up the solicitor aid that he had now found his records treatment given to Mrs. Griffin nearly ears previously, and that he would give more detailed report in substitution for the st. The first was then returned to him, d under the same date, although actually was written some weeks later, he sent a eport to the effect that Mrs. Griffin gave a story of having been assaulted by her usband, and that she had extensive orbital nd wrist lesions, obviously the result of brutal violence.

When the solicitors for Mr. Griffin asked Dr. Sawmy for further particulars of the counter-claim, these were supplied by affidavit, with Dr. Sawmy's diaries in support. It was stated by Mr. Griffin that all Dr. Sawmy's attendances on him ceased before the first of the dates given. The particulars given by Dr. Sawmy were of 104 attendances between April and Sept., 1939. He also claimed for 26 attendances on Miss Griffin between April and June, 1941, consequent upon a Pott's fracture of the ankle, but the evidence of other witnesses would show that Miss Griffin, though she did fracture her ankle, did so in Sept., 1940, and the registrar of the University of Liverpool stated in an affidavit that on certain dates, when according to Dr. Sawmy she was suffering from the initial stages of a severe lesion and was immobilized, she was in almost daily attendance at the university as a student.

Mr. Griffin gave evidence as to the dates and other particulars. In cross-examination he strongly denied that he had carefully fixed this matter step by step to weave a net for Dr. Sawmy. It was a most improper suggestion that he himself had substituted a forged report on his wife's case for the one which Dr. Sawmy had written and had affixed Dr. Sawmy's signature by a rubber stamp to which he had access (It appeared that the original of this letter could not be produced; it had been copied by the solicitors, who said that they had sent it back to Dr. Sawmy)

Dr. Sawmy, in defence, denied all the charges His entries in the diary had been made at the time of treatment. In 1939 Mr. Griffin offered to lend him £400; it was agreed that money was at that time owing to him by Mr. Griffin, and that adjustment would be made later. On four occasions he rendered accounts for professional attendance, but did not press for settlement In Sept., 1941, Mr. Griffin, after a dispute with his wife, came, together with his son, to live with him. It was acknowledged that with lodging as well as attendance he now owed him more than the £400 he had lent, but Mr. Griffin did not want to discuss a settlement at that time because his wife was bringing an action against him. In Dec., 1941, while residing in Dr. Sawmy's house, Mr Griffin found a letter from Mrs. Griffin's solicitors asking for a report on injuries she had sustained as a result of an assault on her by Mr. Griffin in 1936, and Mr Griffin produced a typed letter which he asked him to send in reply to the solicitors. This, Dr. Sawmy said, he refused to do, and a few days later he sent to the solicitors the full report on the subject, describing injuries of a severe kind, and expressing the opinion that they had been inflicted by a brutal form of violence. That was the only report he gave; it was left in the hall for posting at a time when Mr. Griffin still resided in the house, and when the doctor's notepaper, typewriter, and signature stamp were within access.

The diaries were closely scrutinized by members of the Council. Dr. Sawmy, in cross-examination, agreed that not until 1939 did he prepare an account for Mr. Griffin, that for that purpose he had to go back over his diaries for five previous years, and that the only material on which he could make up the account was the rough diary entries. Supporting evidence was given by Sister Rowson, who was Dr. Sawmy's nurse and secretary, and by other witnesses as to dates.

In a closing speech on behalf of Dr. Sawmy his counsel said that these were criminal charges and that the proper course for the complainant would have been to go to a criminal court and then, if a conviction had been obtained, to come to the Council. But if these charges had been brought before a criminal court they would have been thrown out by any judge and jury in the absence of essential witnesses—namely, Mrs. and Miss Griffin. The former was the obvious person to be called concerning the alleged untrue report, and the latter concerning the dates of her injury and treatment, but the complainant had not seen fit to place either of them in the box. It was true that the registrar of the University testified that Miss Griffin was in attendance there at the time when, according to Dr. Sawmy, he was attending her for a fractured ankle, but might she not, with the leg support he furnished, have succeeded in attending her classes? It was suggested that the diaries had been written up after the quarrel between the two men, but extracts which he read, in which attendance on the Griffins was sandwiched in with notes of other engagements, seemed to testify to their genuineness. With regard to the report on Mrs Griffin's injuries the circumstances pointed to the substitution of another report pretending to be written by Dr. Sawmy but written without his knowledge.

After the Council had given prolonged consideration to the case *in camera* the President announced that the Council had found the facts proved to its satisfaction, and that in respect of the facts so proved Dr. Sawmy had been found guilty of infamous conduct in a professional respect, and the Registrar had been instructed to erase his name.

Complaints relating to Certificates

The Ministry of Labour and National Service brought complaints against two practitioners in Wales for untrue certification. One of these was DAVID WASHINGTON EVANS, registered as of Llantwit Fardre, Glamorgan, against whom it was alleged that he had given a certificate stating that a factory employee was suffering from a bilious attack and unable to follow her employment when in fact he had not seen or examined her on that date or on any approximate date. The girl in question stated that she was prevented from going on night work on Dec 30, 1942, by reason of a bilious attack. A fortnight later her employers insisted on a doctor's certificate to explain her single absence, and her mother obtained it from Dr. Evans, who had attended her for the same complaint in the past, although he had not done so for some months previously.

Dr. Evans admitted that he did not see the young woman on the night in question, but he had seen her on various previous dates for subacute appendix or bilious attacks. He had known the family for fifteen years, and had always found them absolutely and sincerely honest, and when the mother came to ask for the certificate he trusted her word and gave what was required after he had questioned her about her daughter's illness. The certificate was given in a modified form and was not intended in any way to mislead; he believed the manager of the factory already knew that no doctor had seen the girl on the date in question.

After deliberation *in camera* the Council did not see fit to direct the Registrar to erase Dr. Evans's name.

The second practitioner was ARTHUR HINES, registered as of Trehafod, Glamorgan, who had certified a girl factory employee as suffering from gastritis and unable to follow her employment when he had not seen her on the date of the certificate or on any approximate date. The girl in question told a similar story to the girl in the previous case. She had never been attended by Dr. Hines at any time.

Dr Hines said that the girl came to him fourteen days after the date of her few hours' illness, and stated that her employer insisted on a certificate. He told the girl that he saw no necessity to give a certificate for the few hours in question. He knew the family, who lived within 20 yards of his surgery, and her aunt, whom he saw every day, told him on the day in question that her niece had a bilious attack and was unable to go to work. He gave the certificate when it was applied for, having confirmed the truth of the girl's assertion. No charge was made for the certificate. He knew the girl to be an honest and industrious person. She had lost only one shift—due to this attack—since taking up her employment at a munition factory.

In this case also the Council, after private deliberation, did not see fit to instruct the Registrar to erase Dr. Hines's name.

Case following Divorce Decree

The Council considered *in camera* the case of THOMAS ROLLAND STUART THOMPSON, registered as of the R.A.F. Medical Service, who appeared on the charge that by decree of the Divorce Court he had been found guilty of adultery with a married woman with whom he had stood in professional relationship.

The finding of the Council was that the allegation of professional relationship had not been proved, and therefore the complaint was dismissed.

Correspondence

This Leadership Business

SIR,—In view of Dr. Duncan Porteous's letter (*Supplement,* May 15, p. 60) it appears necessary to remind ourselves that there are obvious dangers associated with the uncritical following of "leaders." The picture of the blind and their blind leaders floundering together in the ditch is an authoritative warning for all time of the risk involved in this procedure. Those to whom old masters do not appeal might profitably contemplate the contemporary scene, and especially the dire circumstances into which the peoples of Germany and Italy have been led by the great national leaders to whom they had entrusted their destiny.

Much of the trouble in the world to-day is due to the fact that peoples have left the determination of national policy to rulers. In other words, they have appointed leaders or allowed leaders to be appointed before defining without any possibility of misunderstanding the destination to which they wished to be led. It is curious that political conduct of this kind excites little comment, whereas an individual acting in like manner in regard to his private affairs would soon find himself under grave suspicion as to his sanity. All this goes to emphasize the fact that the determination of policy—the choice of an objective—naturally precedes the selection of the means to the end in view. There is no place for a leader until it has been decided where one wants to go. Nevertheless, in the present medical emergency someone must take the initiative in defining an objective which is believed to be in accordance with the will of the great majority of the profession. This objective has recently been defined in the following terms:

> Objective: To preserve freedom for doctors as individuals.
>
> (*a*) To ensure receipt of income from different sources: to prevent control of income passing to a single authority.
>
> (*b*) To confine a doctor's sphere to the direct doctor–patient relationship: to prevent the substitution of third party (bureaucratic) authority for this relationship.
>
> (*c*) To preserve personal responsibility of doctor to patient: to prevent the substitution of responsibility to officials for responsibility to patients.

It is now the responsibility of every member of the B.M.A. in favour of this objective—probably the vast majority—to use to the limit the machinery of the B.M.A. which exists to make their policy effective.—I am, etc.,

Bexley, Kent E. U. MACWILLIAM.

MEDICAL WAR RELIEF FUND

FORTY-SEVENTH LIST

Amount previously acknowledged—£49.577 11s., and £100 3½% Conversion Stock and £40 3% Defence Bonds

Individual Subscriptions

£3 3s.—Lt-Col. R. W. Brookfield, R.A.M.C.

£2 2s.—Anonymous, R.A.M.C.; Capt N Bickford, R.A.M.C (8th donation); Major W Happer, I.M.S., and Mrs. Happer (16th donation)

£2.—Dr. A S Henderson, Bearsden (2nd donation)

£1 11s. 6d.—Dr T. B. Evans, Prestatyn (15th donation).

£1 1s.—Dr A. P. Bewdler, Bournemouth

£42.—Medical Staff of Harrow and Wealdstone Hospital—per Dr Thorn (amount already sent £44 and £40 3% Defence Bonds).

£41 15s. 6d.—Croydon Division—per Dr S. A. Forbes (amount already sent £166): Dr. W O. Whittaker, £2 2s.; Dr. P. W. Hamond, £3 3s.; Dr D F Kanaar, £2 2s.; Dr. D. S. Genge, 10s. 6d; Dr. J. S Hall, £2 2s; Dr. T. Murphy, £5 5s.; Dr W H Hardy, £2 2s (2nd donation); Dr Mona E Hatherley, £2 2s.; Dr. Eileen M. Saxton, £2 2s. (3rd donation); Dr. C Corben, £5; Dr. A. Gooding, £3 3s (2nd donation); Dr. A. C. Lankester, £2 2s.; Dr C. I Stockley, £5 (2nd donation); Dr A. H. Warde £5 (2nd donation).

£2 2s.—South-Eastern Association of Medical Women's Federation—per Dr A. M. M. Hunter, Edinburgh (amount already sent £2 2s.)

Total—£49.677 10s., and £100 3½% Conversion Stock and £40 3% Defence Bonds

Cheques, payable to the Medical War Relief Fund, should be sent to Dr G. C. Anderson, Honorary Treasurer of the Fund, British Medical Association House, Tavistock Square, London, W.C.1.

Dr. R. L. Thornley, medical officer of health for the East Riding of Yorkshire for over 20 years, retires at the end of June (his period of service has already been extended). His successor is Dr. Ralph Watson, who has been M.O.H. for Doncaster since 1934.

BRITISH MEDICAL ASSOCIATIO

Election of 22 Members of Council Grouped Branches in the British Isles, an of 2 Public Health Service Members

As a result of the nominations received fo the election of twenty-two members o Council the following have been elected for the session 1943–4: L. Dougal Callander (Doncaster); J. A. Brown (Birmingham); J. A. Ireland (Shrewsbury); H. R. Frederick (Port Talbot); F. H. Bodman (Bristol); F. A. Roper (Exeter); J. G. Thwaite (Brighton); G. W. Miller (Dundee); P. Martin Brodie (Edinburgh); I. D. Grant (Glasgow); G. MacFeat (Douglas, Lanarks); C. J. A. Woodside (Belfast).

For Group A (North of England) the following candidates have been nominated: P. V. Anderson, Weldon Watts; for Group C (Isle of Man, Lancashire, and Cheshire), R. L. Newell, D. R Owen, F. M. Rose; for Group D (Derbyshire, Leicestershire and Rutland, Lincolnshire, Nottingham), E. C Dawson, F. J. Jauch, G. Waring Taylor for Group E (Bedfordshire, Cambridge an Huntingdon, Essex, Hertfordshire, Norfolk Northamptonshire, Suffolk), A Stavele Gough, C. M. Stevenson; for Group (Metropolitan Counties), R. W. Cockshut V. Zachary Cope, W. W. Fox, E. A. Gregg P. Inwald, H. Joules, M. F. Moloney H. H. D. Sutherland, Sir James Walton, R Wiggins; for Group L (Southern, Surrey) R. H Balfour Barrow, C. N. Binney.

Voting papers will be issued to the mem bers of these Groups on June 19, 1943.

Public Health Service

The following have been nominated election as members of Council for 194 by Public Health Service members: Fenton, T. N. V. Potts, A. J Shinnie, J Struthers. Voting papers will be issue the Public Health Service members on 19, 1943.

G. C. ANDERSO
Secret

Diary of Central Mee

JUNE

23 Wed. **Council,** 10 a.m.

Branch and Division Meetings to be

WESTMINSTER AND HOLBORN DIVISION — At minster City Hall, Charing Cross Road W.C., June 25, at 5 45 p.m. Miss Jackson (Royal minster Ophthalmic Hospital) Orthoptic T

WEST SUFFOLK DIVISION —At West General Hospital, Bury St Edmunds, Sun., J 5 p.m. Meeting All medical practitioners area of the Division are invited to attend.

WEEKLY POSTGRADUATE DIA

FELLOWSHIP OF MEDICINE, 1, Wimpole Street, *West End Hospital for Nervous Diseases:* and Fri., 3 p.m., M.R.C.P. course in neuro *London Homoeopathic Hospital:* Wed. aftern Clinical surgery demonstration *National pital for Diseases of the Heart:* Tues and 10 a.m., Out-patient clinics.

DIARY OF SOCIETIES AND LECTU

ROYAL SOCIETY OF MEDICINE —Thurs., 2.30 Section of Dermatology *Sat.* (June 26) p.m. Section of Orthopaedics

MEDICAL SOCIETY FOR THE STUDY OF V DISEASES, 11, Chandos Street, W.—*Sat* 26), 2 30 p.m The Use and Signif Serum Tests for Syphilis.

BIRTHS, MARRIAGES, & DEA

The charge for inserting announcements unde head is 10s. 6d. This amount should be forw with the notice, authenticated with the na address of the sender, and should reach the Adv tisement Manager not later than first post Mon morning to ensure insertion in the current iss

DEATH

SIMPSON —On June 5, 1943, at Shrewsbury, denly, Archibald Simpson, M.B., B.Ch., F.R. (Edin.), of 22, The Crescent, aged 60.

SUPPLEMENT TO THE
RITISH MEDICAL JOURNAL

LONDON SATURDAY JUNE 26 1943

PITATION FEE AND CIVIL SERVICE WAR BONUS

LETTER TO MINISTRY OF HEALTH

e following is the text of a letter, ted June 21, which has been sent to e Minister of Health by the Insurance s Committee:

EAR SIR,—It is understood that, with ect from June 1, 1943, a Civil Service war us will be payable to civil servants re- ng salaries up to £850 a year.

the Minister's recent refusal to make a me increase in the capitation fee was ly based on the assertion that it was rary to Government policy to make such time increases to those not in the lower me groups, the Insurance Acts Com- ee would be grateful for an assurance its application is now being reconsidered he light of this change of policy.

will be appreciated, of course, that the is net salary, and that a considerably er figure represents the gross income ssery to produce the net income of £850 r with non-contributory pension rights.

Yours faithfully,
(*Signed*) G. C. ANDERSON,
Secretary.

Correspondence

ildford Practitioners' Group

Apart from two rather specialized Sheffield (*Supplement*, May 8, nd [illegible]ologists (*Journal*, June 5, [illegible] 30% and 50% return of [illegible]pectively—little statistical e of individual opinion has been ed so far. It is therefore sug- that the activities of the above may be of interest to your readers, larly in view of Dr. Victor M[illegible]s letter "A Questionary" in the *ment* of June 5 (p. 69).

in of the Group and its Objective

consequence of a meeting of the ford Division on March 14 it red that the Representatives to the sentative Meeting might well be g on the opinion of a few local ts rather than on that of the busy nd file of the Division in general. ermore it was noted from the Secre- announcement in the *Journal* of 20 (p. 359) that discussions be- the Minister of Health and the entative Committee would take not on the basis of any pre- d plan of the Minister but 'from und.'" Accordingly it was de- to obtain an index of individual on from local active practitioners in r to test the above supposition and uce statistical figures "from the nd."

2. Activities

In addition to local circularization tact was made with bodies in 17 er counties, copies of our circular questionary being distributed subse- ntly by request.

3. Result of Questionary

Recently a questionary on the future of medical practice was sent to the 150 active practitioners in S.W. Surrey. The response has been excellent, 140 having replied. Of the remainder, seven failed to reply, two have left the district, and one has died. An analysis of the 140 replies shows:

1. That all practitioners should be consulted before the profession is committed to any policy	99½%
2. For continuation of private practice and freedom from control	96 %
3 For extension of the N.H I.A., subject to adequate capitation fee, to—	
(*a*) dependants of the £250 p a. group	62 %
(*b*) „ „ £420 p.a. „	25 %
(*c*) all members of the community ..	5 %
4. That the "urgency" of the present situation is—	
political	82½%
medical	4½%
both	13 %
5. That the capitation fee for the £420 p.a. group should be adjusted before any further negotiations are entered upon with the Ministry of Health	90 %
6. That the B M A.—	
(*a*) is not representative of the whole profession	90 %
(*b*) as at present constituted, is inadequate to meet the existing dangers to the profession	97½%
7. Capacity in which engaged, of the persons who replied:	
general practice	119
consultant work	14
public health, etc.	7
8. B.M.A. Resolution of February 3:	
for	27 %
against	70 %
abstained from voting	3 %

Conclusion.—The obvious conclusion is that the practitioners in S.W. Surrey are overwhelmingly opposed to a State Medical Service and desire the continuation of private practice with freedom from bureaucratic control (96%).

4. Present Situation

It appears that discussion is taking place on an accepted basis that a "scheme" involving control is already a *fait accompli*. This is not discussion on a basis of review "from the ground," but a point well on the way towards a whole-time State Medical Service, leaving both the public and ourselves in the unenviable position of having to negotiate for a meagre percentage of so-called freedom.

5. General Conclusions and Recommendations

Freedom.—The objective of retaining freedom must be constantly adhered to and every endeavour should be made to confine a doctor's sphere to the direct doctor–patient relationship and to prevent the substitution of bureaucratic authority for this relationship.

Representation.—It is essential to ensure true representation of the majority of individual opinion, and, in order that this may be achieved, representatives (to the Representative Body of the B.M.A.) should be elected who themselves hold the same opinion as that contained in their mandate from this majority.

Defeatism.—This atmosphere of defeatism must be opposed at every opportunity. We know that united resistance against restriction of freedom is not useless.

Unity.—Every effort should be made to obtain unity within the profession and to encourage every member of the profession, if not actually to join them, at least to support the B.M.A. in their activities on our behalf.

"From the Ground."—It is suggested that every Division should take steps at once to obtain statistical figures of opinion on similar lines and acquaint the B.M.A. with their findings in order to afford those taking part in the discussions some concrete evidence of individual opinion.—We are, etc.,

L. B. HARTLEY.
E. E. HEANEY.
G. J. HOLLIS.
W. MERCER.
J. A. PATERSON.
J. O. M. REES.
W. L. WINSLOW SMITH.
G. HUMPHREY WARD.
Also, two Government medical officers, whose names, for obvious reasons, must be omitted.

Guildford.

Sheffield Practitioners' Group

SIR,—In view of the impending reorganization of medical services a mass meeting of general practitioners was called by the Sheffield General Medical Practitioners Group at the Royal Victoria Hotel, Sheffield, on June 4. The meeting was addressed by an eminent gynaecologist, a member of the Royal College of Surgeons, who is also chairman of the Sheffield Division of the B.M.A., by a local Member of Parliament, and by a member of the Representative Committee appointed to discuss the future reorganization of medical services with the Minister of Health. There was an attendance of 163 members of the profession; probably the best-attended meeting of the profession locally for over twenty-five years.

After listening to the addresses by the above-mentioned speakers a lively discussion followed, and the following resolutions were passed without dissent:

1. That this meeting of medical practitioners of Sheffield and district hereby resolves that it will resist to the utmost any attempt to introduce a salaried State Medical Service as recently suggested by the Minister of Health, but that it will freely co-operate in the reorganization of the medical services on the lines set forth in the Interim Report of the Medical Planning Commission.

2. That this meeting further wishes to record that it will not accept any form of local government control in any reorganization of medical services affecting the general practitioner.—I am, etc.,

PHILIP N. GRINLING,
Honorary Secretary.

Sheffield

Certificates and Compulsory National Service

SIR,—Every general practitioner must be overwhelmed with requests for certificates. Most of us, having consciences and the wish to help the war effort to the fullest, spend a considerable amount of time daily in weighing the pros and cons of each individual case, losing patients frequently rather than issuing unwarranted certificates.

Where these certificates relate to appeals against compulsory national service or civil defence work, the National Service Officer (a layman) has the power to decide whether he will accept the certificate or force the appellant to be examined by an independent medical practitioner appointed as referee. This referee can override any certificate, but, having no special qualifications and no knowledge of the person's past history or present environment, he cannot be in a position to judge the case as satisfactorily as the person's own doctor. The whole arrangement is humiliating, unjust, and against all the ethics of the profession.—I am, etc.,

Streatham, S.W 16. HARRIS AVERY.

Medical Resettlement

SIR,—When the war is over a large number of our colleagues now on active service will be returning to this country anxious to enter or to re-enter civil practice. It will be the duty of us at home to give them all the help we can. Most of them will be without capital and without recent experience, and we should consider a practical scheme at once to overcome these difficulties. I would suggest that in every district a panel of doctors willing to take these men and women into their practices should be prepared. After a period of preliminary assistantship it should be possible for them to take up partnerships and to provide the appropriate premiums out of their actual earnings. In this way many who at present know nothing of the conditions and scope of general practice will gain experience which will enable them to decide for themselves whether they are prepared to exchange this for State control of medicine with its manifold disadvantages.—I am, etc.,

High Wycombe DAVID ELLIS.

TYRES FOR DOCTORS' CARS

The B.M.A. has had occasion to bring to the notice of the Tyre Directorate of the Ministry of Supply a number of cases of considerable delay in providing tyres urgently required by doctors. The Directorate are anxious that doctors' applications should be dealt with as expeditiously as possible, and they have usually given prompt assistance through the Regional Tyre Officers when complaints received by the Association have been forwarded to them. They suggest, however, that time would be saved if a doctor, when he is unable to obtain reasonably prompt delivery of tyres for which he holds a permit, were to make direct application to the Regional Tyre Officer, whose address may be obtained from the authorized tyre dealer with whom the tyre application form is lodged.

Dr. J. F. Galloway has been appointed medical officer of health and schools medical officer to the county borough of Doncaster in succession to Dr. R. Watson, who has been appointed medical officer of health to the East Riding.

H.M. Forces Appointments

ROYAL NAVY

Surg Capt. R. A Brown has been placed on the Retired List.

ROYAL NAVAL VOLUNTEER RESERVE

Prob. Temp. Surg. Lieuts. M. Sherrard, H. J. Sherren, W. D Fraser, C M. Farquarson, J Hatton, J H Hamilton, D. R Golding, J. C. Brass, H C Miller, W. L P. Hewerdine, R J D Browne, J. M. Alexander, J R. Carter, J. M. Gilston, and J H. Fisher to be Temp Surg Lieuts

ARMY

Col. (Temp. Brig) W. C. Hartgill, O.B E., M C, late R A M C, has been granted the local rank of Major-Gen

Col. (Temp Brig) R. K. Mallam, O.B.E, and Col. D. T. M Large, late R A.M.C, on completion of four years in their respective ranks, have been retained on the Active List supernumerary to establishment.

Lieut-Col. (Temp. Brig.) W. E. Tyndall, from R A.M.C, to be Col.

Lieut.-Col (Temp Col.) G. S. McConkey, O.B.E., from R.A.M C., to be Col.

ROYAL ARMY MEDICAL CORPS

Lieut-Col. (Temp Col.) C M. Forster having reached the age for retirement has been retained on the Active List supernumerary to establishment

Major (Temp Lieut.-Col) G G. Drummond to be Lieut-Col.

Majors J A. C Kidd and J. H. Barry to be Lieut.-Cols.

REGULAR ARMY RESERVE OF OFFICERS

ROYAL ARMY MEDICAL CORPS

Lieut.-Col. (Acting Col.) R. E. U. Newman, O B.E, M.C, R.A M.C., has been restored to the rank of Col.

Major (Acting Lieut-Col.) E V. Whitby has been restored to the rank of Lieut.-Col.

LAND FORCES: EMERGENCY COMMISSIONS

ROYAL ARMY MEDICAL CORPS

War Subs. Lieut-Col. G W. Graham has relinquished his commission on account of ill-health and has been granted the honorary rank of Brigadier.

War Subs. Capt. C. S. Owen has relinquished his commission on account of ill-health and has been granted the honorary rank of Capt

War Subs. Capt. L. Bapty, M C., has been placed on the half-pay list on account of ill-health.

Lieuts. A H. Haysom, D. H. Hiley, and A. G. H. Mitchinson have relinquished their commissions on account of ill-health and have been granted the honorary rank of Lieut.

To be Lieuts: A. A. N. Bain, S. B. Swartz, Y N Crayannopoulos, J. Clemison, G H. Connor, S. H Ervin, W. G French, E A Hoare, M S Horowitz, F W B Iveson, R E. Lawrence, D Mitchell, P J O'Connell, J. M B. Pooley, D. Prentice, C Stringfellow, B. A. Thompson, J. J. Voller, E W. West, F. A. Ayles, C. P. Bennett, C. B. Dawson, R. A. F. Evans, D. J. Hadfield, E. B. Harrison, C L. Iritt, H. M Kershaw, J A. McGhie, W. G Mackay, A W. Patton, P. A H. Rivett, J H Taylor, R. Thursz, R. I. Williams, R. A Good, J Fischer, H. Abeles, R S Woods, L Adler, C. D Alergant, R. B. Boyd, S. H Chazen, M. G Corcos, V. Deutsch, R. H Dobbs, W. J. Doyle, H. V Geary, J. V. T. Gostling, E. Grundy, J. A. Harris, J. A Henry, S. H. F Howard, R. C Jack, J M. Leggate, J D. H. Linfoot, B D. Ling, H. McCluskey, F. B McEvoy, V. J. McLean, J. McMurray, D R. I Mason, B V. Megarry, A. I D Prentice, D L. Pugh, W Slater, J. M Small, D. J. Tibbs, T. G. Tresidder, S J M. Walker, K T. Weavers, H. T. S. Wise, W. J. W. Wolfe

WOMEN'S FORCES

EMPLOYED WITH THE R.A.M.C.

The following M O s have been granted commissions in the rank of Lieut: Kathe Kramer, Lynette Smith, Ethelwyn M. McKendrick, Alice Mackenzie, Betty E A. Magill, Kathleen V. Miller, Eileen P Scanlan, Doreen G. Warnock, Sidney L. Wray, Frances D. Bosanquet, Ellen Joyce, Jean W. Paul, Eleanor A White, Aileen M Barry, Janet A. Christie, Elizabeth J. F. Heynemann, Frances C. E Hutchison, Jean MacCulloch, Eileen E. V. Martin, Beryl M. Mason, Jane, J. C. Muir, Mary Roland, Joan Williams.

ROYAL AIR FORCE

Squad. Ldrs. (Temp.) H. P. R. Smith, R. F. Wynroe, and J C. Bowe have been granted the rank of War Subs. Squad. Ldr.

RESERVE OF AIR FORCE OFFICERS

Wing Cmdr. (Temp.) L. M. Corbet has been granted the rank of War Subs. Wing Cmdr.

Squad. Ldr (Temp) P. A. Wilkinson has been granted the rank of War Subs. Squad. Ldr

Fl Lieut J. F. Zeigler has relinquished his commission on appointment to the R.A A F.

The notification concerning War Subs. Squad. Ldr. A. R. Ffrench published on May 29 should have read *A. R. French.*

ROYAL AIR FORCE VOLUNTEER RESERVE

Squad. Ldrs. (Temp) L. V. McNabb and D. S. Bateman to be War Subs Squad. Ldrs.

Squad Ldr (Temp.) J Courtney has resigned his commission and retains his rank.

Squad. Ldr. (Temp) H A. Tracey has relinquished his commission on appointment to a commission in the S A M C.

Fl Lieuts I. H Gossett and C J Hackett to be War Subs. Squad Ldrs.

Fl Lieut. H. V Edwards has resigned his commission and retains the rank of Squad. Ldr.

Fl Lieut. G Cormack has relinquished his commission on account of ill-health and retains his rank.

Flying Officers J. V Sheldon, D W Wauchob, J. A Williams, St J M A Tolhurst, C. C. McD. Watson, J D Cardale, R. M. Galvan, B Graham, C N Grainger, A H. Widdup, J. S. Cameron, R. M. Case, B M. Heap, J M Slattery, G S. Arnold, E C. Duffet, N. W. Riley, W. D. W. Dick, R S Flynn, T H Steele-Perkins, E R Spicer, P. S. Cheshire, P. J Morrissey, H I. O'Hare, R B. Niven, G M. Pringle, N. O'Brien, J Orr, G E S Robinson, D G. G. Jones, T. Lyle, J. E Moffett, H. R Newman, J D. M. Kieran, L. J Grant, S Ormerod, and J Cramond to be War Subs Fl. Lieuts.

To be Flying Officers (Emergency): M. S Fraser, W. A. Kennedy, J D. Everall, L A Rook.

COLONIAL MEDICAL SERVICE

The following appointments are announced: B. O Pepper, M R.C S, L R C.P, Medical Officer, Gold Coast; V. F Anderson, M.B., B S., Senior Medical Officer, British Honduras; J. A Gillett, M B, B S, Medical Officer, British Honduras; B J Green, M.B, Ch B., Medical Officer, Nigeria; G. S. Park Noble, M.B., Ch.B, Ophthalmic Specialist, Tanganyika Territory; J W. Pickles, M.B, Ch B, Medical Officer, Swaziland.

WEEKLY POSTGRADUATE DIARY

BRITISH POSTGRADUATE MEDICAL SCHOOL, Ducane Road, W—*Daily*, 10 a m. to 4 p m., Medical Clinics, Surgical Clinics and Operations, Obstetric and Gynaecological Clinics and Operations. *Daily*, 1.30 p m., Post-mortems. *Tues.*, 10 a m., Paediatric Clinic, 11 a.m, Gynaecological Clinic *Wed.;* 11 30 a m, Medical Conference; 2 15 p.m., *X*-ray Demonstration, Dr. E. J. E. Topham. *Thurs.*, 3 p.m, Dermatological Clinic *Fri.*, 12 15 p m., Surgical Conference; 2 p m., Gynaecological Conference; 2 p m, Neurological Ward Clinic; 2 p m Sterility Clinic.

DIARY OF SOCIETIES AND LECTURES

ROYAL COLLEGE OF PHYSICIANS OF EDINBURGH, 9, Queen Street, Edinburgh—*Fri.*, 5 p m. Frederick Price Lecture by Sir Henry Dale: A Prospect in Therapeutics

ROYAL SOCIETY OF TROPICAL MEDICINE AND HYGIENE, 26, Portland Place, W—*Thurs.*, 4 p m., Annual general meeting.

MEDICAL SOCIETY OF LONDON.—St. Mary's Hospital, Paddington, W, *Mon*, 4 30 p m., Clinical meeting; 5.30 p m., Discussion.

PADDINGTON MEDICAL SOCIETY—At St. Mary's Hospital, W, *Tues*, 9 p.m Annual general meeting. Presidential address by Dr. Z. Green: Some Tragedies and Comedies in 20 Years' General Practice.

APPOINTMENTS

GLASS, MARGARET A, M B., Ch B, D P.H, Temporary M.O H, Borough of Southall.

BIRTHS, MARRIAGES, & DEATHS

The charge for inserting announcements under this head is 10s. 6d. This amount should be forwarded with the notice, authenticated with the name and address of the sender, and should reach the Advertisement Manager not later than first post Monday morning to ensure insertion in the current issue.

BIRTHS

GELL.—On June 10, 1943, to Albinia Susan, wife of Dr P. G H Gell of 16, Rosslyn Hill, London, N.W.3, a daughter (Teresa Elizabeth).

JONES.—At Okehampton, Devon, to Marjorie (*née* Dobson), wife of Dr. C G. Jones, a sister for Mary, Brenda, and David.

SMITH—On June 12, to Jane, wife of J. A. Smith, M R.C.S, Barnsley Hall, Bromsgrove, a son

WILLIAMS—On June 13, 1943, at St. Joseph's Nursing Home, Beaconsfield, to Nansi, wife of Surgeon Lieut-Cmdr. W. David Williams, R N V.R, Windsor, a daughter (Yvonne).

BRITISH MEDICAL JOURNAL

THE JOURNAL OF THE BRITISH MEDICAL ASSOCIATION

SUPPLEMENT

containing

War Notices

Notes on the Work of the Association

National Health Insurance Proceedings

General Medical Council

Postgraduate News

Meetings of Branches and Divisions

Service Appointments

Correspondence, etc.

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INDEX TO SUPPLEMENT FOR VOLUME I, 1943

A

Aberdeen Branch · City of Aberdeen Division, meeting, 16
Absenteeism and certification, 30
Adrenaline: Hypodermic needles and syringes for self-administration, 58
Appointments, 28, 52, 72, 74, 76

ASSOCIATION, BRITISH MEDICAL:
  Beveridge Report, 53
  Branch and Division Meetings, 16, 22, 28
  Consultants and Specialists Group: Regional meetings, 58, 60, 66—Entry to, 64—Metropolitan Region meeting, 67—Membership of, 71
  Council, election of, 52, 74
  —— Proceedings of, 23; Boyd Bequest, 23; Mr. Bishop Harman, 23; Beveridge Report, 23; Parliament and Publicity, 25; Insurance capitation fee 25; Swansea Hospital dispute, 25
  Government and profession: Joint Meeting of Representative Body and Panel Conference, 43
  Government's proposals Mass meeting of Metropolitan Counties Branch, 61
  Hospital policy, 6
  Insurance Acts Committee: A "Beveridge" Special Conference?, 21, 35—Capitation fee, 21, 35, 75—Publicity, 21—Comprehensive medical service, 63
  Library, 16
  Minutes of A.R.M., correction, 4
  Ophthalmic Group Committee, meeting, 72
  Psychological Medicine Group Committee elected, 38
  Public Health Committee, 26
  Special Representative Meeting, 49

Association, British Medical Students': Congress, December, 1942, 5
ATKINSON, E. C. A scheme for diagnostic and key hospitals, 2—B.M.A. and Beveridge Report, 53
AVERY, Harris: Certificates and compulsory national service, 76

B

BADENOCH, A. Guthrie: Medical planning and the elderly patient, 53
BEAUCHAMP, Arthur: Health centres, 47
—— P. M.: Planning by the doctor's wife, 37
Belfast Division: Meeting, 54
Beveridge Report, 15, 17, 27—And medical planning, 27
BIRRELL, J. A.: The Panel Conference, 29
BLADON, D. Murray: Reinstatement in N.H.I. of Service personnel, 7
Bowie, E O., application for dismissal of refused, 27
BROWN, J A. Free choice of doctor and certification, 7
—— James Jackson, disciplinary case of, 33

C

Campbell, Walter, disciplinary case of, 34
Capitation fee, 75
Carr, Arthur, disciplinary case of: leave to serve notice of motion to quash order granted, 38
Cars, insurance of, under Business Scheme of War Damage Act, 21
—— and tyres, requisitioning of, 4
Certificates and compulsory national service, 76
—— for pre-natal allowances, 34
Certification, free choice of doctor and, 4, 7, 11
Child welfare in the United States, 56
Commission, Medical Planning, Interim Report of: Views of constituent bodies on, 1—Corrigendum, 12
Committee, Scottish Medical Advisory: First meeting of, 42
Communist Party: Health services, proposals for, 7

Correspondence:
  Association, British Medical, and Beveridge Report, 53—Consultants and Specialists Group, entry to, 64
  Basic principles, 58
  Beveridge Report, 15, 27—And medical planning, 27—General public and, 40—Informing the public, 63
  Certificates and compulsory national service, 76
  Defeatist attitude, 64
  Disclaimer, 58
  Doctor, free choice of, and certification, 4, 7, 11
  —— freedom from want for, 29
  Doctors, absent, 65
  —— as civil servants, 58
  —— civilian, compensation for, 22
  —— G.P.'s part in planning, 48—G.P.'s wife, 65
  —— rural, 59
  —— serving: And medical reorganization, 39—Practices of, 69—Views on salaried service, 72
  First things first, 42

Correspondence (*continued*):
  Guildford Division meeting, 39
  —— Practitioners' Group, 75
  Health centres, 47
  Hospitals, new provident scheme for Londoners, 37
  Industrial medical attendance, 7, 22, 29
  Insurance, National Health: Reinstatement of Service personnel, 7—Disciplinary machinery, 15, 29—Capitation fee, 29
  Leadership, a call for, 59—This leadership business, 74
  Materialism in planning, 55
  Medical planning and the elderly patient, 53
  —— practices, monetary value of, 37
  —— profession: Representation of, 40—And the politicians, 53—Preserving our freedom, 53—A vote of the, 72
  —— resettlement, 76
  —— Service, Highlands and Islands, 48
  —— —— national, 47
  —— —— State, 41, 55—And private practice, 37
  —— services and public health, 65
  —— —— national ophthalmic, 15
  —— and sickness benefit: an invidious distinction, 65
  Medicine, a fair deal for, 47
  Naval medical officers' pay, 29
  Panel Conference, views on, 22, 29
  Planning by the doctor's wife, 37
  Policy, general and medical, 55
  Politician, trust the?, 70
  Questionary, a, 69
  Sheffield Practitioners' Group, 75
  Study groups, 41
  Treatment *en masse*, 41
  Unbacked negotiations, 37
  United action: a suggestion, 64
  Vaccination, 38—An experience, 27
  Why reorganize?, 41, 59

Corrigenda, 12, 42, 54

COUNCIL, GENERAL MEDICAL:
  Disciplinary inquiries, 33, 69, 71, 73
  Summer Session, 68, 71

COX, Alfred: New hospital provident scheme for Londoners, 37
CRAN, H. R.: Medical and sickness benefit: an invidious distinction, 65

D

DAIN, H. Guy: Free choice of doctor and certification, 4
Davidson, James: Authority to possess dangerous drugs withdrawn, 69
Davies, A. G., failure of to comply with direction of N.S.O under Defence (General) Regulations, 72
de Caux, Francis Percival, disciplinary case of, 34
Defeatist attitude, 64
Disclaimer, 58
Doctor, free choice of, and certification, 4, 7, 11
Doctors, absent, 65
—— as civil servants, 58
—— civilian, compensation for, 22
—— consultant services available to G.P.s, 70
—— freedom from want for, 29
—— G.P.'s part in planning, 48—G.P.'s wife, 65—Overworked G.P.s and medical officers of local authorities, 60
—— medical examination of, for military service, 25
—— petrol allowances, 11
—— rural, 59
—— serving: And medical reorganization, 39—Practices of, 69—Views on salaried service, 72
—— towels for, 32
DRIVER, A H: Industrial medical attendance, 22

E

Edmunds, Ivor Llewellyn, disciplinary case of, 71
EDWARDS, F E: The profession and the politicians, 53
—— L C J. Monetary value of medical practices, 37
Eighty fateful days, 65
ELKIN, A. C.: Freedom from want for doctors, 29
ELLIS, David: Medical resettlement, 76
E.M.S.: Pathologists' fees, 10, 34
EUNSON, L H: Industrial medical attendance, 7, 29
Evans, David Washington, disciplinary case of, 73
Exercises, postural and remedial, 46
Eye Service, National, 28—Post-war, 72

F

Fees: Increase in, 21—For medical examination of N.F.S. personnel, 65—National Deposit Friendly Society members, 21
FFOLLIOTT, Arthur G. C.: Informing the public, 63
First things first, 42
FOX, William W.: Insurance capitation fee, 29
Freedom, preserving our, 53
FRENCH, Alistair: Serving doctors and medical reorganization, 39
Fund, Medical War Relief, 12, 13, 26, 36, 54, 60, 74

G

Gavin, Alec Gordon Douglas, authority to possess dangerous drugs withdrawn, 48
Glasgow Division, meeting, 66
GOLDING, H M Beveridge Report and medical planning, 27
Government and medical profession: Joint meeting of Representative Body and Panel Conference, 43
GRANT, James: Compensation for civilian doctors, 22
Gray, Alan, disciplinary case of, 34
GRINLING, Philip N.: Sheffield Practitioners' Group, 75
Group XI: Election, 42
Guildford Division meeting, 39
—— Practitioners' Group, 75

H

HARBOUR, A.: N.H.I. disciplinary machinery, 15
Harper, Andrew Dorset, disciplinary case of, 34
HARRIS, R. W.: The future of the country's medical services, 9—N.H.I. disciplinary machinery, 29
HARTLEY, L. B (and others): Guildford Practitioners' Group, 75
—— Leslie. At a Division meeting, 40—First things first, 42—Materialism in planning, 56
Health centres, 47
—— public. Policy, 26—And school medical officers, 70
—— Services, Communist Party proposals, 7
HEANEY, E. E (and others): Guildford Practitioners' Group, 75
Hiley, R. Melville, presentation to, 57
Hill, Arthur Hilary Clifton, disciplinary case of, 33
Hines, Arthur, disciplinary case of, 74
HOLLIS, G. J (and others): Guildford Practitioners' Group, 75

HOSPITALS:
  Diagnostic and key, scheme for (E. C Atkinson), 2; correspondence, 12
  New provident scheme for Londoners, 27; correspondence, 37
  Policy of B.M.A., 6
  Regionalization in Scotland, 6

HOUSDEN, Geoffrey M.: Representation of the profession, 40
Hyde Division, meeting, 66

I

Insurance Committees and national medical service, 62

INSURANCE, NATIONAL HEALTH:
  Capitation fee, 29
  Disciplinary machinery, 15, 29
  Hypodermic needles and syringes for self-administration of adrenaline, 58
  Service personnel, reinstatement of, 7

K

Kennedy, Patrick, disciplinary case of, 71
Kent and Sussex Branches, election, 42
KILLICK, C F R.: Views on the Panel Conference, 22

L

LEACH, James: Why reorganize?, 41
Leadership, a call for, 59—This leadership business, 74
Lethane oil, to be prescribed as part of medical benefit, 60
LEWIN, J: Basic principles, 58
LIPETZ, S: Medical services and public health, 65
London, night medical service for, 8

M

McCRACKEN, Ian E.: Eighty fateful days, 65
McCURRICH, H. J.: Unbacked negotiations, 37; correction, 42
MACDONALD, Duncan: State Medical Service, 55
Macdonald, James Stewart, disciplinary case of, 34
McHarg, Charles Liddell, disciplinary case of, 69
MACKAY, G. W. M.: A fair deal for medicine, 47—Absent doctors, 65
MACKENZIE, M St. Clair: The G.P.'s part in planning, 48

McLeod, Ian Fleming: Authority to possess dangerous drugs withdrawn, 48
MacWilliam, E U.: Policy, general and medical, 55—This leadership business, 74
Maples, E. E: State Medical Service, 41
Medical attendance, industrial, 7, 22, 29
—— charity, bequests, 21
—— officers, public health, recruitment of, 40
—— planning, and elderly patient, 53
—— —— Research, 31
—— practices, value of, 37
—— Practitioners (Fees) Regulations, 1940, 26
—— profession, representation of, 40—And the politicians, 53—Vote of the, 72
—— resettlement, 76
—— Service, Highlands and Islands, 48
—— —— national, 47
—— —— —— ophthalmic, 15
—— —— night, for London, 8
—— —— State, 41, 55—And private practice, 37
—— services, future of (R. W. Harris), 9—And public health, 65—And sickness benefit: an invidious distinction, 65
Medicine: Future of, in Great Britain: proposals of "Medical Planning Research," 31—A fair deal for, 47
Mercer, W (and others). Guildford Practitioners' Group, 75
Metropolitan Counties Branch, mass meeting: the Government's proposals, 61
Milk, condensed, for infants, 15
Milligan, E H M: State Service and private practice, 37
Millington, E · Informing the public, 64
Molloy, Patrick Joseph, disciplinary case of, 71
Moore, A. E. The Beveridge Report, 27
—— L H. G Serving officer's views on salaried service, 72
—— Richard H Trust the politician?, 70
Mottershead, William: Why reorganize?, 59

N

Naval medical officers' pay, 29
North Glamorgan and Brecknock Division: Presentation to Dr. R. Melville Hiley, 57
Nottingham Branch: Absenteeism and certification, 30

O

O'Connor, Donald M.: Free choice of doctor and certification, 12—Vaccination, 38
O'Sullivan, E. J: A vote of the profession, 72

P

Palmer, W. H: Scheme for diagnostic and key hospitals, 12
Panel Committee, Glasgow: Resolution on medical service and local authorities, 58
—— Conference, 29—Views on, 22
—— —— Special, 50; correction, 54
Park, Harold: Entry to Consultants and Specialists Group, 64
Paterson, J. A. (and others): Guildford Practitioners' Group, 75
Perry, Walter L. N. A defeatist attitude, 64
Petrol for meetings, 52
—— coupons, unused, 38
Planning: By the doctor's wife, 37—Materialism in, 55
Policy, general and medical, 55
Porteous, L. Duncan. A call for leadership, 59
Pridham, J. A: The rural doctor, 59
Prisoners of war, books for, 36
Public, informing the, 63

Q

Questionary, a, 69

R

Radiology, planning for, 36
Rees, J. O M (and others): Guildford Practitioners' Group, 75
Ross, Alex M: Preserving our freedom, 54
Rubber gloves, 14
Russell, Victor: A questionary, 69

S

Sawmy, Paravasthu Gopaula, disciplinary case of, 73
Schofield, A. T.: Serving doctors and medical reorganization, 39
Scotland:
  Glasgow Panel Committee, resolution, 58
  Hospital regionalization, 6
  Scottish Medical Advisory Committee, first meeting, 42
Sequeira, J. H: Return from Kenya, 10
Services, Maternity and Child Welfare, future of, 46
Sharp, B. Buckley: Free choice of doctor and certification, 12
Shaw, B H · Doctors as civil servants, 58
Sheffield Hospitals Assistants and Residents Medical Planning Discussion Group, meeting, 57
—— Practitioners' Group, 75
Smith, W L Winslow (and others): Guildford Practitioners' Group, 75
Soap preparations, unrationed, 15
South Middlesex Division, meeting, 66
Steele, G. H.: Study groups, 41
—— Russell: The Beveridge Report, 27
Stewart, Donald McGregor, disciplinary case of, 34
Study groups, 41
Sutton, William Vincent Saint John, disciplinary case of, 71

T

Tarapore, Dinshaw Framroze: Inquiry by Minister of Health, 36
Thakore, M D · National Ophthalmic Medical Service, 15
Thomas, A K. · Vaccination—an experience, 27
Thompson, Kathleen: The G P.'s wife, 65
—— Thomas Rolland Stuart, disciplinary case of, 74
Thornley, R. L., retirement of, 74
Thornton, Andrew: Authority under Dangerous Drugs Acts restored, 52
Towels for doctors, 32
Trust the politician?, 70
Tuberculosis, information required by Ministry of Health, 29
Turner, Terence: G P.'s part in planning, 48
Tyres: Getting best out of, 8—For doctors' cars, 76

U

ud Din, Miraj: Authority under Dangerous Drugs Regulations withdrawn, 34
Unbacked negotiations, 37
United action: a suggestion, 64
United States, child welfare in, 56
Unsworth, L. F.: Insurance capitation fee, 29

V

Vaccination, 38—An experience, 27
Victorian Branch, report of, 22

W

Walters, G A. Bagot: A national medical service, 47
Ward, Ernest, presentation to, 42
—— G. Humphrey (and others): Guildford Practitioners' Group, 75
—— Gordon · a disclaimer, 58
Watson, Kenneth: Serving doctors' practices, 69
Welsh, William Alexander Stevenson, disciplinary case of, 71
West, J. Frankland: Does the public know?, 40
West Norfolk Division: basic principles, 58
White, Oswald: Authority to possess dangerous drugs withdrawn, 48
Whitehead, Christopher, disciplinary case of, 71
Why reorganize?, 41, 59
Williams, Eric Llewelyn, disciplinary case of, 71
Wiseman, A: The Beveridge Report, 15

Y

Young, A Kenneth: United action: a suggestion, 64

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